City of Boardman

TRANSPORTATION SYSTEM PLAN

Boardman STRATEGIC PLAN
CONNECTING COMMUNITIES
Making big dreams a reality.

Volume II – Technical Appendices



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City of Boardman

TRANSPORTATION SYSTEM PLAN

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City of Boardman

TRANSPORTATION SYSTEM PLAN

Contents

The Boardman Transportation System Plan (TSP) is presented in two volumes. Volume I constitutes the main TSP document and contains information that is likely to be of interest to the broadest audience. Volume II contains the technical analysis and all other supporting documents that were generated throughout the planning process.

Volume II includes the following technical appendices:

- Appendix A: Community Profile and Trends
- Appendix B: Plans and Policy Review
- Appendix C: Goals, Objectives, and Evaluation Criteria
- Appendix D: Code Assessment Memorandum
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City of Boardman

TRANSPORTATION SYSTEM PLAN

Appendix A: Community Profile and Trends

Technical Memorandum #1

Date:	January 24, 2025	Kittelson Project No: 30287
To:	Project Management Team (PMT)	
From:	Matt Hughart, AICP – Kittelson & Associates Eza Gaigalas – Kittelson & Associates Shayna Rehberg, AICP – MIG Meg Grzybowski - MIG	
Subject:	Boardman Community Profile and Trends	

Introduction

The Community Profile and Trends memorandum is a high-level summary of the City of Boardman's demographic, workforce/jobs, and travel/commuting profile. The profile and trends will help inform and update the goals and objectives for the development of a new Transportation System Plan (TSP), achieve statewide goals toward reducing transportation-related climate pollution, and incorporating a broader range of constituents in the overall planning process.

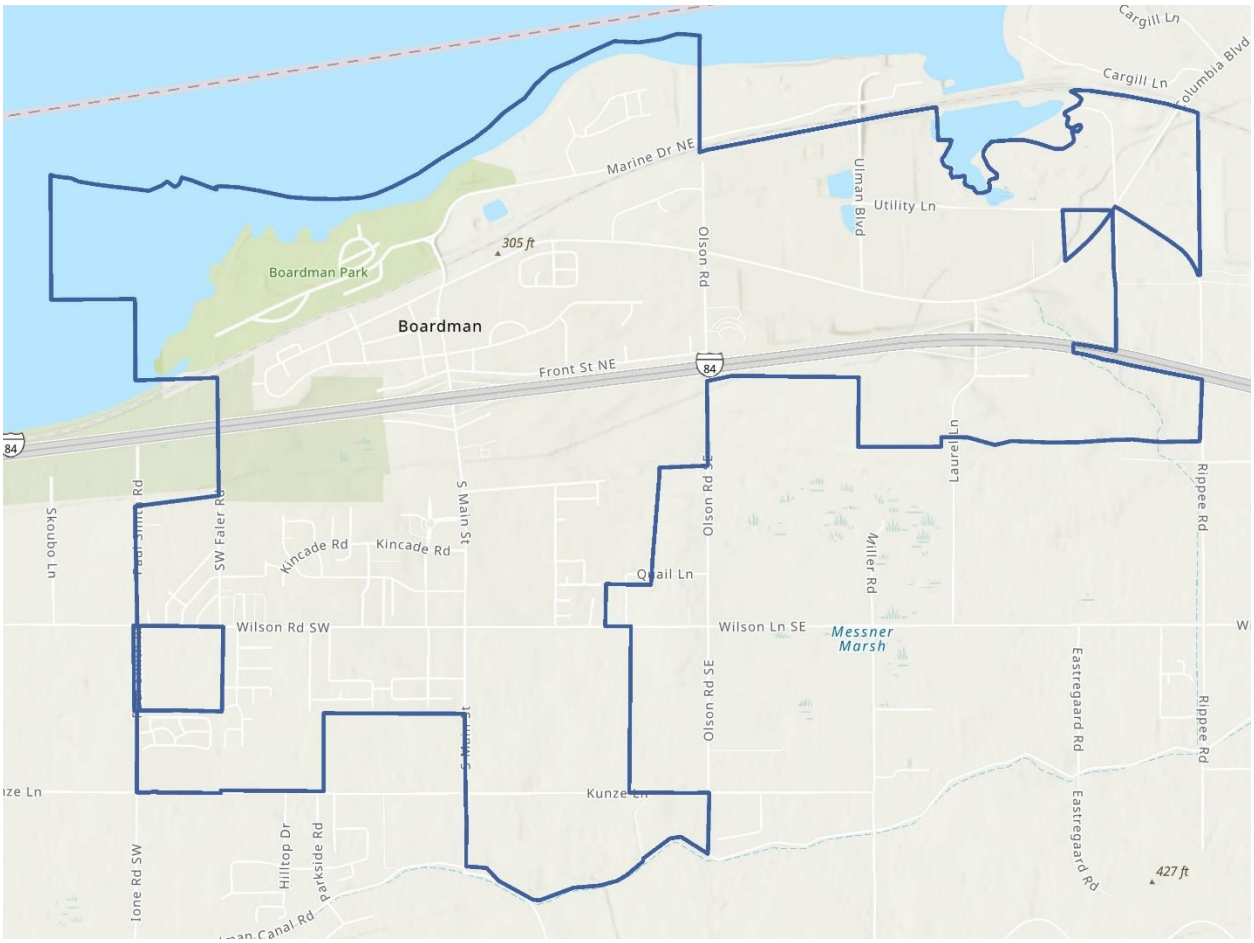
The community profile is divided into four sections:

1. Study Area
2. Residential Demographic Profile
3. Workforce/Jobs Profile
4. Travel/Commuting Profile

Study Area

The City of Boardman is located in Morrow County, Oregon. For the purposes of this assessment, the study area incorporates the City of Boardman city limits and Urban Growth Boundary (UGB) shown in **Figure 1**.

Figure 1. Project Study Area



Blue = Site project area and City of Boardman

Demographic Profile

Title VI and Underserved Communities

Title VI of the Civil Rights Act of 1964 (Section 601) prevents any person from discrimination on the bases of race, color, or national origin.[1] As it relates to Title VI and Environmental Justice, all programs and activities conducted or completed with the assistance of federal funding must ensure that they are not preventing participation of affected communities or conducting efforts through discriminatory practices based on race, color, or national origin that may lead to

[1] *Civil Rights Act of 1964*, HR 7152, 88th Cong., Public Law 88-352 (July 2, 1964).

environmental and human health impacts.[2] As the TSP update is funded in part through federal funds administered by the Oregon Department of Transportation (ODOT), it is necessary to identify specific communities and affected populations within Boardman. This section includes data from the 2020 Decennial Census, 2022 American Community Survey (ACS) 5-Year Estimates, and 2024 Portland State University's Population Research Center Estimates to identify these populations.

Population Profile

According to American Community Survey (ACS) 5-year estimates (2022), the Boardman city limits is home to approximately 3,828 residents[3], with the UGB hosting slightly more residents, at 4,160. The Portland State University Population Research Center (PRC) anticipates that the population within the Boardman UGB will continue to grow steadily, increasing by more than 1,200 residents by the year 2045 as shown in **Table 1**.

Table 1. Population Growth Forecast

Historical Population			*Population Forecast*			
	2010	**2020**	***2030***	***2035***	***2040***	***2045***
Morrow County	**11,173**	**12,186**	***12,846***	***13,103***	***13,317***	***13,497***
Percent Change		8.9%	*5.4%*	*2.0%*	*1.6%*	*1.4%*
Boardman UGB	**3,546**	**4,160**	***4,828***	***5,046***	***5,246***	***5,429***
Percent Change		17.8%	*16.5%*	*4.5%*	*4.0%*	*3.5%*
City of Boardman	**3,149**	**3,529**	*N/A*	*N/A*	*N/A*	*N/A*
Percent Change		12.0%				

Source: PSU Population Research Center (PRC), 2024 for population forecast numbers; ACS 5-year estimates, 2010 and 2022 (Table DP05).

Age

Within its UGB, the City of Boardman has a younger population overall as compared to that of the broader Morrow County and the State of Oregon. The median age sits below 30 years, while the County and State are closer to 40 years as shown in **Table 2**. While the percentage of residents

[2] United States Environmental Protection Agency, *Title VI and Environmental Justice*, accessed September 25, 2024, https://www.epa.gov/environmentaljustice/title-vi-and-environmental-justice.

[3] Note that the Portland State University Population Research Center confirmed that there was an undercount in the 2020 Census and that the accurate City of Boardman population as of April 2020 is 4,272. Verified as of December 30, 2024, this population figure indicates a greater historical growth rate than what is shown in Table 1 (42% between 2010 and 2020, as opposed to 12%). The analysis in this memorandum reflects figures that are consistent with data from 2022 ACS data and demographic break downs of the City's 3,828 population.

under the age of 18 years is relatively similar across all geographies, the representation of residents over 65 years is significantly smaller in Boardman which results in its comparatively lower median age of 27.6 years.

Table 2. Age Demographics

	Population	Median Age (years)	Youth (< 18 years)		Seniors (> 65 years)	
			Total	Percent	Total	Percent
State of Oregon	4,237,256	39.9	867,076	20.8%	734,932	17.6%
Morrow County	12,186	36.9	3,159	27.6%	1,715	15.0%
Boardman UGB*	4,160	29.5	1,355	32.6%	347	8.4%
City of Boardman	3,828	27.6	1,189	33.7%	169	4.8%

Source: PSU Population Research Center (PRC) (2024)
**Source for City UGB is the US Census Decennial 2020*

Racial and Ethnic Minority Groups

Census data was used to collect information on race and ethnicity. The US Census utilizes the 1997 Office of Management and Budget (OMB) definitions, referencing "White," "Black or African American," "American Indian or Alaska Native," "Asian," or Native Hawaiʻian or Other Pacific Islander" though participants can self-report as more than one race or a race/ethnicity outside of these identifiers.[4] The race and ethnicity groups represented in **Table 3** are as follows:

- Not Hispanic or Latino: American Indian or Alaska Native alone
- Not Hispanic or Latino: Asian alone
- Not Hispanic or Latino: Black or African American alone
- Hispanic or Latino (of any race)
- Not Hispanic or Latino: Native Hawaiʻian or Other Pacific Islander
- Not Hispanic or Latino: Some Other Race
- Not Hispanic or Latino: Two or More Races
- Not Hispanic or Latino: White alone

[4] U.S. Census Bureau, *About the Topic of Race,* accessed September 19, 2024, http://doi.org/10.3886/ICPSR07552.v1.https://www.census.gov/topics/population/race/about.html.

Table 3. Race and Ethnicity

	Diversity Index	American Indian or Alaska Native	Asian	Black	Hispanic/ Latino	Native Hawaiian or Other Pacific Islander	Some Other Race	Two or More	White
State of Oregon	56.1	42,042 (1.0%)	191,797 (4.5%)	78,658 (1.9%)	588,757 (13.9%)	18,197 (0.4%)	22,962 (0.5%)	258,685 (6.1%)	3,036,158 (71.7%)
Morrow County	76.9	82 (0.7%)	29 (0.2%)	37 (0.3%)	4,988 (40.9%)	5 (0.0%)	44 (0.4%)	401 (3.3%)	6,600 (54.2%)
Boardman UGB	80.6	20 (0.5%)	4 (0.0%)	17 (0.4%)	2,802 (67.4%)	1 (0.0%)	18 (0.4%)	89 (2.1%)	1,211 (29.1%)
City of Boardman	79.1	17 (0.4%)	4 (0.0%)	15 (0.4%)	2,813 (73.5%)	0 (0.0%)	17 (0.4%)	58 (1.5%)	904 (23.6%)

Source: US Census Decennial Census estimates (2020), Table P2
**Source for City UGB is the US Census Decennial 2020*

Table 3 includes a Diversity Index, defined as the likelihood that when two persons are chosen at random from the same area they will belong to different race or ethnic groups. The number represents the percentage of possibility, with an index of 0 indicating no diversity and 100 indicating complete diversity.[5] Compared to the State of Oregon and Morrow County, Boardman has a higher diversity index overall. Boardman also has a larger representation of people that identify as Hispanic or Latino. Though the larger Boardman UGB has a slightly higher diversity index compared to the city boundary, the city has a higher percentage of households in non-white racial groups compared to the UGB as well as the highest representation of Hispanic or Latino communities.

Limited English Proficiency (LEP)

When looking at the prominent language spoken within the household (for people 5 years and older), two-thirds of the population within Boardman spoke Spanish as the predominant language within the home, while only one-third spoke English as the primary language (**Table 4**).

[5] ArcGIS Community Analyst, *Essential* Vocabulary, accessed September 19, 2024, https://doc.arcgis.com/en/community-analyst/help/essential-vocabulary.htm.

Table 4. Language Spoken at Home

	Population 5 Years and Over	English Only	Language Other than English	
			Spanish	Other Language
Morrow County	10,589	**67%**	32%	1%
City of Boardman	3,120	35%	**63%**	1%

Source: ACS 5-year estimates (2016-2020), Table S1601

Low Income and Poverty Levels

In 2022, the federally set poverty threshold for an individual was determined as annual earnings of $13,590, with $27,750 being the threshold for a four-person household.[6] The U.S. Census Bureau translates this measure of need into a ratio, calculated by the dividing the family's income by their poverty threshold number. A ratio of 1.00 would imply that the family income matches the measure of need that the family has.[7] Any number below 1.00 qualifies for varying levels of federal assistance programs.

The City of Boardman has a higher proportion of the population that falls below the 1.00 ratio of income to poverty, at approximately 21% (versus 17% and 12% in Morrow County and the State of Oregon respectively) (**Table 5**). While the unemployment rate in the City of Boardman is similar to that of the county (around 1%) and lower than the state (around 3%), residents are either not earning enough income to meet their means, or expenses are higher than they can meet.

[6] Office of the Assistant Secretary for Planning and Evaluation (ASPE), *Prior HHS Poverty Guidelines and Federal Register References*, accessed September 19, 2024, https://aspe.hhs.gov/topics/poverty-economic-mobility/poverty-guidelines/prior-hhs-poverty-guidelines-federal-register-references.

[7] U.S. Census Bureau, *How the Census Bureau Measures Poverty*, June 15, 2023, https://www.census.gov/topics/income-poverty/poverty/guidance/poverty-measures.html.

Table 5. Ratio of Income to Poverty

	State of Oregon		Morrow County		City of Boardman	
	Total	Percent	Total	Percent	Total	Percent
Population	4,149,034	-	12,095	-	3,829	-
Under 0.50	230,483	5.6%	586	4.8%	180	4.7%
0.50 – 0.99	263,675	6.3%	1,434	11.8%	619	16.1%
1.00 – 1.24	159,051	3.8%	953	7.9%	594	15.5%
1.25 – 1.49	171,293	4.1%	725	6.0%	226	6.0%
1.50 – 1.84	236,823	5.7%	1,061	8.8%	312	8.1%
1.85 – 1.99	104,576	2.5%	433	3.6%	188	4.9%
2.00 and Over	2,983,133	71.9%	6,903	57.1%	1,710	44.7%

Source: ACS 5-year estimates (2018-2022), Table C17002

Another way to demonstrate disparities in income is to look at what percentage of the population is living below certain poverty thresholds. As shown in **Table 6,** the City of Boardman had more than half of its population living below 200% poverty, which was greater than both the state and the county. This number is also nearly 4% higher than it was in 2020.[8] Median household income in the City of Boardman is higher than that in the county but is less than in the state (**Table 7**).

Table 6. Population Below 200% Poverty Level

Poverty Level	State of Oregon		Morrow County		City of Boardman	
	Total	Percent	Total	Percent	Total	Percent
Populations	4,149,034	-	12,095	-	3,829	-
Below 200%	1,165,901	28.1%	5,192	42.9%	2,119	55.3%

Source: ACS 5-year estimates (2018-2022), Table S1701

[8] ACS 2016-2020 5-year estimates, Table S1701

Table 7. Median Household Income

	Median Household Income
State of Oregon	$65,667
Morrow County	$56,572
City of Boardman	$59,390

Source: ACS 5-year estimates (2016-2020), Table S1901

Households with Disabilities

Boardman has reportedly less households with one or more people with a disability compared to Morrow County (**Table 8**). Morrow County actually has the highest percentage at nearly 38%, compared to the State of Oregon, which is at 28%.

Table 8. Households with One or More People with a Disability

	Number of Households	With Disability	
		Total	Percent
Morrow County	4,201	1,581	37.6%
Boardman UGB	1,313	414	31.5%
City of Boardman	1,119	307	27.4%

Source: ACS 5-year estimates, 2018-2022
*** Source: US Census 2020*

Internet Access

The City of Boardman has nearly twice the percentage of households without internet access as the state of Oregon (**Table 9**). This has implications for accessing planning sessions and services and may mean that these communities will not have as many opportunities to participate in processes that shape the city.

Table 9. Households with Internet Subscription

	Number of Households	With Internet		Without Internet	
		Total	Percent	Total	Percent
State of Oregon	1,680,800	1,526,087	90.8%	154,713	9.2%
Morrow County	4,201	3,655	87.0%	546	13.0%
City of Boardman	1,119	920	82.2%	199	17.8%

Source: ACS 5-year estimates (2018-2022), Table S2801

Key Findings

Analysis of the population demographics revealed key findings as they relate to Title VI and Environmental Justice. They are summarized in **Table 10.**

Table 10. Summary of Population Demographics

Underserved Population Type	City of Boardman	Boardman UGB	Morrow County
65 Years and Over	5%	8%	**15%**
Non-Majority White	**24%**	29%	54%
Limited English Proficiency (LEP) Households	**64%**	N/A	33%
Below 200% Poverty	**55%**	N/A	43%
Disability	27%	32%	**38%**
Internet Access	**18%**	N/A	13%

Boardman consists of communities that are considered "underserved populations," as defined by the Oregon Administrative Rule (OAR 660-012-0125). Notably for Boardman, the demographic populations that fall into this category pertain mainly to:

- Limited English Proficiency (LEP): Boardman has nearly double the county average for residents that speak a language other than English inside the household.
- Minoritized Majority Race: More than three-fourths of Boardman's population is of a minority race or ethnicity (which is 30% more than the county population).
- Income to Poverty Ratio: The City of Boardman has a higher percentage of people living below the 1.00 income to poverty ratio; at nearly ¼ of the population.
- Internet Access: Compared to the county, the City of Boardman has 6% more households without internet access (that's twice the percentage households in the state of Oregon).

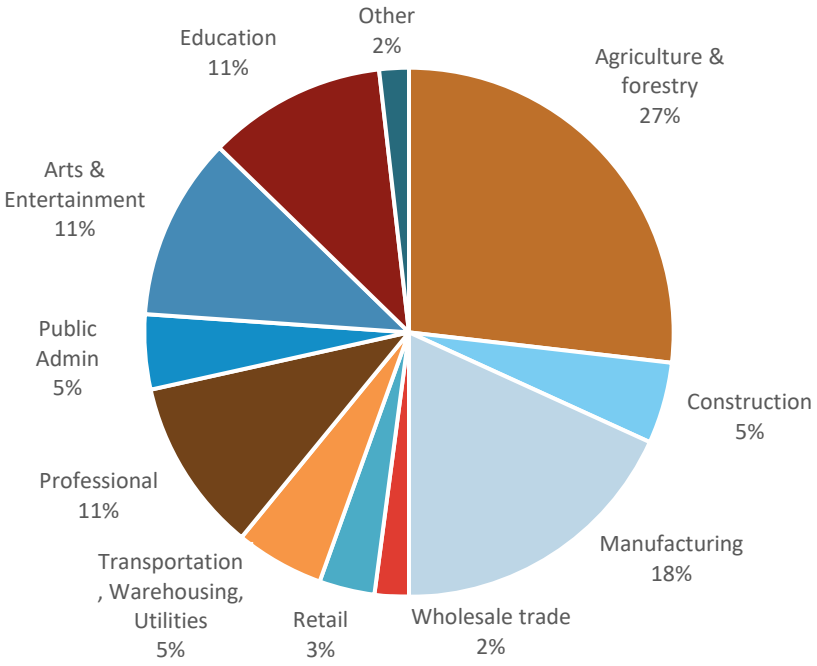
Workforce/Jobs Profile

Employment Industries of Boardman

There are 2,727 residents in Boardman who are 16 years and older and 1,803 of them are in the labor force (66%). The largest industry employers are in Agriculture, Forestry, Fishing, and Mining (27%), Manufacturing (18%), Education (11%), Arts & Entertainment (11%) and Professional Services (11%) (in Figure 2. Employment Industries in Boardman**Figure 2**). These five sectors alone account for 1,376 jobs (78%).[9]

The majority of workers are employed through private sector positions (86%), though some also work for the government (10%) or are self-employed (3%).

Figure 2. Employment Industries in Boardman



Employment Centers

In a 2021 regional travel assessment released by the Confederated Tribes of the Umatilla Indian Reservation's (CTUIR's) public transportation team, Morrow County, Umatilla County, and the Port of Morrow, major employment areas were analyzed to determine their importance to the area and employees' access to them through current infrastructure. There were many key employment centers identified as employment opportunities in Boardman that are made accessible by the Hermiston-Boardman Connector, in particular.[10] These key employment centers include:

- Lamb-Weston West
- Lamb-Weston East
- Oregon Potato Company

[9] ACS 5-year estimate, Table DP03, 2022

[10] Kittleson & Associates, Inc., Hermiston-Boardman Connector – Port of Morrow Circular, 2021, p. 15.

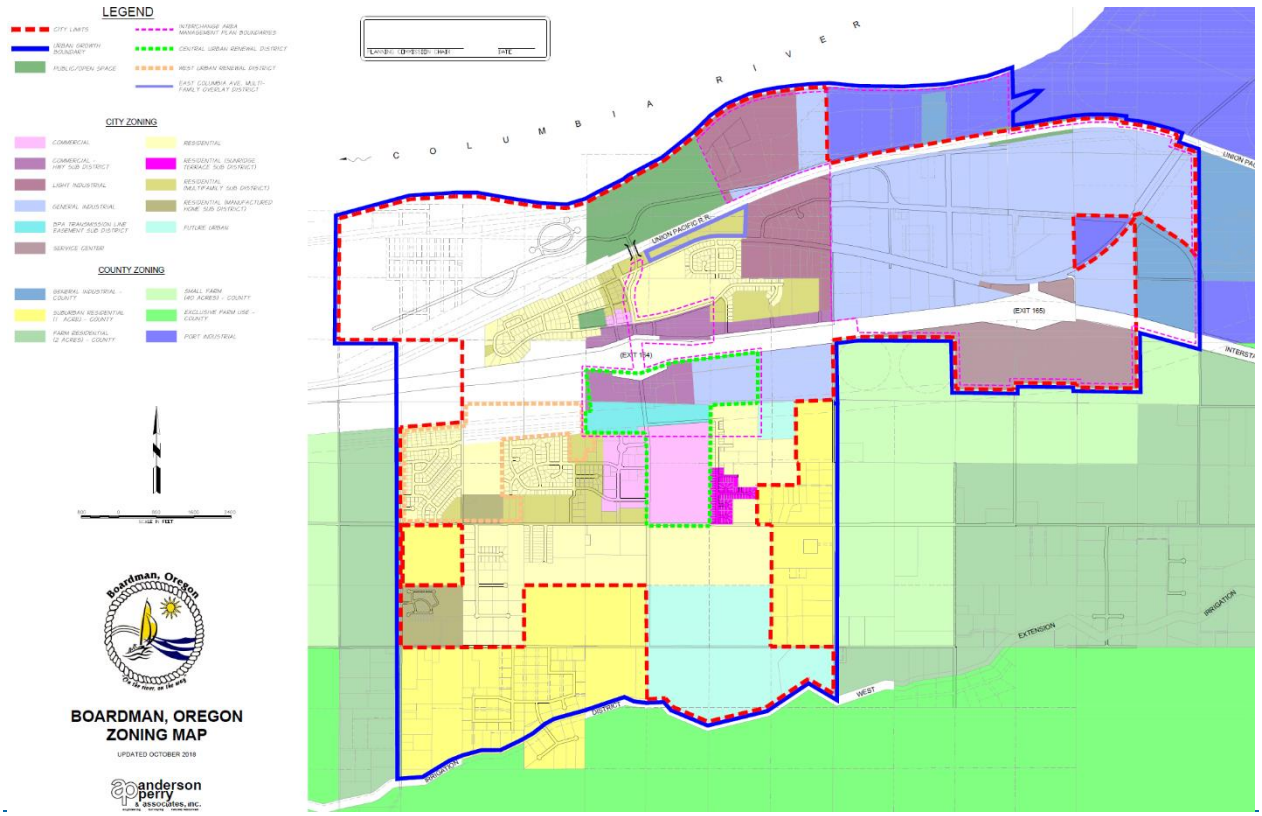
- Port of Morrow Warehouse Dry Storage
- Port of Morrow Warehousing
- Port of Morrow
- Boardman Foods
- Zeachem
- Pacific Ethanol Columbia, LLC
- Cascades Specialties Inc.
- Amazon
- Oregon Hay Company
- American Rock Company
- Cadman, Inc.
- Tillamook Cheese/Columbia River Processing
- Columbia River Health
- Central Business District
- Independent Transport, Inc.

Employment Land

Employment areas in Boardman are zoned as Commercial, Commercial Highway Sub-District, Commercial – Service Center, Light Industrial, General Industrial (City and County), and Port Industrial (County).

Commercially zoned areas, as well as some industrial land, are mainly located south of Interstate 84 and north of Wilson Ln SE. The majority of the industrial and port-specific zones abut the Columbia River and north of Highway 84 and are largely associated with the Port of Morrow.

Figure 3. City of Boardman Zoning Map



Travel/Commuting Profile

In addition to the demographic and employment profiles, it is also important to look at the travel characteristics within, to, and from Boardman. The identification of travel patterns can be useful in the development of new transportation-based goals/objectives and prioritizing local and regional infrastructure projects. Sources used in this section include:

- Historical traffic counts
- US Census Bureau's Longitudinal Employer-Household Dynamics (LEHD) program which provides job flow data that can be used to determine employment-based commuting profiles.
- Morrow County Coordinated Transportation Plan

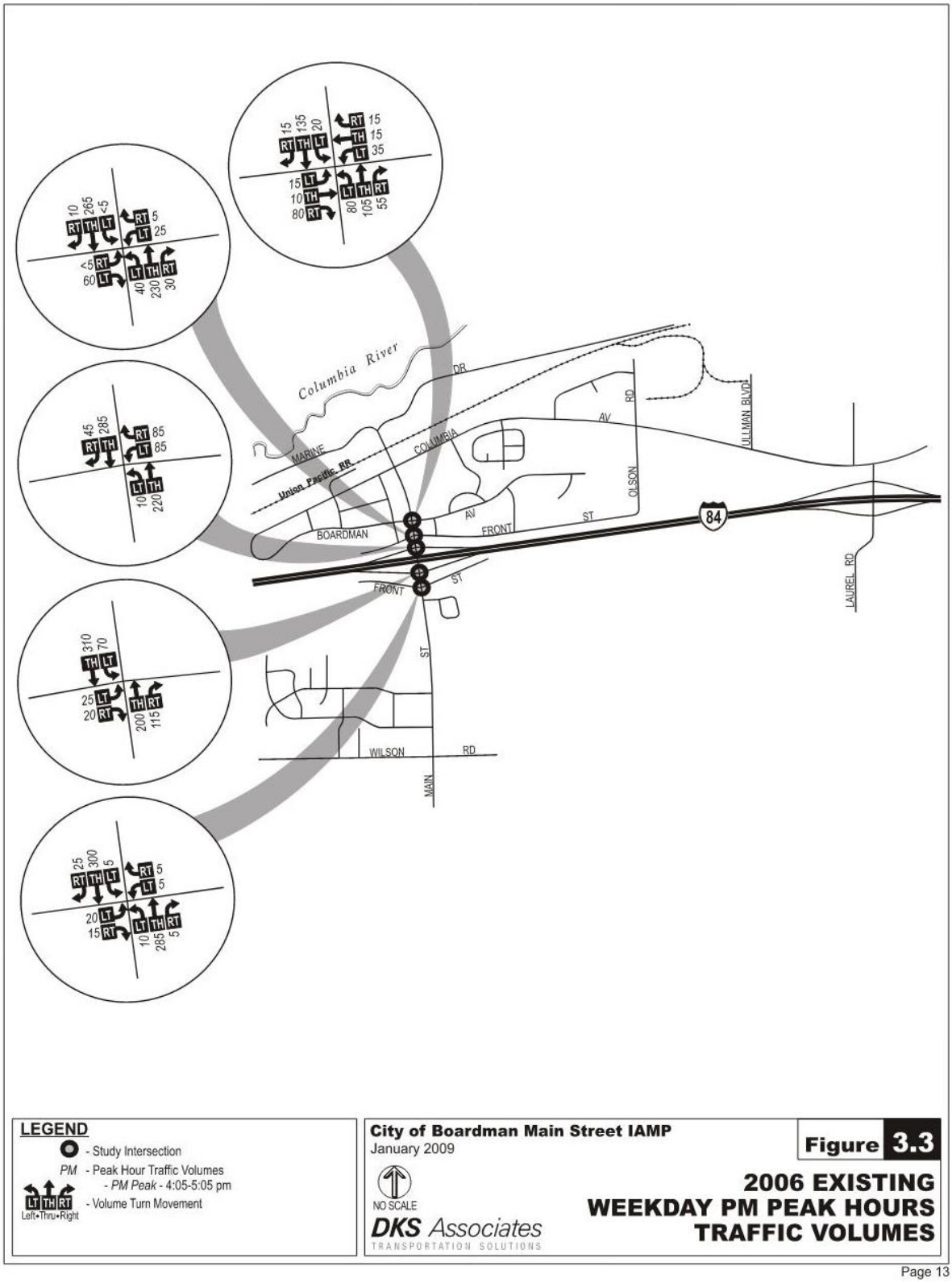
Historical Traffic Counts

Over the last 15 years, there have been several transportation planning assessments that have involved the collection of traffic counts along key intersections in Boardman. These include the 2009 Boardman Main Street Interchange Area Management Plan and the 2023 Main Street Circulation Assessment. While these two assessments had different study areas, there were multiple common intersections along the Main Street corridor including the two I-84 ramp terminals, Boardman Avenue, and Front Street (north and south). **Exhibit 1** and **Exhibit 2** show the respective weekday PM peak hour traffic volumes from these two studies and **Table 10** summarizes comparable corridor segments. As shown in the Table, volumes along Main Street have increased upwards of 24%.

Table 10 – Traffic Count Comparison

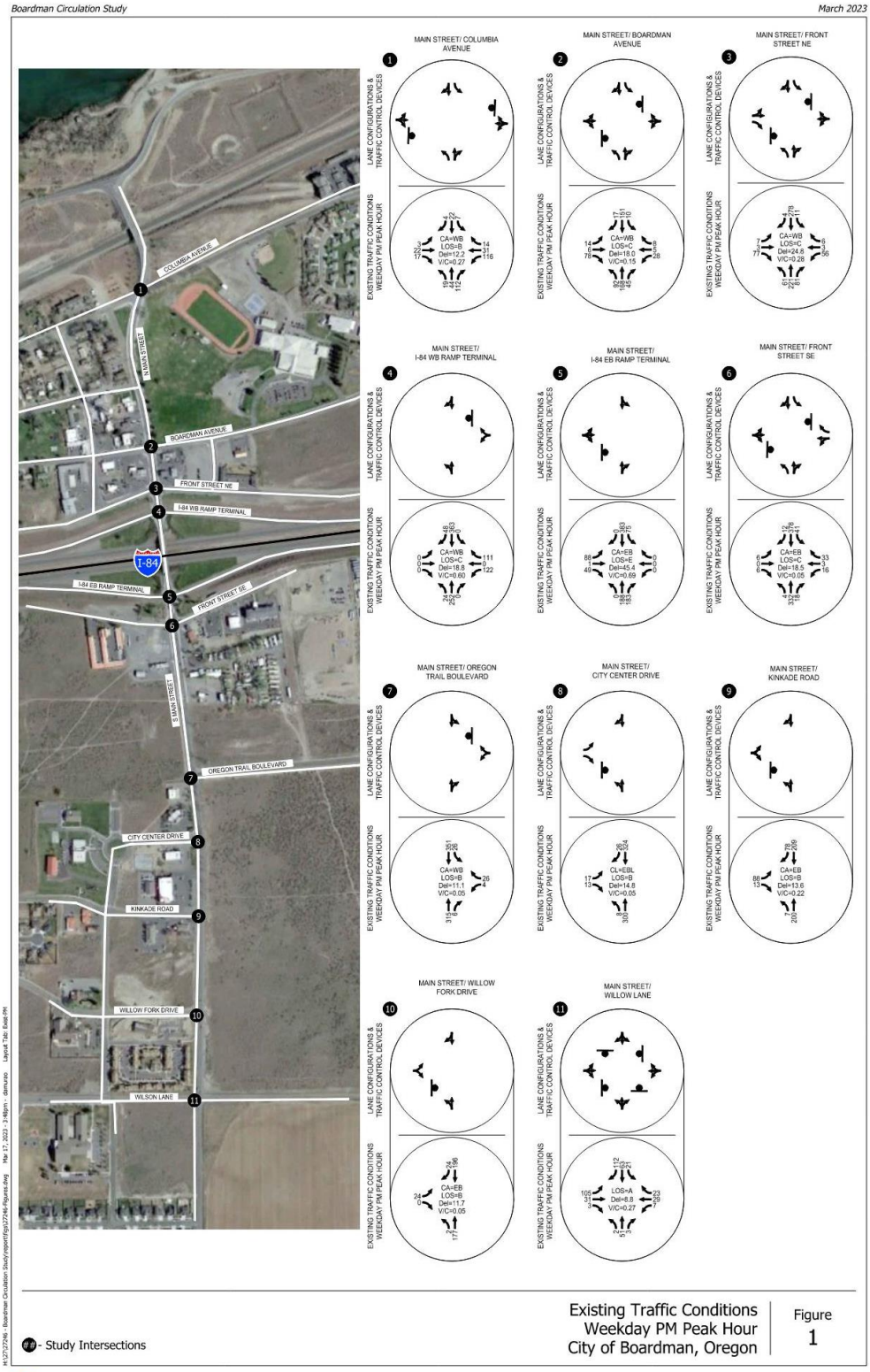
Corridor Segment	Weekday PM Peak Hour Volumes		
	Year 2006	Year 2022	% Increase
Main Street (north of Boardman Avenue)	305	368	21%
Main Street (I-84 WB Ramp Terminal to Boardman Avenue)	635	774	22%
Main Street (I-84 EB Ramp Terminal to S Front Street)	645	803	24%
Main Street (South of S Front Street)	620	754	22%

Exhibit 1 – 2006 Boardman Main Street Weekday PM Peak Hour Traffic Volumes (Source: 2009 *Boardman Main Street IAMP*, DKS Associates)



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Exhibit 2 – 2022 Main Street Traffic Counts, Weekday PM Peak Hour (Source: 2023 *Main Street Circulation Assessment*, Kittelson & Associates)



Employment-Based Commuting Profile

This section provides an overview of the employment-based commuting profiles to/from Boardman based on data from the US Census Bureau's Longitudinal Employer-Household Dynamics (LEHD) program.

Where Boardman Residents Are Employed

Table 11 summarizes the locations where residents of Boardman have been employed on a percentage basis over the most recent five years of available data. As shown, the LEHD data indicates a general upward trend in the percentage of Boardman residents who are working in the City. In 2021, this percentage was approximately 32.8%, up from 20.7% in 2017. While this increase is likely due to several factors (a five-year population increase of approximately 20%, additional local employment opportunities, and a greater variety of local jobs), it does indicate that fewer Boardman residents are having to regionally commute outside of the city to their places of employment. Despite this general upward trend, 67% of Boardman residents are still commuting to regional destinations such as Hermiston, Irrigon, and Umatilla. This is significant as it indicates a continued need for regional transportation infrastructure.

Table 11 – Where Boardman Residents Are Employed

City of Employment	Percentage of Boardman Residents Employed in the Selected City				
	Year 2017	Year 2018	Year 2019	Year 2020	Year 2021
Boardman	20.7%	23.5%	20.5%	29.0%	32.8%
Hermiston	9.3%	9.3%	9.2%	3.5%	5.1%
Portland	4.9%	4.7%	4.1%	4.9%	4.5%
Irrigon	3.7%	2.4%	2.2%	2.0%	1.9%
Umatilla	2.8%	3.5%	3.0%	2.7%	1.8%
Heppner	1.5%	2.0%	2.2%	1.5%	1.7%
Salem	1.0%	1.1%	1.8%	1.3%	1.6%
Pendleton	1.6%	1.2%	1.8%	2.0%	1.1%
Pasco/Richland	1.8%	2.3%	0.8%	0.8%	0.8%
All Other Locations	52.7%	50%	54.4%	52.3%	48.7%

Source: US Census Bureau. 2024. LEHD Origin-Destination Employment Statistics (2002-2021), Longitudinal Household Dynamics Program, accessed on 9/9/24 at https://onthemap.ces.census.gov.

Where Workers Live Who Are Employed in Boardman

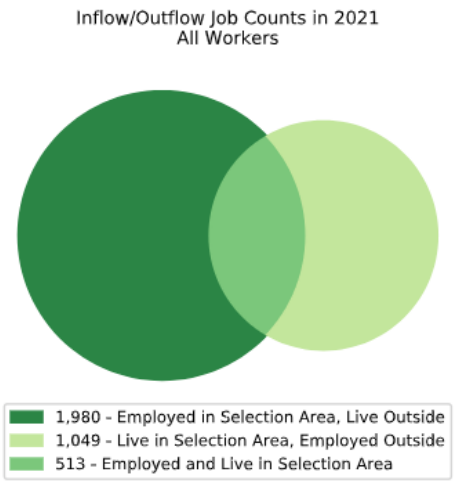
Table 12 summarizes the home city of the workers that are employed at a job located within Boardman on a percentage basis over the most recent five years of available data. As shown, the LEHD data indicates another general upward trend in the percentage of Boardman jobs that are occupied by Boardman residents. In 2021, this percentage was approximately 20%, up from15.7% in 2017. Despite this increasing trend, nearly 80% of the jobs located in Boardman are still held by non-Boardman residents indicating that there are more jobs available in the city than there are local workers. This can also be represented graphically in **Exhibit 3** which shows the Boardman Inflow/Outflow Job Counts in 2021.

Table 12 – Where Workers Live Who are Employed in Boardman (Year 2017 vs Year 2021)

City of Residence	Percentage of the Boardman Workforce Residing in the Selected City				
	Year 2017	Year 2018	Year 2019	Year 2020	Year 2021
Boardman	15.7%	16.2%	14.3%	20.1%	20.6%
Hermiston	17.7%	16.1%	16.7%	16.1%	15.2%
Kennewick/Pasco/Richland	4.5%	7.3%	8.9%	5.3%	8.1%
Umatilla	6.3%	6.9%	6.5%	8.9%	7.0%
Irrigon	7.4%	8.0%	8.2%	5.0%	3.7%
Pendleton	1.7%	2.0%	2.6%	2.2%	3.0%
Stanfield	1.1%	1.2%	1.1%	1.2%	0.9%
All Other Locations	45.6%	42.3%	41.7%	41.2%	41.5%

Source: US Census Bureau. 2024. LEHD Origin-Destination Employment Statistics (2002-2021), Longitudinal Household Dynamics Program, accessed on 9/9/24 at https://onthemap.ces.census.gov.

Exhibit 3 – Boardman Inflow/Outflow Job Counts (2021)



Inflow/Outflow Job Counts (All Jobs)

	2021 Count	2021 Share
Employed in the Selection Area	2,493	100.0%
Employed in the Selection Area but Living Outside	1,980	79.4%
Employed and Living in the Selection Area	513	20.6%
Living in the Selection Area	1,562	100.0%
Living in the Selection Area but Employed Outside	1,049	67.2%
Living and Employed in the Selection Area	513	32.8%

Transit Supportive Demographic Profile

This section provides an overview of the transit supportive demographic characteristics of Boardman. This data is useful to illustrate a geographic area's concentrations of population groups that face particular mobility challenges. **Table 13** provides a "snapshot" of these demographic characteristics.

Table 13 – Title IV and Underrepresented Populations

	Total Population (ACS)	Total Households (AS)	Below 100% Poverty	Below 200% Poverty	Households with Disability	Youth (Under 18)	Older Adults (65 and older)	Racial Ethnic Minority	Zero Vehicle Households	Low English Proficiency Households	Veterans
Boardman	3,828	1,119	20.8%	55.3%	27.4%	33.7%	4.8%	76.4%	2.5%	20.3%	4.2%

PSU Population Research Center (PRC), 2024 and ACS 5-year estimates, 2010 and 2022

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1. United States Environmental Protection Agency. Title VI and Environmental Justice, n.d.
2. Portland State University Population Research Center. Oregon Population Forecast Program, 2022-2025.
3. American Community Survey 5-Year Estimates, Table DP05, 2010.
4. American Community Survey 5-Year Estimates, Table S1601, 2020.
5. American Community Survey 5-Year Estimates, Table DP05, 2022.
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14. American Community Survey 5-Year Estimates, Table S2801, 2022
15. Kittleson & Associates, Inc. Hermiston – Boardman Connector / Boardman – Port of Morrow Circular, 2021.

Appendix B: Plans and Policy Review

Technical Memorandum #2

Date:	October 25, 2024	Kittelson Project No: 30287
To:	Project Advisory Committee (PAC)	
From:	Shayna Rehberg, AICP – MIG Meg Grzybowski – MIG	
Subject:	Plans and Policy Review	

Introduction

The City of Boardman adopted its Transportation System Plan (TSP) in 1999, and the document was last in 2001. This TSP Update will address transportation facility and service updates that align with planned land use and existing and future development. It will integrate regional and statewide network connections that impact local circulation and accommodate the significant growth that occurred in the City of Boardman and the Urban Growth Boundary (UGB) since its last TSP Update. As part of this project, there will be extensive community engagement to better understand the challenges and infrastructure improvement ideas of the community.

This memorandum summarizes local, regional, and state planning documents applicable to the TSP, as outlined by the Oregon Department of Transportation (ODOT) Transportation System Plan Guidelines. Some of the documents and plans reviewed consist of circulation standards, infrastructure improvements, and demographic targets that must be in compliance with the TSP Guidelines and the forecasted 20-year growth allocations for Boardman. This memorandum serves as the groundwork for the proposed policy and development code amendments scoped as part of the implementation work for the project (Task 6). As a note, evaluation of the City's *Development Code* for its consistency with relevant policies – namely, Transportation Planning Rule requirements – will be presented as part of Task 6 implementation work.

Plan and Policy Review

This section highlights the plans, policies, and regulations that have an impact on Boardman's transportation system. The review is organized into a table and separated into local (i.e., City and County) documents in Table 1 and State documents in Table 2. The tables are comprised of a summary of each document, how they relate to the TSP, and suggested recommendations for consistency with the document. The following documents are included in the review.

Local Plans, Policies, and Ordinances

- Boardman Transportation System Plan (TSP), 2001
- Boardman Development Code
- Main Street Downtown Development Plan, 2001
- Boardman Comprehensive Plan, 2003
- Boardman Main Street Interchange Area Management Plan, 2009
- Boardman Central Urban Renewal Plan, 2008
- Boardman West Urban Renewal Plan, 2013
- Boardman North Urban Renewal Plan, 2023
- Port of Morrow Interchange Area Management Plan, 2011
- Morrow County Transportation System Plan (TSP), Effective 2012, Updated 2022
- Morrow County/Umatilla County Transit Development Strategy, 2018
- Port of Morrow Strategic Business Plan, 2020
- Hermiston-Boardman Connector/Boardman-Port of Morrow Circular, 2021
- Morrow County Coordinated Human Services Transportation Plan, 2022

Statewide Plans and Policies

- ODOT and Department of Land Conservation and Development (DLCD) Transportation and Growth Management Program (TGM) mission, goals, and objectives
- Oregon Statewide Planning Goals
- Oregon Administrative Rules (OAR) Chapter 660, Division 12 (Transportation Planning Rule)
- OAR Chapter 734, Division 51 (ODOT – Highway Division – Highway Approaches, Access Control, Spacing Standards, and Medians)
- OAR Chapter 731, Division 12 (Reduction of Vehicle – Carrying Capacity)
- Oregon Transportation Plan (2023) and its modal and topic plans
- Oregon Pedestrian and Bicycle Safety Implementation Plan, 2020
- Statewide Transportation Improvement Program (STIP), 2024-2027
- ODOT Highway Design Manual, 2022
- ODOT Blueprint for Urban Design, 2019

Table 1. Local Plans, Policies, and Ordinances

Document	Overview	TSP Relevance and Recommendations
Boardman Transportation System Plan (TSP), 2001	The 2001 TSP documents Boardman's transportation infrastructure and plans for the needed transportation improvements that align with the anticipated 20-year growth in the city. The Plan consists of goals and associated planning process objectives; a description of existing land use and transportation system conditions; forecasted future conditions (horizon year 2020); and a description of needs for each mode of transportation. Section 7 includes the recommended City transportation policies.	***Relevance:*** The TSP Update process will also include an existing conditions review and an assessment of transportation facilities, connectivity, and services. The planning process is expected to revisit existing and identify new community goals and needs through public engagement activities that focus, in particular, on underserved communities. ***Recommendations:*** - Consider and update the following to reflect current and forecasted conditions: 2001 TSP's Goals, Improvement Needs, Development Code Revisions, and Preferred Land Use Plan/Alternative. - Consider modal inventories from the existing TSP when planning for an integrated, multimodal system. - Ensure consistency between updated TSP and Public Works standards.
City of Boardman Development Code	The City of Boardman Development Code governs land use and development throughout the city. The Development Code regulates standards for development such as access and circulation for pedestrians, bicycles, and vehicles; parking; and public facilities (Chapter 3). The Development Code employs review and permitting processes that align with the TSP.	***Relevance:*** The TSP will include land use objectives and considerations for access, circulation, and transportation facilities. ***Recommendations:*** - Review land use districts in Chapter 2 to assess whether or not transportation facilities and improvements in each land use district are consistent with TSP Update. - Revisit access and spacing standards (Chapter 3) to ensure compliance with TSP Update recommendations.

Document	Overview	TSP Relevance and Recommendations
		- As needed, amend transportation standards and variances within Section 3.4.100 in order to align with the updated TSP. - Identify other code changes necessary for consistency with TSP Update recommendations and regulations such as the Transportation Planning Rule.

Main Street Downtown Development Plan, 2001	The Main Street Downtown Development Plan identifies needed improvements to support existing businesses and future development at the I-84/Main Street interchange.
	
	The Plan includes designs for grid system patterns that consist of blocks and streets with sidewalks and multi-use paths.
		Relevance: The Plan is a focused look at land use and transportation needs near the west-side of the I-84 interchange, at Main Street, and along the streets in the interchange's vicinity. Recommendations related to circulation, connections to existing streets, and pedestrian and bicycle networks will need to be made consistent with other adopted plans, and updated and integrated into the updated TSP.
		
		Recommendations:
		- Revisit Plan recommendations, as compared to the 2009 Boardman Main Street Interchange Area Management Plan (IAMP) that encompassed the same area, to ensure concurrency for improvements in the I-84 interchange area and Main Street.
		- Identify the Conceptual Design and Key Plan Components or Elements when developing TSP projects that affect Downtown Boardman, particularly the:
		  ○ Land Use Plan
		  ○ Street Design Standards
		  ○ Streetscape Elements
		  ○ Traffic Projections and Analysis
		  ○ Cost Estimates
		  ○ Project Objectives and Transportation Benefits

Document	Overview	TSP Relevance and Recommendations
Boardman Comprehensive Plan, 2003	The Comprehensive Plan provides the policy framework for long-range planning pertaining to land use, housing, employment, and transportation over a 20-year growth period. Chapter 12 – Transportation includes 1 overarching goal and 5 policies, one of which references the entirety of the 2001 TSP.	***Relevance:*** The Comprehensive Plan documents the City's land use and transportation needs, infrastructure, services, and facilities based on the projected 20-year population growth. The TSP and Comprehensive Plan will need to align. ***Recommendations:*** - Ensure adopted goal(s) and policies are consistent with the updated TSP objectives. - Retain the current reference to the TSP and Technical Appendix in Chapter 12.

Boardman Main Street Interchange Area Management Plan 2009	The 2009 Boardman Main Street Interchange Area Management Plan (IAMP) assesses the Interstate 84 (I-84) interchange at Main Street. Within the study area, the IAMP identifies issues, needs, circulation, improvements, and updates to street standards.	***Relevance:*** The IAMP focuses on safety issues and traffic efficiency to decrease congestion at major intersections in the city. Chapter 5 includes proposed transportation alternatives – including cost estimates and prioritization for timing – for improvements on Main Street in the vicinity of the interchange. Recommendations include a local street connectivity plan, pedestrian and bicycle network improvements, and an access management plan outlining access restrictions.
		
		Recommendations:
		- Review the list of identified alternatives, suggested improvements, management strategies, and improvement timing considering existing and projected transportation conditions. Note projects in the City's CIP that are to be concluded in 2024-2025 FY, including:
		  ○ Main Street & I-84 Westbound Ramp
		  ○ Main Street & I-84 Eastbound Ramp
		  ○ Main Street & Front Avenue (North and South)
		  ○ Main Street and Boardman Avenue
		  ○ Main Street Overpass Bridge

Document	Overview	TSP Relevance and Recommendations
		- Integrate the elements of the Roadway Network and Classification Plan (Figure 5.1) into the updated TSP as appropriate. - Review, update as necessary, and integrate the access management actions for local roadways (Tables 5.1, 5.2). - Evaluate Development Code amendments related to access spacing and local street connectivity requirements; incorporate and update, as necessary. - Ensure that identified IAMP policies are reflected in updated City transportation policy statements.

Boardman Central Urban Renewal Plan, 2008	The Plan provides goals, objectives, tools, and projects to help optimize development and urban renewal in the Central Boardman Urban Renewal Area. The area is roughly 164 acres between SE Front Street to Wilson Lane along the east side of Main Street. It serves as the main connector between north and south Boardman and divides east and west.
	
	Plan goals include:
	- Improve access and connectivity throughout the area
	- Improve and extend utilities to commercial properties
	- Increase employment and business activity in the area
	- Enhance the pedestrian environment on streets throughout the area
		Relevance: The Plan looks at the Central Boardman Urban Renewal Area (URA), particularly south of I-84 and along Main Street. Goals 1 and 4 focus on strengthening connections and pedestrian orientation throughout the Central URA through increased traffic circulation and improving access between sidewalks and buildings.
		
		Recommendations:
		- Review the list of projects and public improvements for alignment with the updated TSP objectives and recommendations. The priority projects identified in the Plan include:
		  o Access between the Oregon Trail Boulevard Extension and SW Front Street
		  o Main Street Improvements
		  o Interim East West Connector
		- Integrate the adopted Roadway Network and Classification Plan (Figure 5.1) into the TSP and update, as necessary.

Document	Overview	TSP Relevance and Recommendations
		- Review Plan financing in Section V and identify what level of potential funding sources remain for the priority transportation projects and improvements through the year 2030.

Boardman West Urban Renewal Plan and Report, 2013	The Plan provides background information on how to optimize development and determine feasibility in an area on the western side of the city, south of I-84. The area is roughly 170 acres and bordered by SW Wilson Road to the south, Paul Smith Road, and Faler Road to the west, and S Main Street to the east.
	
	The Plan includes goals and objectives for improving economic health, residential character, transportation, and aesthetic appearance within the defined area. Preliminary assessment of the area revealed inadequate street connections and other rights-of-way (particularly in the northern portion of the URA).
		Relevance: The Plan's purpose includes creating public improvements, addressing blighting conditions, and increasing utilization of vacant or underutilized parcels.
		
		Recommendations:
		- Review the list of recommended projects and public improvements for alignment with the TSP Update, pertaining to:
		  o Road improvements (SW Faler Road, SW Wilson Road, and Oregon Trail Boulevard)
		  o Connector street extensions
		  o Land use changes and acquisition for parks, walking trails, and open space
		- Identify which projects have since been completed and which should be reflected in the updated TSP.
		  o The extension of Oregon Trail Boulevard, estimated to be completed in 2024.
		  o Improvements to SW Faler Road through street construction, widening, paving, and additional improvements are not anticipated until 2034.
		  o Extensions of local streets through the URA are not anticipated to be completed until 2034.
		  o Functionality increases, multimodal access, parking, and other road improvements to SW Wilson Road are not anticipated until 2034.

Document	Overview	TSP Relevance and Recommendations
		- Review the Summary of Estimated Project Costs (Figure 6.1) to determine how much of the project budgets have been spent and identify the level of funding for existing transportation priority projects that remain through 2034.

Boardman North Urban Renewal Plan and Report, 2023	The Plan provides background information on how to optimize development and urban renewal in an approximately 181-acre area between I-84 and the Columbia River. The stated purpose of the Plan includes addressing infrastructure deficiencies; goals and objectives will guide tax increment financing investment within the area.
	
	It includes three main goals for improving infrastructure and distributing resources to the area, focusing on: 1) eliminating blight, 2) facilitating economic development and job creation, and 3) providing resources to administer the Plan.
		Relevance: The Plan includes infrastructure improvements along major roadways and will need to be assessed to determine which projects have been completed and which ones are still remaining and a priority of the City.
		
		Recommendations:
		- Review the list of recommended projects and public improvements for alignment with the TSP Update, pertaining to:
		  o Infrastructure improvements and connecting NE Boardman Avenue to Olson Road
		  o NE Front Street improvements and sidewalk additions (2026-2027 FY timeline)
		  o Alley improvements from 2nd Ave NE to 3rd Street NE
		  o New road connection between 2nd Ave NE to Columbia Ave NE
		  o Columbia Ave NE to Boardman Avenue NE
		  o Main Street intersection improvements and roadwork
		- Identify which projects have been completed and which remain and integrate remaining projects into the TSP Update as needed.
		- Update the estimated total cost project costs as needed.

Document	Overview	TSP Relevance and Recommendations
		- Refer to Tax Increment Financing (Sections VI and IX) and revenues that will be generated through 2044 for the North URA priority projects in the TSP Update. - Integrate Relationship to Local Objectives elements from Plan into TSP Update objectives and policies as appropriate.

Port of Morrow Interchange Area Management Plan, 2011 (Amended 2022)	The 2011 Port of Morrow (POM) IAMP (amended 2022) looks at the short- and long-term transportation improvements, access management goals, land use management, and funding strategies to preserve capacity at the POM interchange and to align with ODOT's mobility standards that are set through 2030. The primary roadways in the POM interchange include I-84, Laurel Lane, and Columbia Avenue.
	
	Identified objectives include:
	- Consider surrounding land use in relation to the roadway network
	- Provide connectivity, right-of-way, and access control in the area that leads to more efficiency
	- Prioritize improvements to maintain traffic operations
	- Create improved local street connectivity, while limiting cul-de-sacs or other non-connected streets
	- Align with the TSP and other local plans and ordinances
		Relevance: The IAMP focuses on safety issues and traffic efficiency to decrease congestion at the POM interchange. It also addresses the alignment of local circulation and access spacing standards for the major interchange ramp terminals in the vicinity of the POM.
		
		Recommendations:
		- Consider relevance of IAMP evaluation criteria to TSP evaluation criteria, namely:
		  o Transportation Options
		  o Land Use
		  o Cost
		  o Environmental, Social, and Equity Factors
		  o Accessibility
		- Consider Section 1 and the IAMP objectives for alignment with the TSP.
		- Review Section 5 (Future Conditions set through 2030) for consistency of the 2030 No Build traffic forecasts with TSP assumptions, in order to align priority projects and accurately assess growth.
		- Integrate traffic improvements from Table 7-1 of Section 7 into the TSP project list as appropriate:
		  o I-84/Laurel Lane interchange improvements
		  o I-84 ramp improvements

Document	Overview	TSP Relevance and Recommendations
		○ Laurel Lane sight distance improvements ○ Yates Lane access connection ○ Laurel Lane realignment ○ SW quadrant access - Review proposed policy and zoning changes for private approaches. - Ensure that the IAMP Overlay District and related recommendations are reflected in the City's Comprehensive Plan and updated TSP. - Include the statements about the interchange's functions in updated TSP policies.
Morrow County Transportation System Plan (TSP), 2012 (Amended 2022)	The 2012 Countywide TSP documents Morrow County's transportation infrastructure and plans for transportation services that will align with the anticipated 20-year growth within the county. The Plan consists of 10 goals pertaining to coordination, land use, economic development, quality of life, roadway systems, transit, air transportation, freight and goods, finance, and the Oregon Motor Speedway.	***Relevance:*** County and City long-range transportation plans need to be in alignment, specifically where recommended improvements have policy, right-of-way, and/or funding implications for both jurisdictions. ***Recommendations:*** - At a minimum, ensure that updated Boardman TSP goals and policies do not conflict with goals and policies in the County TSP. - Consider needs identified in the County TSP such as an alternative to US 730 between Irrigon and Boardman in the event of an emergency and traffic for the Oregon National Guard's Boardman Bombing Range in developing the Boardman TSP Update. - Assess I-84-related improvements within the County that transect Boardman and reflect relevant projects in the TSP project list update (e.g., overpass near Olson Road in Table 5-2), as appropriate.

Document	Overview	TSP Relevance and Recommendations
		- Review County access standards (Table 4-3 and Table 6-1) and mobility standards for where they may apply to County roads in Boardman. - Review Chapter 7 for funding sources to potentially incorporate into the TSP Update.

Morrow County / Umatilla County Transit Development Strategy, 2018	Both Morrow County and Umatilla County prepared Coordinated Human Services Transportation Plans.
	
	This strategy is intended to identify, coordinate, enhance, and improve transportation programs and services for key populations across the counties.
		Relevance: The strategy focuses on enhancing the coordination and availability of transit for key underserved populations – for example, older adults, people with disabilities, and people with low incomes – in both Morrow and Umatilla Counties. The counties serve a wide area and multiple incorporated cities, so coordination is critical. These key demographic groups are also being considered in developing the Boardman TSP Update.
		
		Recommendations:
		- Review the Transit Solutions Assessment and identified transit needs, particularly as they pertain to increasing the geographic scope of transit service in the City of Boardman and identifying park-and-ride facility locations along the I-84 corridor.
		- Assess Table 21 and the Transit Development Strategy Summary to identify priority projects and if they have been moved from the long-term to near-term.
		  ○ Arlington-Boardman-Port of Morrow Connector (medium priority)
		  ○ Heppner-Boardman Connector (high priority)
		  ○ Hermiston-Boardman Connector (high priority)
		- Reflect regional transit priorities and strategies in City transportation policy.

Document	Overview	TSP Relevance and Recommendations

Port of Morrow Strategic Business Plan, 2020	The Plan guides the policies and projects of the Port for the next 20 years. Plan objectives include helping the Port secure funding opportunities for infrastructure improvements.	***Relevance:*** The Port of Morrow is one of the largest employers for residents of Boardman. As a regional, multi-modal transportation hub with growing facilities and infrastructure needs, it will be important to align growth projections and improvement plans with the TSP Update.
		The Port owns and manages Light Industrial- and General Industrial-zoned property within the city (Table 5). As stated in the Plan, job growth at the Port leads to urbanization and service delivery in Boardman and increases the demand for housing in the area.
		
		Recommendations:
		- Review the list of goals and determine which ones should be incorporated or reflected in the update TSP, e.g., Goal 1 and Goal 6.
		  ○ Goal 1: Expand the Port's role as the regional transportation hub by providing superior facilities and services.
		  ○ Goal 6: Increase agency coordination and communication for greater transparency between parties and to help streamline permitting processes and approvals.
		- Consider how the City's transportation system facilitates access to the Port and supports port and rail activities.
		- Ensure Port growth projections are evaluated and reflected in the future forecasting and transportation needs.

Hermiston-Boardman	This Plan is a coordinated effort between the Confederated Tribes of the Umatilla Indian Reservation's (CTUIR's) public transportation	***Relevance:*** Regional and local transit connections in this Plan will be considered as part of the TSP Update.

Document	Overview	TSP Relevance and Recommendations

Connector / Boardman-Port of Morrow Circular, 2021	branch, Kayak Public Transit, and Morrow County's transit service, The Loop. It also brings in partnerships from Morrow and Umatilla Counties and the Port of Morrow.
	
	The Plan articulates a strategic approach to providing expanded transit services to meet the needs of the community and provide alternative routing options for enhanced service.
	
	It identifies two main corridors; the (1) Hermiston-Boardman Connector between Umatilla and Morrow County; and (2) Boardman-Port of Morrow Circular between the Port of Morrow and the Hermiston-Boardman Connector.
		Recommendations:
		- Identify stops in Boardman in Table 8 that still are considered 'fair' or 'poor' and consider including them in the TSP Update as infrastructure projects.
		- Update the TSPs transit element to include information from this Plan related to proposed changes to transit routes and stops within the City.
		- Review federal, state, and local funding sources and opportunities identified in the Plan and determine which ones apply to the TSP updated projects.
		  ○ Section 5310
		  ○ Section 5339
		  ○ Surface Transportation Block Grant (STBG)
		  ○ Special Transportation Fund (STF)
		- Assess the Capital Needs Plan and Table 22 to identify costs of updating transit stops, such as Employment stops, the SAGE Center, and Boardman Ave/Main St. facilities.
		- Table 23 looks at previous pedestrian and bicycle facilities identified in the Boardman TSP that are priorities of the City. Identify if these still are priority projects.
		  ○ Extending NE Boardman Avenue to Olson Road
		  ○ Extending Third Street, Second Street, Chaperell Drive, Kinkade Road, and Anderson Road
		  ○ Footbridge crossing the railroad near the Port Offices
		  ○ New multi-use path on Columbia Avenue between Main Street and Olson Road and to the

Document	Overview	TSP Relevance and Recommendations
		south of Wilson Lane, as an extension of Faler Road. - Consider the inclusion of Park N Ride properties for the SAGE Center in Boardman. - Consider partners and management strategies to determine how they should/if they should be incorporated in the TSP Update, such as: o Creating a Transportation Management Association (TMA) between the local government and businesses o Creating performance measures to monitor transit service performance
Morrow County Coordinated Human Services Transportation Plan, 2022	This type of plan is required in order to be eligible for funding from the Federal Transit Administrations (FTA's) Section 5310 program and the Oregon's Special transportation Fund (STF). The Plan assesses the: - current services and the transportation providers - transportation services and mobility opportunities for seniors, people with low income, and people with disabilities. The Plan also guides future investment by identifying strategies and projects to mitigate gaps between current services and community needs.	***Relevance:*** Regional and local connections will need to be considered in the TSP Update. ***Recommendations:*** - Consider reflecting goals in updated strengthen City policies . o Goal 1. Provide improved service to meet the needs of all community members, with a focus on those reliant on public transportation. o Goal 2. Provide reliable transportation options for health-supporting destinations. o Goal 3. Provide reliable transportation options for economic opportunities. o Goal 4. Improve marketing of services and education across transportation service areas. o Goal 5. Pursue stable funding sources to maintain and lower transportation costs for the public.

Document	Overview	TSP Relevance and Recommendations

		- Consider including suggested strategies when evaluating transportation solutions and update transportation policy to support the following:
		  o Implement and continue to monitor the Boardman – Port of Morrow Circular and Hermiston – Boardman Connector
		  o Enhance service hours and number of vehicles operating at a time
		  o Expand bilingual information
		  o Promote rideshares
		- Review Table 4 in the Plan to reassess Cost, Benefit, and Difficulty of Implementation for these strategies.
		- Table 6 targets funding sources and determines eligibility; the priorities and funding opportunities should be assessed to determine relevancy to the TSP Update.

Table 2. Statewide Plans and Policies

Document	Overview	TSP Relevance and Recommendations
ODOT and DLCD Transportation and Growth Management Program (TGM), pertaining to mission, goals, and objectives	The TGM Program addresses the integration of land use and transportation decisions throughout the state. There are 5 main goals, with supporting objectives. The goals include: - Providing transportation choices; - Creating communities; - Supporting economic vitality and growth;	***Relevance and Recommendations:*** Consistent with TGM goals and objectives, the TSP Update will focus on providing transportation opportunities to communities that support mobility and equity, promoting energy efficiency transportation systems and land use patterns, and maximizing the functionality of current facilities to support local networks in Boardman.

Document	Overview	TSP Relevance and Recommendations
	- Saving public and private costs; and - Promoting environmental stewardship.	
Oregon Statewide Planning Goals	Oregon has a total of 19 statewide planning goals that pertain to land use and other related topics. The Transportation Planning Rule (TPR) (OAR 660-012) implements Statewide Planning Goal 12 – Transportation and is discussed below.	***Relevance:*** The TPR requires aligning the City's Comprehensive Plan, Development Code, and TSP. The TPR is discussed in further detail in the section below. ***Recommendations:*** The TSP will need to consider the integration of supporting and other pertinent statewide planning goals, such as, Land Use Planning (Goal 2), Natural Resources (Goal 5), Air and Water Quality (Goal 6), Economic Development (Goal 9), Housing (Goal 10), Public Facilities and Services (Goal 11), Energy Conservation (Goal 13), and Urbanization (Goal 14).
Oregon Administrative Rules (OAR) Chapter 660, Division 12 (Transportation Planning Rule – TPR)	The TPR implements Statewide Planning Goal 12 – Transportation. There is extensive guidance for implementation of the goal. TPR Section -0020 outlines the require elements of the TSP. TPR Section -0045 details how jurisdictions need to amend land use regulations to implement and support the TSP. TPR Section -0060 ensures that land uses are consistent across development code, TSP, and Comprehensive Plans.	***Relevance and Recommendations:*** TPR 0020 outlines the required elements of the TSP that are necessary for the TSP Update process. The TSP Update process will need to review changes that have occurred that pertain to Sections -0020 or -0150, and that were not included in the current TSP, such as transportation needs within the community, transportation services provided, roadway or infrastructure or circulation, and transportation facility inventories or providers. Development Code amendments will be developed as part of the TSP Update process to ensure consistency with requirements in TPR Sections -0045 and -0060, as

Document	Overview	TSP Relevance and Recommendations
	TPR Section -0150 ensures the coordination of transportation and facility and service providers.	well as TSP recommendations. These amendments will be prepared as part of Task 6 TSP implementation work.
OAR Chapter 734, Division 51 (Highway Approaches, Access Control, Spacing Standards, and Medians)	OAR 734-051 establishes procedures, standards, and approval criteria for governing highway approach permitting and access management. The City of Boardman has interchange facilities on I-84 and will need to comply with OAR 734-051. Th regulation also includes standards related to spacing distance, sight distance, permitting for approaches, and additional considerations.	***Relevance and Recommendations:*** Any changes to interchanges along I-84 or surrounding the Port of Morrow in the Boardman UGB proposed as part of the TSP Update will need to comply with this rule. Any modifications to a public approach (City or County streets) to a State facility will need to comply with this rule – in particular, Section -1050. Private approaches must align with Section -3010 and include the public in the planning process.
OAR Chapter 731, Division 12 (Reduction of Vehicle – Carrying Capacity)	OAR 731-012 establishes Reduction Review Routes across the state, in accordance with Oregon Revised Statute (ORS) 366.215. A Reduction Review Route is any section of state highway that connects a travelled route to other state highways, including interchanges. The rule is intended to define terminology surrounding this ruling, outline a review process, and initiate communication for consensus during that process.	***Relevance and Recommendations:*** Any proposed changes or priority projects that includes an obstruction, reduction in clearance, or changes to the right-of-way for vehicles and their carrying capacity along a state highway need to comply with the procedures in OAR 731-012 and ORS 366.215. Consideration for proposed access and safety actions (Sections 012-0080 and 012-0090) will need to be integrated into the TSP Update.

Document	Overview	TSP Relevance and Recommendations
Oregon Transportation Plan (OTP) (2023), and its modal and topic plans	The OTP is a statewide, long-range transportation systems plan that looks to guide transportation policy, frameworks, and strategies through 2050. The Plans look at transportation networks for different modes and elements – aviation, bicycle and pedestrian infrastructure, freight, public transportation, state and local roadways, rail, safety, options, and funding. The OTP and its modal and topic plans have been updated since the last Boardman TSP update.	***Relevance:*** The TSP Update will build upon the OTP Vision and Values, especially as they pertain to safety, equity, and climate impacts – with a focus on meeting the transportation needs of underserved communities. In accordance with the OTP, the TSP Update will address building up a resilient transportation system that integrates context-sensitive solutions through public participation and involvement. ***Recommendations:*** – Review OTP and modal/topic plan goals and objectives for potential incorporation into the TSP goals or policies. – Integrate roadway and bicycle/pedestrian design guidance from the modal plans into TSP recommendations as appropriate.
Oregon Pedestrian and Bicycle Safety Implementation Plan (2020)	The Safety Implementation Plan (National Cooperative Highway Research Program (NCHRP) Research Report 893) provides a systemic 7-step pedestrian and bicycle safety analysis of ODOT's highway network. Based on crash data, 25 pedestrian sites and 25 bicycle sites on state highways were identified as high-risk locations for pedestrian and bicycle crashes. These sites are not itemized in the Plan, but the Plan outlines a	***Relevance and Recommendations:*** The Plan's intention is to provide guidance for ODOT and other jurisdictions and roadway authorities to implement countermeasures outlined in the Plan. These countermeasures in the Plan can be consulted for bicycle and pedestrian safety needs identified through the TSP Update process.

Document	Overview	TSP Relevance and Recommendations
	countermeasure process to address high-risk sites.	
Statewide Transportation Improvement Program (STIP), 2024-2027	It is a short-term capital improvement program for regional and statewide transportation improvements and networks. It includes budgeting and financials for the upcoming four-year period.	***Relevance and Recommendations:*** Review projects in the STIP that are not already integrated into the TSP, and determine which ones need to be accounted for during the update process. The I-84 Interchange pavement project (key 22893), curb cuts (key 22561), and National Electric Vehicle Infrastructure (NEVI, Key 22740) are included in the STIP and should be considered for implementation in the TSP Update. Consider funding gaps and how they can be addressed through the TSP Update process.
ODOT Highway Design Manual (HDM), 2024	The HDM provides uniform standards and procedures for ODOT, and all of their projects related to State highways. The BUD is a Design Concurrence Document that was once a standalone document but has since been integrated into the HDM. This section defines design criteria and is intended to offer more flexibility for the urban context.	***Relevance and Recommendations:*** The TSP Update will need to assess highway facilities that serve Boardman, including I-84, Main Street, and Columbia Avenue. Where needed improvements or projects include or affect state highway facilities, the HDM will provide the guidance for determining which design standards and practical design concepts need to be integrated into the TSP Update. The BUD will provide transportation design guidance that is more sensitive to and flexible for urban contexts.

Appendix C: Goals, Objectives, and Evaluation Criteria

Technical Memorandum#3

Date:	January 7, 2025	Kittelson Project No: 30287
To:	Project Management Team (PMT)	
From:	Matt Hughart, AICP; Eza Gaigalas	
Subject:	Goals, Objectives, and Evaluation Criteria	

Introduction

This memorandum presents the goals, objectives, and evaluation criteria that will be used to develop and evaluate potential transportation improvements generated as part of the City of Boardman Transportation System Plan (TSP) update.

Project Background

The City of Boardman completed and adopted a Transportation System Plan (TSP) in 2001. The Transportation System Plan is an element of the Boardman Comprehensive Plan (incorporated by reference and as a Technical Appendix to the Comprehensive Plan). The TSP provides guidance for the planning, management, funding, and implementation of transportation facilities, policies, and programs within the Boardman Urban Growth Boundary (UGB).

Since the adoption of the 2001 TSP, the City of Boardman has seen significant levels of population growth, new residential and commercial development (in the form of infill development on undeveloped parcels), and continues to see the adjacent Port of Morrow grow as a major regional employment center. In addition to the TSP, there have been other planning efforts completed within this time frame that have helped shape and influence growth, development, and the transportation system including:

- Main Street Downtown Development Plan (2001)
- Comprehensive Plan (2003)
- Boardman Main Street Interchange Area Management Plan (2009)
- Port of Morrow Interchange Area Management Plan (2011)
- Central, North, and West Urban Renewal Plans

- Morrow County TSP (2012)
- Port of Morrow 2020 Strategic Business Plan
- Hermiston-Boardman Connector/Boardman – Port of Morrow Circular (2021)
- Morrow County/Umatilla County Transit Development Strategy (2018)
- Morrow County Coordinated Humans Services Transportation Plan (2022)

Accounting for the goals and objectives that drove these past planning efforts and taking into consideration the current and forward-focused needs of the city, a preliminary list of updated goals and objectives has been prepared to help formulate the basis for advancing Boardman's transportation system for the next 20 years.

Goals & Objectives

Goals and objectives are defined as follows:

- **Goals** are broad statements that reflect the community's desires and vision for the entire transportation system. The goals are purposefully visionary and may not be fully attained within the 20-year planning horizon. The goals are supported by the objectives.
- **Objectives** are specific, measurable statements that provide a way for the community to measure progress toward achieving its goals.

The goals and objectives of a modern TSP should reflect the anticipated needs of the multimodal transportation system based on existing and upcoming land uses for the next 20 years, and define a framework for providing safe, reliable, interconnected, and efficient transportation services for all system users. The goals and objectives should also be in fundamental alignment with partnering agencies such as Morrow County and the Oregon Department of Transportation (ODOT).

With these fundamental aspects in mind, the following proposed goals and objectives have been developed to guide the development of the Boardman TSP. These goals and objectives are rooted in, and build upon, the various goals and objectives developed in the existing TSP and other transportation-related planning documents previously outlined. Additional goals and objectives have been proposed to ensure that the updated TSP is forward-focused, reflects the needs of the community, and supports the development of a safe, efficient, and reliable transportation system for all users.

Goal #1: Safety

Improve the safety and comfort of the multimodal transportation network.

- Objective #1a: Address known safety issues at locations with a history of fatal and/or severe injury crashes.
- Objective #1b: Identify and prioritize transportation improvements that provide safe access for all users, regardless of age, ability, or mode of transportation.
- Objective #1c: Manage vehicular access to key transportation corridors consistent with engineering standards and access management principles, while maintaining reasonable access to adjacent land uses.

Goal #2: Mobility

Provide an efficient multimodal transportation system.

- Objective #2a: Identify capacity constraints and develop projects and strategies to address those constraints, including intersection improvements, new crossings of I-84, and alternative multimodal connections.
- Objective #2b: Preserve and maintain the existing transportation system.
- Objective #2c: Support local and regional transit services through the advancement of stop amenities, service hubs, etc.

Goal #3: Accessibility & Connectivity

Provide an interconnected, multimodal transportation network that connects all members of the community to key destinations.

- Objective #3a: Provide new connections to/from Boardman's neighborhoods, schools, parks, transit stops, employment centers, and other key destinations.
- Objective #3b: Address existing walking, biking, and rolling gaps in Boardman's multimodal network.
- Objective #3c: Increase multimodal connectivity across I-84.

Goal #4: Community & Equity

Provide an equitable multimodal transportation system for all users to promote a livable and fully connected community.

- Objective #4a: Ensure that the transportation system provides equitable multimodal access for underserved and vulnerable populations to schools, parks, employment centers, commercial centers, health and social services, and other essential destinations.

- Objective #4b: Strengthen economic opportunities through the development of new transportation infrastructure.

Goal #5: Sustainability

Provide a sustainable transportation system by promoting transportation choices and preserving environmental resources.

- Objective #5a: Consider alternative transportation facility designs in constrained areas to avoid or minimize impacts to natural resources.
- Objective #5b: Avoid or minimize transportation impacts to natural and cultural resources in the city.

Goal #6: Strategic Investment

Make the most of transportation resources by leveraging available funding opportunities, preserve existing infrastructure, and reduce system maintenance costs.

- Objective #6a: Preserve and maintain the existing transportation system assets to extend their useful life.
- Objective #6b: Pursue grants and collaborate with partnering agencies to creatively fund transportation improvements and supporting programs.
- Objective #6c: Identify and maintain stable and diverse revenue sources to address transportation needs.

Evaluation Criteria

The evaluation criteria will be used throughout the TSP update process for two key purposes:

1. Evaluating the existing and future transportation system and identifying needs (gaps and deficiencies) and potential mitigation treatments; and
2. Comparing and selecting preferred elements to be included in the City of Boardman TSP Update.

The following table outlines a broad set of evaluation criteria that were developed based on the Boardman TSP Goals and Objectives proposed above and the new prioritization factors included in Oregon's Transportation Planning Rule (TPR). Each criterion will be used to assess how the individual transportation projects support the overall goals/objectives statements and prioritization criteria. Each transportation improvement project will be assessed according to the various evaluation criterion.

Goal Statement	Evaluation Criteria[1]	Scoring Key		Score?	Comments
Safety - Improve the safety and comfort of the multimodal transportation network.	Improve vehicular safety issues on Boardman's roadway network	+2	The project is expected to have a positive safety impact and is at a location with a history of serious injury crashes and fatalities.		
		+1	The project is expected to have a positive safety impact.		
		0	The project is expected to have no impact or measurable safety benefit.		
	Improve non-motorized safety issues on Boardman's multimodal network	+2	The project is expected to have a positive multimodal safety impact and will directly benefit vulnerable system users.		
		+1	The project is expected to have a positive multimodal safety impact.		
		0	The project is expected to have no impact or measurable multimodal safety benefit.		
	Improve access management on key transportation corridors	+2	The access management project will address operational or safety issues while maintaining reasonable access to adjacent land uses.		
		+1	The access management project will address operational or safety issues but have some impact on access to adjacent land uses.		
		0	The access management project will address operational or safety issues with significant access and circulation impacts to adjacent land uses.		
Mobility - Provide an efficient multimodal transportation system.	Identify capacity constraints and develop projects and strategies to address those constraints, including intersection improvements, new crossings of I-84, and alternative multimodal connections.	+2	The project will address a significant mobility or capacity constraint.		
		+1	The project will generally improve overall mobility.		
		0	The project is expected to have no impact on overall mobility.		
Accessibility and Connectivity - Provide an interconnected, multimodal transportation network that connects all members of the community to key destinations.	Improve connections to/from Boardman's neighborhoods, schools, parks, transit stops, employment centers, and other key destinations.	+2	The project will improve connections to/from multiple key destinations, and/or serves destinations with limited or no multimodal infrastructure.		
		+1	The project will generally improve connections to/from key destinations.		
		0	The project does not involve or improve connections to/from key destinations.		

Goal Statement	Evaluation Criteria[1]	Scoring Key		Score?	Comments
	Address existing gaps in Boardman's multimodal network.	+2	The project will fully complete an existing multimodal network gap.		
		+1	The project will partially fill an existing multimodal network gap.		
		0	The project is does not address an existing multimodal network gap.		
	Improve connectivity between the north and south sides of Boardman.	+2	The project will provide a new multimodal connection across I-84.		
		+1	The project will improve multimodal connections on existing corridors that span I-84.		
		0	The project is does not address connectivity between the north and south sides of Boardman.		
Community and Equity - Provide an equitable multimodal transportation system for all users to promote a livable and fully connected community.	Improve multimodal access and connections to/from Boardman's underserved population groups, lower-income neighborhoods, and/or transportation disadvantaged groups.	+2	The project improves access connections to/from underserved population groups, lower-income neighborhoods, and/or transportation disadvantaged groups; and serves areas that have limited or no multimodal infrastructure.		
		+1	The project improves access and connections to/from underserved population groups, lower-income neighborhoods, and/or transportation disadvantaged groups.		
		0	The project does not involve or impact underserved population groups, lower-income neighborhoods, and/or transportation disadvantaged groups.		
Sustainability - Provide a sustainable transportation system by promoting transportation choices and preserving environmental resources.	Avoid or minimize transportation impacts to natural and cultural resources in the city.	+1	The project can be expected to have a positive impact on natural resources.		
		0	The project has no measurable positive or negative impact on natural resources.		
		-1	The project can be expected to have a negative impact on natural resources.		
Strategic Investment - Make the most of transportation resources by leveraging available funding opportunities, preserve existing	Preserve the transportation network and system maintenance costs	+1	Project is expected to compliment the existing transportation network and/or reduce system maintenance costs.		
		0	Project has no positive or negative impact on system preservation and maintenance costs		

Goal Statement	Evaluation Criteria[1]	Scoring Key		Score?	Comments
infrastructure, and reduce system maintenance costs.		-1	Project can be expected to negatively impact the existing transportation network or lead to increased system maintenance costs		

[1]Evaluation Criteria written in overall tone of proposed Boardman TSP Goals and Objectives statements

Appendix D: Code Assessment Memorandum

Technical Memorandum: Code Assessment

Date:	February 25, 2025	Kittelson Project No: 30287
To:	Project Management Team (PMT)	
From:	Darci Rudzinski – MIG Shayna Rehberg, AICP – MIG Meg Grzybowski – MIG	
Subject:	Development Code Assessment	

Introduction

This memorandum is intended to identify regulatory changes associated with the update of the City of Boardman's Transportation System Plan (TSP). Information herein is the result of an assessment of the City of Boardman Development Code ("Code") as well as the Public Works Standards (PWS) and provides suggestions for future revisions. The recommendations include considerations and strategies to be implemented as part of the Transportation System Plan (TSP) Project Update. Revisions and amendments are also intended to align with the Transportation Growth Management (TGM) Mission, Goals, and Objectives as well as the Oregon Transportation Rule (OAR 600, Division 12).

Development Code Requirements

The Code was reviewed for consistency between expected and required TSP elements and land use and development requirements. The Code contains land use, permitting, variance and exceptions, and design standards and regulations that govern development anywhere in the City. The following chapters are the most applicable to the TSP update, as they contain transportation-related requirements:

- Chapter 2: Land Use Districts (Zoning Code)
- Chapter 3: Design Standards (including Access and Circulation)
- Chapter 4: Applications and Review Procedures

As previously identified in Technical Memorandum #2, the Transportation Planning Rule (TPR) (OAR 660-012) is responsible for implementing Statewide Planning Goal 12 (Transportation). The goal of the TPR is to provide and advance safe, accessible, affordable, and convenient

transportation opportunities in an economic way for the residents of Oregon. There is extensive guidance for implementation of Goal 12.

Boardman's TSP will be updated consistent with TPR requirements; updated Code requirements will ensure that future development implements this long-range plan. **Table 1** provides a summary of suggested Code amendments based on the following TPR sections:

- TPR Section -0045 details land use regulation requirements that implement and support the TSP.
- TPR Section -0060 ensures that land uses are consistent across Development Code.

Public Works Standards

The Public Works Standards (PWS) are a set of guidelines, design standards, technical specifications, and drawings that are intended to be "general in nature and set minimum guidance for projects within the City" (*Responsibility Statement for Use of Standards)*. Any revisions to roadway standards that are the result of the TSP update will need to be reflected in or consistent with the applicable dimensional requirements in the PWS. The cross-sectional drawings, *Trench Excavation and Backfill Streets and Curbs (March 2021)*, provide sketches of curbs, sidewalks, and roadways of various classes. Any PWS figures containing roadway features and associated dimensions will need to be reviewed for consistency with the updated TSP and potentially modified.

Recommendation Summary

The Development Code for the City guides land use and transportation improvements required for development within city limits. Based on an audit of local development requirements, the Code will need to be updated to align with the updated TSP objectives, implement updated standards, and reflect best practices consistent with Transportation Growth Management (TGM) Mission, Goals, and Objectives and the State of Oregon's Smart Development Codes. In addition, MIG evaluated the Code to identify local development requirements that may need to be updated to be consistent with the TPR (see Attachment A).

Table 1 summarizes code recommendations based on this evaluation. The table is organized by Code chapter, listing the sections recommended for modification sequentially. Text that can implement the recommendations in this table will be provided later in the project, during Task 6 Implementation. The final column includes the relevant TPR citation; Attachment A provides detailed descriptions of local compliance with TPR requirements.

Table 1. Summary of Boardman Development Code Recommendations

#	Code Section	Recommendations	TPR Compliance
Chapter 2.2 Commercial Districts			
1	2.2.160 (A) 2.2.190	Expand the Pedestrian Amenities Section (2.2.160 (A)) to include walkways, transit stops and amenities; or expand upon the City Center Sub District (2.2.190) to include additional Design Standards for transit-oriented areas.	-0045 (4)(c)
Chapter 3.1 Access and Circulation			
2	3.1.200	Incorporate access and road spacing standards from the updated TSP into the Development Code and apply them to all zones, particularly Table 3.1.200 G. Review existing provisions for consistency with TSP.	-0045 (2)(a)
3	3.1.300 (2) and (3)	Include provisions and design standards for transit stop access and safety measures that pertain to building location in relation to transit stop, passenger landing pads, transit stop shelters, and lighting.	-0045 (4)(b)
4	3.1.300 (B)	Include language for provisions of pedestrian access that minimizes travel distance to stops.	-0045 (4)(f)
Chapter 3.3 Vehicle and Bicycle Parking Chapter			
5	3.3.300	Include provisions for on-street parking restrictions, particularly when within a certain distance to transit stops or shelters.	-0045 (4)(a)
6	3.3.300	Modify Vehicle Parking Standards Code to designate a share of off-street parking spaces for rideshare parking in commercial, industrial, or light industrial land use districts. Include preferential parking areas and spaces for ride-share parking.	-0045 (4)(d)
7	3.3.400 (A)	Include bike parking requirements for transit transfer stations and park-and-ride lots. Ensure consistency with requirements set by the updated TSP.	-0045 (3)(a)
Chapter 3.4 Public Facilities Standards			
8	3.4.100	This section should reference the City or County TSP or include site design requirements for transit stops.	-0045 (4)(a)
9	3.4.100	Revise Section 3.4.100 to permit transportation facilities, services, and improvements that are consistent with the Transportation System Plan (TSP) in all zones.	-0045 (1)(a)
10	3.4.100 (A)	Enhance bikeway and sidewalk specifications and requirements along various street types and functional classes (i.e., arterials, major collectors, and urban streets).	-0045 (3)(b)
11	3.4.100 (E) (F) Table 3.4.100 F	Reviewed for consistency with the TSP.	-0045 (6)

#	Code Section	Recommendations	TPR Compliance
Chapter 4.1 Types of Applications and Review Procedures			
12	4.1.700 (D)(2)	Amend Section 4.1.700 to include transportation projects in the consolidated application review process of land use applications.	-0045 (1)(c)
Chapter 4.4 Conditional Use Permits			
13	4.4.400 (D)	Amend Conditional Use Permit and provisions to specifically state transportation facilities and activities that are included in the TSP or pertain to changes in the frequency of transit or rail services are not subject to land use review or approval procedures.	-0045 (1)(a)
Chapter 4.7 Land Use District Map and Text Amendments			
14	4.7.600	Include mention of TSP compliance in addition to TPR compliance to ensure consistency across regulations.	-0045 (2)(g)
Chapter 5.1 Variances			
15	5.1.300	Account for road systems and adjustments for future transit routes and services in the Class B Variance section.	-0045 (4)(f)

The final column includes the relevant TPR citation; Attachment A. City of Boardman Code Evaluation

TPR Section -0045 Implementation

TPR Requirement	Evaluation and Recommendation
(1) Each local government shall amend its land use regulations to implement the TSP.	
(a) The following transportation facilities, services and improvements need not be subject to land use regulations except as necessary to implement the TSP and, under ordinary circumstances do not have a significant impact on land use: *(A) Operation, maintenance, and repair of existing transportation facilities identified in the TSP, such as road, bicycle, pedestrian, port, airport and rail facilities, and major regional pipelines and terminals;* *(B) Dedication of right-of-way, authorization of construction and the construction of facilities and improvements, where the improvements are consistent with clear and objective dimensional standards;* *(C) Uses permitted outright under ORS 215.213(1)(j)–(m) and 215.283(1)(h)–(k), consistent with the provisions of OAR 660-012-0065; and* *(D) Changes in the frequency of transit, rail, and airport services.*	**Summary:** The outlined transportation services need not be subject to land use application or review procedures, such as, operation/maintenance/repair of existing facilities and clear and objective construction in the right-of-way. **Existing Code and Conditions:** Table 4.1.200 includes the Summary of Development Decisions, including Transportation Facilities and Services. Chapter 4.4 (D)(Criteria, Standards, and Conditions of Approval) includes reference to transportation system facilities and improvements, stating that City and County facilities that are not included as part of the TSP or are not included in the construction of a subdivision development, are allowed in all districts, pending a Conditional Review and satisfaction of five (5) criteria. **Recommendation:** Add explicit provisions to Chapter 4.4 (D) that specifically state transportation facilities and activities that *are* included in the TSP are not subject to land use review or approval procedures. Land Use and Building Types Permitted Tables (2.2.110.A or 2.3.110.A) in Chapter 2 (Land Use Districts) include transportation facilities and improvements, consistent with the TPR. However, changes to the frequency of transit is not mentioned, and should be permitted outright in all zones (though passenger rail or airport services need not be included).

(b) To the extent, if any, that a transportation facility, service or improvement concerns the application of a comprehensive plan provision or land use regulation, it may be allowed without further land use review if it is permitted outright or if it is subject to standards that do not require interpretation or the exercise of factual, policy or legal judgment;	See responses to 660-012-0045 (1)(a).
(c) In the event that a transportation facility, service or improvement is determined to have a significant impact on land use or to concern the application of a comprehensive plan or land use regulation and to be subject to standards that require interpretation or the exercise of factual, policy or legal judgment, the local government shall provide a review and approval process that is consistent with OAR 660-012-0050. To facilitate implementation of the TSP, each local government shall amend its land use regulations to provide for consolidated review of land use decisions required to permit a transportation project.	**Summary:** This TPR Section references project development and implementation - how a transportation facility or improvement authorized in a TSP is designed and constructed (660-012-0050). Project development may or may not require land use decision-making. The TPR directs that during project development, projects authorized in an acknowledged TSP will not be subject to further justification with regard to their need, mode, function, or general location. To this end, the TPR calls for consolidated review of land use decisions and proper noticing requirements for affected transportation facilities and service providers. **Existing Code and Conditions:** BDC 4.1.700 (D)(2) (General Provisions; Applications) allows for applicants applying for more than one type of land use or development permit to consolidate proceedings. Although it may apply to and include transportation projects and facilities, it is not explicitly stated in the regulation. **Recommendation:** The City should amend BDC 4.1.700 (General Provisions) to include transportation projects in the consolidated application review.
(2) Local governments shall adopt land use or subdivision ordinance regulations, consistent with applicable federal and state requirements, to protect transportation facilities, corridors, and sites for their identified functions. Such regulations shall include:	
(a) Access control measures, for example, driveway and public road spacing, median control and signal spacing standards, which are consistent with the functional classification of roads and consistent with limiting development on rural lands to rural uses and densities;	**Summary:** This section requires jurisdictions to implement access management consistent with the planned function of roadways. **Existing Code and Conditions:** BDC 3.1.200, Vehicular Access and Circulation, contains the City's access control measures.

Section 3.1.200 (F) includes options for access, depending on street classification.

Section 3.1.200 (G) addresses access spacing measures for transportation-specific facilities, including local streets, arterials and collectors, state highways, all streets, corners, and variances.

Section 3.1.200 (H) includes permitted number of access points for residential, commercial, industrial, and institutional developments.

Section 3.1.200 (I) regulates shared driveways and includes standards for access easements, frontage streets, cross access, and exceptions.

Section 3.1.200 (J) addresses street connectivity as it pertains to block length and ADA accessible street standards.

Section 3.1.200 (K) provides clear and objectives standards for driveways, surface water runoff regulation, and pedestrian safety.

Section 3.1.200 (L) includes parking lot fire access requirements, as well as references to 3.4.100.M, cul-de-sacs and dead-end streets standards.

Section 3.1.200 (M) sets a minimum vertical clearance of 13’6” for the entire length and width of driveways, private streets, aisles, and turn arounds/ramps.

Section 3.1.200 (N) limits vision obstructions and requires a maximum height of three (3) feet for vision clearance; Subsection (O) expands upon required vision clearance for driveways.

Recommendation: The updated TSP will include access and spacing standards;

	existing provisions will need to be reviewed and potentially updated for consistency. Note that there specific access restrictions in the vicinity of Boardman's two interchanges, as governed by the Port of Morrow Interchange Area Plan and the Boardman Mainstreet Area Management Plan. Access management at the interchanges will be reflected in the updated TSP and potentially referenced in the Code.
(b) Standards to protect future operation of roads, transitways and major transit corridors;	**Summary:** This provision requires that jurisdictions have adopted development requirements and standards to protect the future functionality, capacity, service, and operations of roadways. **Existing Code and Conditions:** Section 3.4.100 (E) (Transportation Standards) requires that the location, width, and grade of local streets conform with the TSP standards and approved street plan or subdivision plat. Section 3.4.100 (H and I) has provisions for future street plans, extension of current streets, and street alignment or connections. Section 4.10.200 includes Traffic Impact Study requirements when there are zoning changes or proposed developments. **Recommendation:** The "triggers" for when a Traffic Impact Study is required should be updated to be consistent with reasonable traffic thresholds (as determined through the TSP update) and refined to remove ambiguity (e.g., "may cause safety problems").
(c) Measures to protect public use airports by controlling land uses within airport noise corridors and imaginary surfaces, and by limiting physical hazards to air navigation;	**Summary:** This provision protects airport uses from potential hazards posed by surrounding land uses. **Existing Code and Conditions:** There are no public use airports in the City of Boardman. **Recommendation:** No updates are recommended at this time.

(d) A process for coordinated review of future land use decisions affecting transportation facilities, corridors, or sites;	**Summary:** This provision requires that jurisdictions coordinate land use decisions with planned transportation services and facilities. **Existing Code and Conditions:** Section 4.3.4 (B) requires future plat submissions to consider proposed improvements to streets, driveways, easements, railroad crossings. Section 4.7.600 (A) states that any proposed land use change or Comprehensive Plan amendment requires a review to determine if there are significant impacts to a transportation facility. **Recommendation:** Local regulations allow coordinated land use and transportation review; no updates are suggested at this time.
(e) A process to apply conditions to development proposals in order to minimize impacts and protect transportation facilities, corridors, or sites;	See response to 660-0045 (1)(d).
(f) Regulations to provide notice to public agencies providing transportation facilities and services, MPOs, and ODOT of: *(A) Land use applications that require public hearings;* *(B) Subdivision and partition applications;* *(C) Other applications which affect private access to roads; and* *(D) Other applications within airport noise corridors and imaginary surfaces which affect airport operations; and*	**Summary:** This requirement helps give transportation providers an opportunity to review land use actions that may have an impact on transportation facilities. **Existing Code and Conditions:** Section 4.1.700 (D)(3)(b) (General Provisions; Applications) insists on a coordinated review by the City Engineer, ODOT, and other applicable agencies to determine application completeness. Table 4.1.200 (Summary of Development Decisions/Permit by Type of Decision-Making Procedure) states that the City shall send ODOT notice of any Type II, III, and IV land use applications and any required traffic impact studies or applications. **Recommendation:** The regulation is in alignment with the TPR. No updates are suggested at this time.
(g) Regulations assuring that amendments to land use designations, densities, and design standards are consistent with the functions, capacities and	**Summary:** Local regulations must be in place to ensure that land use changes do not have an adverse impact on transportation facility

performance standards of facilities identified in the TSP.	functions or performance standards, as documented in the adopted TSP. **Existing Code and Conditions:** Section 4.7.600 TPR Compliance, requires a review to take place in "significant" land use district changes or comprehensive plan amendments, which implies TSP alignment, as the TSP must be consistent with the TPR. **Recommendation:** Consider including a general requirement in Chapter 3.0, 3.1 or 4.0 that speaks to TSP compliance to help ensure consistency across documents and regulations.
(3) Local governments shall adopt land use or subdivision regulations for urban areas and rural communities as set forth below. The purposes of this section are to provide for safe and convenient pedestrian, bicycle and vehicular circulation consistent with access management standards and the function of affected streets, to ensure that new development provides on-site streets and accessways that provide reasonably direct routes for pedestrian and bicycle travel in areas where pedestrian and bicycle travel is likely if connections are provided, and which avoids wherever possible levels of automobile traffic which might interfere with or discourage pedestrian or bicycle travel.	
(a) Bicycle parking facilities as part of new multi-family residential developments of four units or more, new retail, office and institutional developments, and all transit transfer stations and park-and-ride lots;	**Summary:** Bicycle parking must be provided in proposed developments belonging to the use categories listed. **Existing Code and Conditions:** Section 3.3.400 (A) outlines the required bicycle parking standards for different use categories. Multi-family residences are required to provide at least one (1) sheltered bicycle parking space per dwelling unit in residential buildings with four (4) or more dwelling units. It also requires new retail, office, and institutional developments to include bicycle parking. **Recommendation:** Add transit transfer stations and park-and-ride lots to the list of uses and the associated required bicycle parking spaces. Ensure consistency with the recommendations in the updated TSP.
(b) On-site facilities shall be provided which accommodate safe and convenient pedestrian and bicycle access from within new subdivisions, multi-family developments, planned	**Summary:** This subsection pertains to safe, non-motorized access from development sites to adjacent uses and nearby activity centers.

developments, shopping centers, and commercial districts to adjacent residential areas and transit stops, and to neighborhood activity centers within one-half mile of the development. Single-family residential developments shall generally include streets and accessways. Pedestrian circulation through parking lots should generally be provided in the form of accessways.

(A) "Neighborhood activity centers" includes, but is not limited to, existing or planned schools, parks, shopping areas, transit stops or employment centers;

(B) Bikeways shall be required along arterials and major collectors. Sidewalks shall be required along arterials, collectors, and most local streets in urban areas, except that sidewalks are not required along controlled access roadways, such as freeways;

(C) Cul-de-sacs and other dead-end streets may be used as part of a development plan, consistent with the purposes set forth in this section;

(D) Local governments shall establish their own standards or criteria for providing streets and accessways consistent with the purposes of this section. Such measures may include but are not limited to: standards for spacing of streets or accessways; and standards for excessive out-of-direction travel;

(E) Streets and accessways need not be required where one or more of the following conditions exist:

(i) Physical or topographic conditions make a street or accessway connection impracticable. Such conditions include but are not limited to freeways, railroads, steep slopes, wetlands, or other bodies of water where a connection could not reasonably be provided;

(ii) Buildings or other existing development on adjacent lands physically preclude a

Existing Code and Conditions: Section 3.1.300 (A) (Pedestrian Access and Circulation) requires that pathways be convenient, reasonably direct, and safe, as defined in Section 3.1.300 (A)(2)(b) (Safe, Direct, and Convenient Pathways).

For street connectivity, pedestrian crossings are required if block length exceeds that identified in Section 3.1.200 (J) (Street Connectivity) (length varies depending on the district). Pathways are also required as part of planning cul-de-sacs and dead-end streets to offer connections between streets (Section 3.1.300 (A)(4)).

BDC 3.4.100 (Transportation Standards) requires that streets within or adjacent to development be in compliance with the TSP and the provisions of Chapter 3.4. Section 3.4.100 (J) (Sidewalks, Planter Strips, and Bicycle Lanes) reference Table 3.4.100, which is not included in the Development Code Section.

PWS includes figures and technical drawings for sidewalks and roadways.

Recommendation: Update pedestrian pathway requirements for residential uses to be clear and objective.

Specifications for improvements based on street type and functional class, consistent with recommendations from the TSP update, should be codified.

Compare PWS drawings and technical standards to TSP for roadway width and dimensional standards for consistency.

connection now or in the future considering the potential for redevelopment; or *(iii) Where streets or accessways would violate provisions of leases, easements, covenants, restrictions, or other agreements existing as of May 1, 1995, which preclude a required street or accessway connection.*	
(c) Where off-site road improvements are otherwise required as a condition of development approval, they shall include facilities accommodating convenient pedestrian and bicycle travel, including bicycle ways along arterials and major collectors;	See response to Section 660-0045 (3)(d).
[Note: Subsection (d) defines safe and convenient]	
(e) Internal pedestrian circulation within new office parks and commercial developments shall be provided through clustering of buildings, construction of accessways, walkways and similar techniques.	**Summary:** Provisions for pedestrian access and walkways internal to a proposed development should be a requirement for office and commercial uses. **Existing Code and Conditions:** Section 3.1.300 (A) ensures safe and convenient pedestrian circulation through continuous paths throughout a development site and connections within the development and between entrances. Section 3.1.300 (A)(3) references connections within a development. **Recommendation:** The local regulations are in compliance with the TPR. No updates are suggested at this time.
(4) To support transit in urban areas containing a population greater than 25,000, where the area is already served by a public transit system or where a determination has been made that a public transit system is feasible, local governments shall adopt land use and subdivision regulations as provided in subsections (a)–(g) below:	
(a) Transit routes and transit facilities shall be designed to support transit use through provision of bus stops, pullouts and shelters, optimum road geometrics, on-road parking restrictions and similar facilities, as appropriate;	**Summary:** This provision ensures that a local jurisdiction can require development to provide transit improvements that will support and encourage transit ridership. **Existing Code and Conditions:** Boardman has a population of fewer than 25,000 people, but it is served by a public transit system (The Loop, with 28 stops in Boardman). However,

	there are no references to transit routes or facilities in the Code. The current Code is silent on required improvements related to transit facilities, referring only to vehicle, pedestrian, and bicycle facilities. **Recommendation:** Consider including transit-specific requirements in Section 3.4.100 (Transportation Standards) to ensure that future land use decisions are supportive of planned transit service.
(b) New retail, office, and institutional buildings at or near major transit stops shall provide for convenient pedestrian access to transit through the measures listed in paragraphs (A) and (B) below. *(A) Accessible walkways shall be provided connecting building entrances and streets adjoining the site;* *(B) Accessible pedestrian facilities connecting to adjoining properties shall be provided except where such a connection is impracticable as provided for in paragraph (3)(b)(E). Pedestrian facilities shall connect the on-site circulation system to existing or proposed streets, walkways, and driveways that abut the property. Where adjacent properties are undeveloped or have potential for redevelopment, streets, accessways and walkways on site shall be laid out or stubbed to allow for extension to the adjoining property;* *(C) In addition to paragraphs (A) and (B) above, on sites at major transit stops provide the following:* *(i) Either locate buildings within 20 feet of the transit stop, a transit street or an intersecting street or provide a pedestrian plaza at the transit stop or a street intersection;* *(ii) An accessible and reasonably direct pedestrian facility between the transit stop and building entrances on the site;*	**Summary:** This section requires that commercial buildings near major transit stops provide reasonable pedestrian access to them. The subsections outline the measures taken to ensure accessibility. **Existing Code and Conditions:** The Loop is a county-run, fixed route bus system that currently has 28 stops in Boardman. The City does not currently have requirements for proposed development in the vicinity of existing or planned transit stops. Walkway and pedestrian facility requirements are addressed in the City's Design Standards, Section 3.1.300 (2) and (3) (Pedestrian Access and Circulation), including the provision that adjoining buildings, entrances, and streets are connected through pathways. ADA accessible routes are included in Section 3.1.300 (B)(5). **Recommendation:** Ensure future accessibility to planned transit routes and stops by including additional requirements for proposed development with retail, office, or public buildings. This may be accomplished through adding clear and objective criteria related to existing and planned stops in either existing Commercial District pedestrian requirements (2.2.160) or in existing or new sections(s) in Chapter 3.6 – Other Standards.

(iii) A transit passenger landing pad accessible to people with disabilities; *(iv) An easement or dedication for a passenger shelter if requested by the transit provider; and* *(v) Lighting at the transit stop.*	
(c) Local governments may implement paragraphs (b)(A) and (B) through the designation of pedestrian districts and adoption of appropriate implementing measures regulating development within pedestrian districts. Pedestrian districts must comply with the requirement of paragraph (b)(C);	**Summary:** This section allows jurisdictions to implement pedestrian connectivity and safety requirements to transit stops by establishing pedestrian districts. **Existing Code and Conditions:** The City Center Sub District identified in Section 2.2.190, promotes "human-scaled design" and includes building orientation and design standards that arguably support transit. **Recommendation:** If the City elects to satisfy the TPR transit requirements through City Center Sub District criteria, "major" transit stops will need to be identified in the updated TSP, and corresponding Code amendments should address TPR Section (4)(b)(C), including required proximity of building entrances to the stop, easement dedications, and lighting.
(d) Designated employee parking areas in new developments shall provide preferential parking for carpools and vanpools;	**Summary:** This subsection requires jurisdictions to include provisions for designated vanpool or carpool parking for employee parking areas. This requirement is intended to discourage single-occupancy vehicle trips by reserving designated vanpool and carpool spaces over standard parking spaces. **Existing Code and Conditions:** Chapter 3.3, Vehicle and Bicycle Parking, has a purpose statement explaining how provisions for parking require extensive paving and can lead to the inefficiency and underutilization of parking lots. Section 3.3.300 (Automobile Parking Standards) contains minimum off-street vehicle parking space requirements by land use (i.e., retail is 1 space per 350 sq. ft., offices are 1 space per 450 sq. ft., restaurants

	are 1 space per 4 seats or 100 sq. ft., etc.). Subsection (B) includes provisions for shared parking, allowed where two (or more) structures or uses will not have overlapping needs. **Recommendation:** There is no language around the vanpool, carpool, or ride share parking for employees. Language should be included in Section 3.3.300 (A) or Section 3.3.300 (B) that designates a certain portion or share of off-street parking spaces for rideshare parking in commercial, industrial, or light industrial land use districts.
(e) Existing development shall be allowed to redevelop a portion of existing parking areas for transit-oriented uses, including bus stops and pullouts, bus shelters, park and ride stations, transit-oriented developments, and similar facilities, where appropriate;	**Summary:** This section requires jurisdictions to allow provisions for the redevelopment of parking facilities and areas into transit facilities and structures; encouraging the development of transit infrastructure. **Existing Code and Conditions:** Chapter 3.3, Vehicle and Bicycle Parking, has a purpose statement explaining how provisions for parking requires extensive paving and can lead to the inefficiency and underutilization of parking lots. However, there is no mention of transit-oriented uses or the redevelopment of existing parking areas for transit infrastructure. **Recommendation:** Language should be included in Chapter 3.3 that allows exceptions to minimum parking requirements in exchange for development of transit facilities listed in -0045 (4)(e) or for the redevelopment of existing parking areas into transit facilities.
(f) Road systems for new development shall be provided that can be adequately served by transit, including provision of pedestrian access to existing and identified future transit routes. This shall include, where appropriate, separate accessways to minimize travel distances;	**Summary:** This section requires street standards and access standards that can accommodate transit services and vehicles to reduce travel times. **Existing Code and Conditions:** Section 5.1.300 (A) includes variances to vehicular access and circulation standards but does not include mention of transit routes or

	street-design/cross-section standards for transit routes or vehicles. **Recommendation:** Language should be included in the Class B Variance section (Section 5.1.300 (A)) to account for road systems and adjustments required for transit services. Roadway right-of-way requirements should be included in code standards and any references to the TSP cross-sections must be specific (e.g., figure number). The TSP's updated cross-section standards will need to include adequate space for pedestrian facilities and should consider space for transit vehicle pullouts in the future.
(g) Along existing or planned transit routes, designation of types and densities of land uses adequate to support transit.	See response to Section 660-0045 (4)(b).
(5) In developing a bicycle and pedestrian circulation plan as required by OAR 660-012-0020(2)(d), local governments shall identify improvements to facilitate bicycle and pedestrian trips to meet local travel needs in developed areas. Appropriate improvements should provide for more direct, convenient, and safer bicycle or pedestrian travel within and between residential areas and neighborhood activity centers (i.e., schools, shopping, transit stops). Specific measures include, for example, constructing walkways between cul-de-sacs and adjacent roads, providing walkways between buildings, and providing direct access between adjacent uses.	**Summary:** This requirement looks to ensure safe facilities and facility improvements for bicycle and pedestrian networks. **Existing Code and Conditions:** See response to Section 660-0045 (3)(b) for current BMC references to pedestrian and bicycle networks. Additional improvements for pedestrian and bicycle circulation are included in 3.1.300 (Pedestrian Access and Circulation). **Recommendation:** The regulation is in compliance with the TPR. No updates are suggested at this time.
(6) Local governments shall establish standards for local streets and accessways that minimize pavement width and total right-of-way consistent with the operational needs of the facility. The intent of this requirement is that local governments consider and reduce excessive standards for local streets and accessways in order to reduce the cost of construction, provide for more efficient use of urban land, provide for emergency vehicle access while discouraging inappropriate traffic volumes and speeds, and which accommodate convenient pedestrian and bicycle circulation. Notwithstanding section (1) or (3) of this rule, local street standards adopted to meet this	**Summary:** This requirement looks to reduce width of local streets to optimize use of urban space and accommodate safe and convenient pedestrian and bicycle systems. The TSP update will make recommendations to the bicycle and pedestrian plan that are consistent with TPR -0020. **Existing Code and Conditions:** Section 3.4.100 (C), Transportation Standards, includes language that states the City may approve a street as long as it is in accordance with the TSP.

requirement need not be adopted as land use regulations.	Section 3.4.100 (E), (F) and Table 3.4.100 F include street widths based on City street functional classification, as well as language that the street width is dependent on the TSP. **Recommendation:** This TPR requirement will be addressed by the TSP planning process, which will identify pedestrian and bicycle improvements for inclusion in the TSP and will require improvements in developing areas consistent with adopted code provisions and design requirements. Street standards in the Code will be updated to be consistent with the recommendation of the (updated) TSP and with PWS.

TPR Section -0060 Plan and Land Use Regulation Amendments

TPR Requirement	Evaluation and Recommendation
Amendments to functional plans, acknowledged comprehensive plans, and land use regulations that significantly affect an existing or planned transportation facility shall assure that allowed land uses are consistent with the identified function, capacity, and performance standards of the facility.	**Summary:** This TPR requirement ensures that amendments to land use policies and regulations consider impacts to existing and planned transportation facilities. **Existing Code and Conditions:** Section 4.7.600 (A) (TPR Compliance) requires that any proposed Comprehensive Plan or land use district change be reviewed to determine any significant impacts to transportation facilities. Section 4.7.600 (B) (Amendments to the Comprehensive Plan) states that any proposed land use change or Comprehensive Plan amendment requires a review to determine if there are significant impacts to a transportation facility. **Recommendation:** Section 4.7.600 should include mention of plan amendment consistency with TPR Section -0060 and transportation facility function, capacity, and performance standards or targets.

Appendix E: Methodology Memorandum

Technical Memorandum

Date:	October 21, 2024	Kittelson Project No: 30287
To:	Project Management Team (PMT)	
From:	Matt Hughart, AICP, Eza Gaigalas	
Subject:	Methodology Memorandum	

Introduction

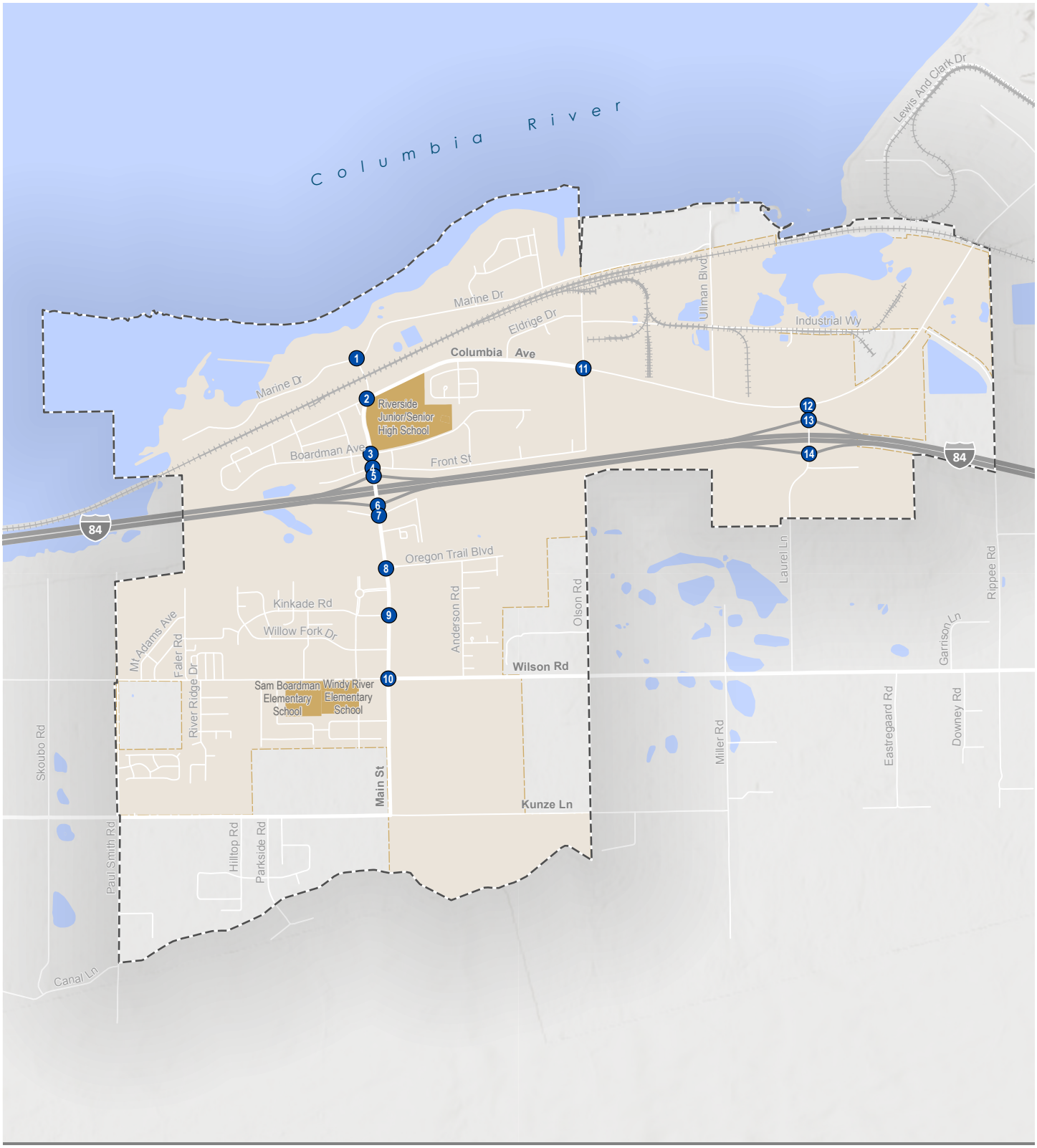
This memorandum identifies a methodology and assumptions to be used in the technical analyses for the City of Boardman Transportation System Plan (TSP) Update. The methodologies presented are based on guidance provided in the Oregon Department of Transportation (ODOT) Analysis Procedures Manual (APM – Reference 1) and direction provided by City of Boardman and ODOT staff. The methodology and assumptions include:

- Data collection and volume development;
- Traffic analysis procedure for the study intersections and study segments under existing and planning horizon (no-build and build) traffic conditions;
- Crash analysis procedure for the study intersections; and,
- Multimodal analysis procedure for collector and arterial roadways.

This information will serve as a baseline for determining a comprehensive list of transportation needs as well as helping to identify, evaluate, and prioritize potential solutions as part of the TSP Update.

Study Area

The study area for the City of Boardman TSP Update consists of the multimodal transportation network within the City of Boardman Urban Growth Boundary (UGB). This includes 14 intersections –all unsignalized – under either City of Boardman or ODOT jurisdiction. The study intersections and study segments are identified in Figure 1; Table 1 lists the study intersections and specifies their jurisdiction and type of traffic control.



Study Intersection
School
City Boundary
Urban Growth Boundary

0 0.5 1 Miles

Figure 1

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Study Area
Boardman, OR

Table 1. Summary of Study Area Intersections

ID	Intersection	Type	Jurisdiction
1	N Main Street / Marine Drive	Unsignalized	City
2	N Main Street / Columbia Avenue	Unsignalized	City
3	N Main Street / Boardman Avenue	Unsignalized	City
4	N Main Street / N Front Street	Unsignalized	City
5	S Main Street / I-84 Westbound Ramp Terminal	Unsignalized	ODOT
6	S Main Street / I-84 Eastbound Ramp Terminal	Unsignalized	ODOT
7	S Main Street / S Front Street	Unsignalized	City
8	S Main Street / Oregon Trail Boulevard	Unsignalized	City
9	S Main Street / Kinkade Road	Unsignalized	City
10	S Main Street / Wilson Lane	Unsignalized	City
11	Olson Street / Columbia Avenue	Unsignalized	City
12	Laurel Lane / Columbia Avenue	Unsignalized	City
13	Laurel Lane / I-84 Westbound Ramp Terminal	Unsignalized	ODOT
14	Laurel Lane / I-84 Eastbound Ramp Terminal	Unsignalized	ODOT

Traffic Volume Development

The following sections describe how existing traffic volumes will be developed at the study intersections and the analysis methodologies that will be used to evaluate existing and future traffic conditions within the study area.

Traffic Counts

Traffic counts at the study intersections were collected on May 21, 2024 by ODOT. Intersection counts were collected over a 16-hour period (6:00AM to 10:00PM). While, 2024 will be the base year for the TSP development, year 2045 being the future horizon year for planning purposes.

All intersection counts include the total number of pedestrians, bicyclists, and motor vehicles, as well as the percentage of heavy vehicles that entered each intersection in 15-minute intervals. Traffic count worksheets are provided in Appendix A.

Seasonal Adjustment

Following the methodology outlined by ODOT's Analysis Procedures Manual (APM), a seasonal adjustment factor has been developed and is proposed to be applied to the traffic counts collected at intersections #3-#7. These intersections include the I-84 interchange ramp terminals with Main Street and those nearby Main Street intersections that serve the various freeway-oriented retail establishments on both sides of the interstate highway. No seasonal adjustment factor is proposed at the I-84/Laurel Lane interchange ramp terminals as this interchange primarily serves the Port of Morrow, has no significant freeway-oriented retail establishments, and does not provide access to regional through routes. Furthermore, no seasonal adjustment factor is proposed for the other study intersections in the City of Boardman as these intersections are not located on regional through routes nor do they serve destinations that are typically susceptible to seasonal traffic fluctuations.

Consistent with the previous transportation studies performed in Boardman, Automatic Traffic Recorder ATR #25-008 (located approximately 4.3 miles to the east on I-84) and ATR #11-009 located approximately 11.8 miles to the west on I-84), were determined to be an appropriate ATRs that can be used to calculate 30th highest hour factor. While not located in the immediate vicinity of Boardman, both ATRs are located on I-84 and would offer insights into the degree of seasonal fluctuation experienced at the freeway-adjacent intersections in Boardman. As shown in Table 2, the seasonal adjustment factor calculation for the intersection counts collected in May is 1.15 using ATR #25-008 and 1.23 using ATR #11-009.

Table 2. Seasonal Adjustment Factor Calculation for ATR #25-008

Year	2018	2019	2021	2022	2023	Average
ATR #25-008						
Peak Month (August)	122	~~124~~	120	~~117~~	118	120
Count Month (May)	~~104~~	~~105~~	105	105	104	105

- The average peak month (August) is: (122% + 120% + 118%) / 3 = 120%
- The average count month (May) is: (105% + 105% + 104%) / 3 = 104.7%
- The seasonal adjustment factor is 120%/104.7% = **1.15**

Table 3. Seasonal Adjustment Factor Calculation for ATR #11-009

Year	2018	2019	2021	2022	2023	Average
ATR #11-009						
Peak Month (July/August)	130	~~132~~	132	~~123~~	129	130.3
Count Month (May)	~~105~~	106	106	~~107~~	106	106

- The average peak month (August) is: (130% + 132% + 129%) / 3 = 130.3%
- The average count month (May) is: (106% + 106% + 106%) / 3 = 106%
- The seasonal adjustment factor is 130.3%/106% = **1.23**

An average of these two factors nets a seasonal adjustment factor of 1.19 and will therefore be used to seasonally adjust the May 2024 volumes to 30th highest hour conditions.

Forecast Traffic Volumes

The planning horizon for the City of Boardman TSP Update is 2045. There is no travel demand model that has been previously developed for Boardman. Therefore, future traffic volumes at the study intersections are proposed to be developed using a methodology that was initially created for the *2009 Main Street IAMP* (Appendix B) and expanded upon in the more recent *2023 Main Street Circulation Assessment*. Similar to a Zonal Cumulative Analysis, these previous studies performed a detailed land development assessment for all undeveloped/underdeveloped parcels and assigned future trips (using the ITE Trip Generation manual) to the study area intersections. This same methodology is proposed to be further refined and expanded upon to include larger segments of the city and the study intersections.

Traffic Analysis

The traffic analysis will evaluate peak hour traffic operations of the study intersections and segments under existing conditions and through the TSP planning horizon to identify potential capacity constraints and alternatives. This section summarizes the traffic analysis methodology including applicable operational standards and analysis parameters and assumptions.

Intersection Operations Analysis

This section summarizes the intersection operational standards, analysis parameters, and analysis software and input assumptions for the intersection operations analysis.

Intersection Operational Standards

The study intersections identified for the TSP are subject to the operating standards described in the following sections according to their jurisdiction.

ODOT FACILITIES

ODOT uses volume-to-capacity (v/c) ratios to assess intersection operations. Table 6 of the *Oregon Highway Plan* (OHP – Reference 2) provides maximum volume-to-capacity ratio targets for all signalized/roundabout and unsignalized intersections. Table 4 summarizes the applicable v/c ratio that will be used to evaluate the existing and future operations at the ODOT owned/maintained I-84/Main Street ramp terminals and I-84/Laurel Lane ramp terminals.

Table 4: ODOT Mobility Targets

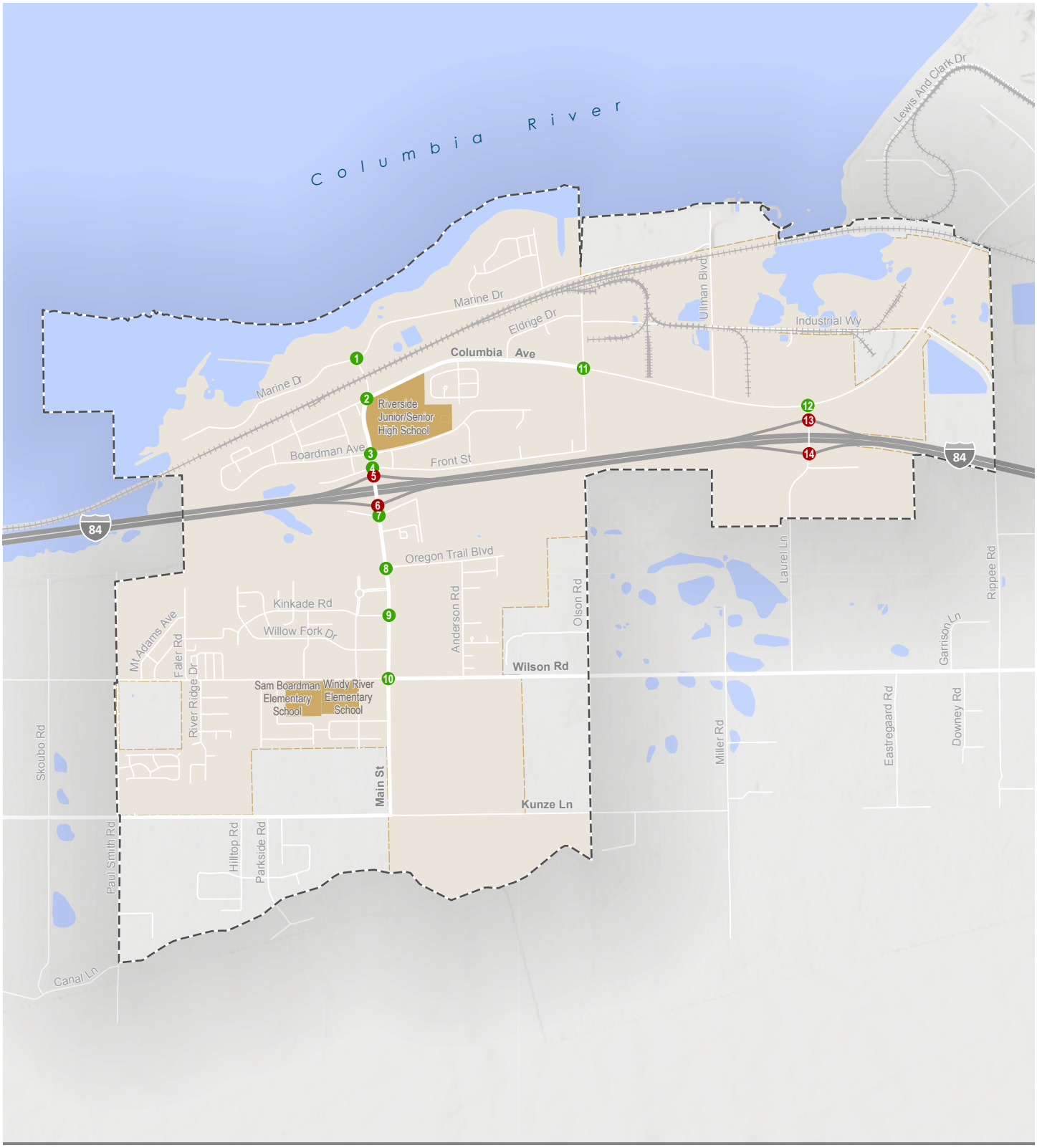
Intersection	OHP Mobility Target
Main Street/I-84 WB Ramp Terminal	v/c = 0.85 Main Street approach/0.80 ramp approach
Main Street/I-84 EB Ramp Terminal	v/c = 0.85 Main Street approach/0.80 ramp approach
Laurel Lane/I-84 WB Ramp Terminal	v/c = 0.85 Laurel Lane approach/0.80 ramp approach
Laurel Lane/I-84 EB Ramp Terminal	v/c = 0.85 Laurel Lane approach/0.80 ramp approach

Note: In the event intersection or roadway alternatives involve major traffic control improvements, the applicable v/c standards from Oregon's Highway Design Manual (HDM – Reference 3) will be applied. In the case of the noted intersections, the 20-year design mobility standard would be a v/c of 0.65.

LOCAL FACILITIES

The remaining study intersections are on the local street system and are subject to appropriate local operating standards. The City of Boardman uses LOS standard of "C" or better for all intersections.

Traffic operations at the study intersections will be evaluated according to the ODOT and local operating standards referenced above. Potential solutions will be identified and evaluated for the study intersections that are found to exceed applicable v/c and LOS thresholds under existing and future traffic conditions. The v/c and LOS thresholds specific to each study intersection are identified in Figure 2.



Local Targets

- LOS C

ODOT Target (OHP)

- v/c <= 0.85 (Highway) / 0.80 (Local Street)

School

City Boundary

Urban Growth Boundary

0 0.5 1 Miles

Figure 2

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Study Intersection Mobility Targets
Boardman, OR

Analysis Parameters

The following data sources and methodologies are proposed for conducting traffic analysis. Analysis of all state facilities will be performed according to the APM, unless otherwise agreed upon by the City and ODOT.

1. **Inventory** – The specific "should" and "shall" elements from ODOT's TSP Guidelines will be inventoried through site visits, considered and analyzed in Draft Memoranda #4 - #6. See Appendix C for a more detailed list of transportation infrastructure elements that will be included in the analysis.

2. **Intersection/Road Geometry** (e.g., number of lanes, lane configurations, cross-section elements, etc.) will be collected through aerial photography. Available as-built data (verified through site visit) may also be used to verify existing roadway geometry. The analysis models will be constructed on scaled roadway line work from GIS or aerial photography.

3. **Operational Data** (e.g., posted speeds, intersection control, rail crossings, etc.) will be collected through aerial photography, Oregon digital video log, Google Streetview, straight line charts, GIS data, and/or local knowledge. All data will be field verified.

4. **Peak Hour Factors** (PHF) will be calculated for each intersection with traffic count data, as available, and applied to the existing conditions analysis. Per the APM, the following PHF's will be applied for the year 2045 analysis:
    a. Major Arterial to Major Arterial Facilities: 0.95
    b. Major Arterial to Minor Arterial Facilities: 0.92
    c. Minor Arterial to Minor Arterial Facilities: 0.90
    d. Minor Arterial to Collector Facilities: 0.88
    e. Collector to Collector (or Lower) Facilities: 0.85

    If an existing PHF is greater than the default future values above, the existing PHF will be used.

5. **Traffic Volume Development** is described in previous sections.

6. **Traffic Operations**
    a. The methodologies identified in the *Highway Capacity Manual 7th Edition* (HCM – Reference 4) will be used to analyze traffic operations at the study intersections.

b. Vistro is a software tool designed to assist with operations analyses in accordance with HCM 7th Edition methodologies; therefore, Vistro 7 will be used to conduct the traffic operations analyses. Level-of-service (LOS), delay, v/c ratios (critical movement for unsignalized intersections) and 95th percentile queue lengths will be reported at all intersections regardless of jurisdiction. Failing unsignalized intersections will be evaluated using *Manual on Uniform Traffic Control Devices* (MUTCD – Reference 5) traffic signal warrants.

Traffic Analysis Software & Input Assumptions

Table 5 summarizes the Vistro software and input assumptions for the traffic analysis. These setting are consistent with what is listed in in the ODOT APM Appendix 12A/13A.

Table 5. Traffic Analysis Assumptions

Intersection Parameters	Existing Conditions Assumptions
Speed	Posted
Peak Hour Factor	From traffic counts
Conflicting Bikes and Pedestrians per Hour	From traffic counts (as available)
Area Type	Not a Central Business District
Ideal Saturation Flow Rate (All Movements)	1,750 passenger cars per hour per lane
Lane Width	12 feet (unless field observations suggest otherwise)
Pedestrian Crosswalk Width	10 feet (unless field observations suggest otherwise)
Percent Heavy Vehicles (All Movements)	From traffic counts (as available)
Percent Grade	Estimated based on field observations
95th-Percentile & Average Vehicle Queues	Vistro summary output

Crash Analysis

The crash analysis will include evaluating crash patterns, risk factors, crash emphasis areas, and summarizing all fatal/serious injury crashes across the urban area. It also includes a critical crash rate analysis for all the study intersections. ODOT's Safety Priority Index System (SPIS) sites will be reviewed along with segment crash rates according to the APM. For future transportation projects, the safety impacts of each design or each alternative developed to specifically address a safety concern will be assessed and summarized. The ODOT's All Roads Transportation Safety Crash Reduction Factors Manual (ARTS CRF) will be initial source of countermeasures. If the ARTS CRF is

not sufficient, then the Crash Modification Factors in the Highway Safety Manual Part D and/or the Federal Highway Administration Crash Modification Factor Clearinghouse will be used to indicate the potential crash reduction for each safety alternative or countermeasure. It is recognized that the ODOT Crash Modification Factor standard is to only use Crash Modification Factor's with a quality rating of three stars or better.

Multimodal Analysis

The multimodal analysis will review the following elements of the active transportation network to identify potential facility and service alternatives for people walking, biking, and taking transit within the project study area:

- Availability of facilities and services (including transit) along collector and arterial roadways;
- Level of Traffic Stress (LTS) ratings for pedestrian and bicycle facilities along collector and arterial roadways, including around transit facilities; and,
- Safety risk to pedestrians and bicyclists along state highways, including around transit facilities.

The LTS analyses will be performed in accordance with the methodologies identified in Chapter 14 of the APM. For state facilities, the assessment will rely on LTS data that ODOT has developed. Pedestrian and Bicycle LTS have unique criteria that are used to determine a facilities LTS score (e.g., number of travel lanes, bike lane widths, adjacent parking, roadway functional classification, daily volume, posted speed limits, sidewalk conditions and widths, illumination presence, etc.). LTS scores range from little traffic stress (LTS 1) to high traffic stress (LTS 4) and are based on the perceived safety issue of being in close proximity to vehicles.

Analysis of potential crossing treatments will be completed in accordance with NCHRP Report 562 methodologies, as described in Chapter 14 of the APM.

References

1. Oregon Department of Transportation. Analysis Procedures Manual, 2018.
2. Oregon Department of Transportation. Oregon Highway Plan, 2015.
3. Oregon Department of Transportation. Highway Design Manual, 2024.
4. Transportation Research Board. Highway Capacity Manual, 7th Edition, 2022.
5. Federal Highway Administration. Manual on Uniform Traffic Control Devices. 2009.

Appendix A – Traffic Counts

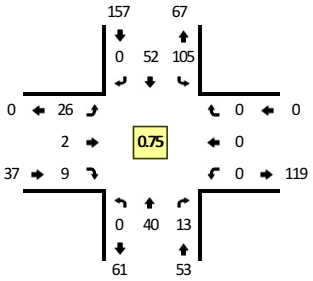
Type of peak hour being reported: Intersection Peak

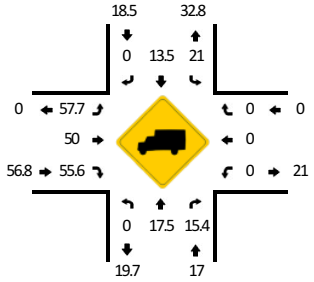
Method for determining peak hour: Total Entering Volume

LOCATION: Laurel Ln -- I-84 EB Ramps
CITY/STATE: Boardman, OR

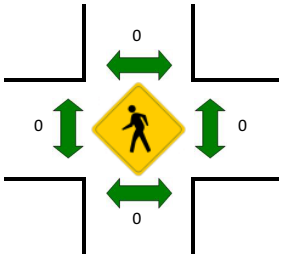
QC JOB #: 16719901
DATE: Tue, May 21 2024

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

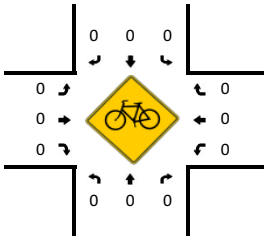


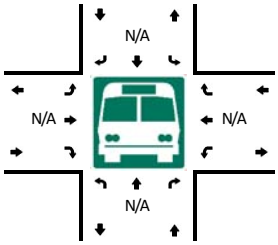


TRUE DATA TO IMPROVE MOBILITY

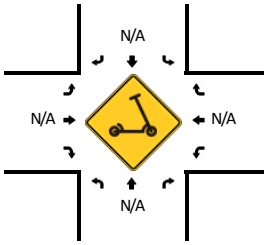












5-Min Count Period Beginning At	Laurel Ln (Northbound)				Laurel Ln (Southbound)				I-84 EB Ramps (Eastbound)				I-84 EB Ramps (Westbound)				Total	Hourly Totals
	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U		
7:00 AM	0	6	1	0	4	9	0	0	4	0	1	0	0	0	0	0	25	
7:05 AM	0	3	1	0	6	5	0	0	3	0	1	0	0	0	0	0	19	
7:10 AM	0	2	1	0	8	6	0	0	3	1	1	0	0	0	0	0	22	
7:15 AM	0	1	0	0	19	3	0	0	3	0	0	0	0	0	0	0	26	
7:20 AM	0	3	1	0	14	8	0	0	1	0	0	0	0	0	0	0	27	
7:25 AM	0	8	1	0	12	3	0	0	5	0	0	0	0	0	0	0	29	
7:30 AM	0	0	3	0	10	3	0	1	1	0	1	0	0	0	0	0	19	
7:35 AM	0	3	1	0	11	2	0	0	0	0	0	0	0	0	0	0	17	
7:40 AM	0	4	1	0	7	5	0	0	2	0	1	0	0	0	0	0	20	
7:45 AM	0	4	1	0	4	3	0	0	1	0	3	0	0	0	0	0	16	
7:50 AM	0	3	1	0	4	3	0	0	3	0	1	0	0	0	0	0	15	
7:55 AM	0	3	1	0	5	2	0	0	0	1	0	0	0	0	0	0	12	247
8:00 AM	0	4	3	0	9	5	0	0	1	0	1	0	0	0	0	0	23	245
8:05 AM	0	5	1	0	6	1	0	0	4	0	0	0	0	0	0	0	17	243
8:10 AM	0	0	0	0	3	3	0	0	8	0	2	0	0	0	0	0	16	237
8:15 AM	0	6	1	0	9	1	0	0	4	0	0	0	0	0	0	0	21	232
8:20 AM	0	3	0	0	3	4	0	0	7	0	1	0	0	0	0	0	18	223
8:25 AM	0	3	0	0	8	2	0	0	0	0	0	0	0	0	0	0	13	207
8:30 AM	0	5	1	0	7	3	0	0	4	0	0	0	0	0	0	0	20	208
8:35 AM	0	3	1	0	3	2	0	0	2	0	1	0	0	0	0	0	12	203
8:40 AM	0	1	3	0	4	4	0	0	1	0	0	0	0	0	0	0	13	196
8:45 AM	0	2	1	0	12	5	0	0	4	0	4	0	0	0	0	0	28	208
8:50 AM	0	5	1	0	8	5	0	0	4	0	0	0	0	0	0	0	23	216
8:55 AM	0	2	2	0	3	2	0	0	2	0	0	0	0	0	0	0	11	215

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	48	8	0	180	56	0	0	36	0	0	0	0	0	0	0	328
Heavy Trucks	0	8	0		24	4	0		20	0	0		0	0	0		56
Buses																	
Pedestrians		0				0				0				0			0
Bicycles	0	0	0		0	0	0		0	0	0		0	0	0		0
Scooters																	

Comments:

Report generated on 8/16/2024 2:46 PM

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

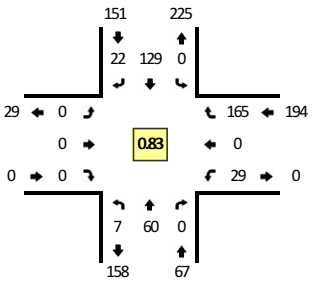
Type of peak hour being reported: Intersection Peak

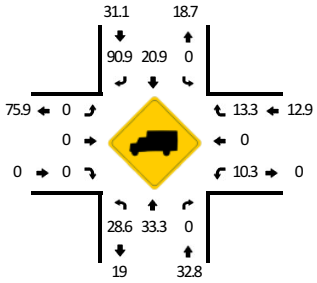
Method for determining peak hour: Total Entering Volume

LOCATION: Laurel Ln -- I-84 WB Ramps
CITY/STATE: Boardman, OR

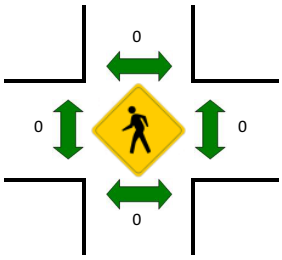
QC JOB #: 16719902
DATE: Tue, May 21 2024

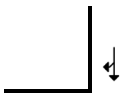
Peak-Hour: 7:00 AM -- 8:00 AM
Peak 15-Min: 7:15 AM -- 7:30 AM

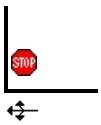


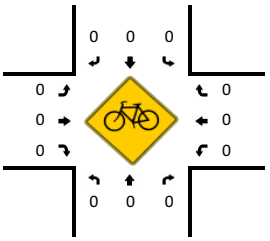


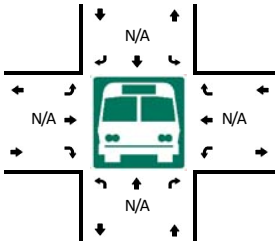
TRUE DATA TO IMPROVE MOBILITY



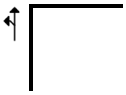


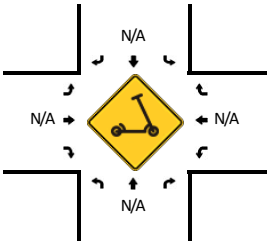












5-Min Count Period Beginning At	Laurel Ln (Northbound)				Laurel Ln (Southbound)				I-84 WB Ramps (Eastbound)				I-84 WB Ramps (Westbound)				Total	Hourly Totals
	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U		
7:00 AM	1	9	0	0	0	8	0	0	0	0	0	0	5	0	13	0	36	
7:05 AM	1	5	0	0	0	7	2	0	0	0	0	0	4	0	17	0	36	
7:10 AM	1	4	0	0	0	13	4	0	0	0	0	0	2	0	7	0	31	
7:15 AM	0	3	0	0	0	21	2	0	0	0	0	0	2	0	14	0	42	
7:20 AM	2	3	0	0	0	17	3	0	0	0	0	0	3	0	10	0	38	
7:25 AM	1	10	0	0	0	16	2	0	0	0	0	0	1	0	14	0	44	
7:30 AM	0	4	0	0	0	10	3	0	0	0	0	0	4	0	14	0	35	
7:35 AM	0	3	0	0	0	11	0	0	0	0	0	0	1	0	19	0	34	
7:40 AM	0	6	0	0	0	9	1	0	0	0	0	0	3	0	9	0	28	
7:45 AM	1	4	0	0	0	7	2	0	0	0	0	0	1	0	16	0	31	
7:50 AM	0	5	0	0	0	3	0	0	0	0	0	0	2	0	15	0	25	
7:55 AM	0	4	0	0	0	7	3	0	0	0	0	0	1	0	17	0	32	412
8:00 AM	2	2	0	0	0	11	1	0	0	0	0	0	3	0	13	0	32	408
8:05 AM	1	8	0	0	0	6	2	0	0	0	0	0	0	0	10	0	27	399
8:10 AM	1	7	0	0	0	5	4	0	0	0	0	0	1	0	4	0	22	390
8:15 AM	0	11	0	0	0	12	2	0	0	0	0	0	0	0	13	0	38	386
8:20 AM	0	10	0	0	0	4	3	0	0	0	0	0	2	0	7	0	26	374
8:25 AM	0	3	0	0	0	8	2	0	0	0	0	0	2	0	6	0	21	351
8:30 AM	1	8	0	0	0	7	2	0	0	0	0	0	2	0	5	0	25	341
8:35 AM	1	3	0	0	0	4	3	0	0	0	0	0	2	0	13	0	26	333
8:40 AM	0	2	0	0	0	7	3	0	0	0	0	0	0	0	11	0	23	328
8:45 AM	1	6	0	0	0	20	2	0	0	0	0	0	2	0	5	0	36	333
8:50 AM	3	5	0	0	0	7	3	0	0	0	0	0	3	0	10	0	31	339
8:55 AM	2	3	0	0	0	5	0	0	0	0	0	0	0	0	7	0	17	324

Peak 15-Min Flowrates	Northbound				Southbound				Eastbound				Westbound				Total
	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U	
All Vehicles	12	64	0	0	0	216	28	0	0	0	0	0	24	0	152	0	496
Heavy Trucks	8	16	0		0	28	28		0	0	0		0	0	24		104
Buses																	
Pedestrians		0				0				0				0			0
Bicycles	0	0	0		0	0	0		0	0	0		0	0	0		0
Scooters																	

Comments:

Report generated on 8/16/2024 2:46 PM

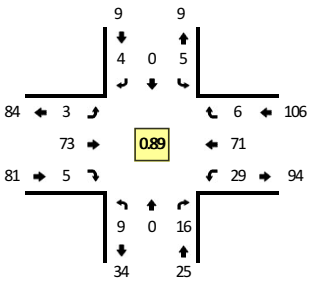
SOURCE: Quality Counts, LLC (http://www.qualitycounts.net) 1-877-580-2212

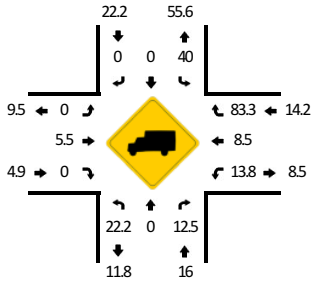
Type of peak hour being reported: Intersection Peak | Method for determining peak hour: Total Entering Volume

LOCATION: Olson Rd -- Columbia Ave NE
CITY/STATE: Boardman, OR

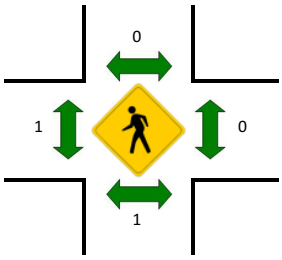
QC JOB #: 16719903
DATE: Tue, May 21 2024

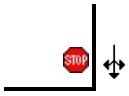
Peak-Hour: 7:20 AM -- 8:20 AM
Peak 15-Min: 7:55 AM -- 8:10 AM

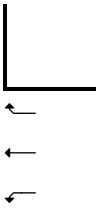


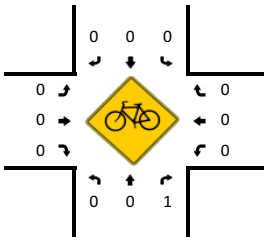


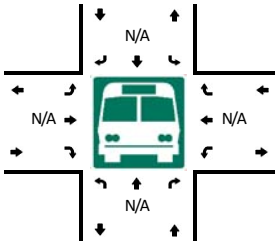
TRUE DATA TO IMPROVE MOBILITY

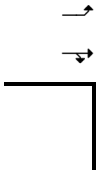


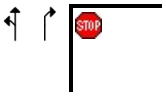


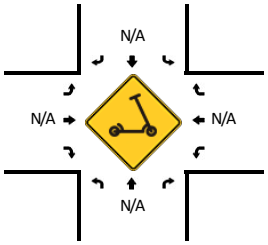












5-Min Count Period Beginning At	Olson Rd (Northbound)				Olson Rd (Southbound)				Columbia Ave NE (Eastbound)				Columbia Ave NE (Westbound)				Total	Hourly Totals
	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U		
7:00 AM	0	1	1	0	3	0	0	0	0	2	0	0	1	3	3	0	14	
7:05 AM	1	0	0	0	3	0	0	0	0	5	0	0	4	5	0	0	18	
7:10 AM	1	0	2	0	0	0	0	0	0	5	0	0	2	4	2	0	16	
7:15 AM	0	0	1	0	1	0	0	0	0	3	0	0	1	6	0	0	12	
7:20 AM	1	0	0	0	0	0	1	0	1	4	0	0	4	10	1	0	22	
7:25 AM	1	0	3	0	0	0	1	0	0	5	1	0	3	7	1	0	22	
7:30 AM	0	0	1	0	0	0	1	0	0	3	0	0	2	4	0	0	11	
7:35 AM	1	0	4	0	2	0	0	0	0	5	1	0	2	3	1	0	19	
7:40 AM	1	0	0	0	0	0	0	0	0	10	2	0	1	5	1	0	20	
7:45 AM	1	0	1	0	0	0	0	0	2	8	0	0	3	4	0	0	19	
7:50 AM	1	0	3	0	1	0	0	0	0	7	1	0	1	2	0	0	16	
7:55 AM	0	0	1	0	0	0	0	0	0	9	0	0	3	9	0	0	22	211
8:00 AM	2	0	1	0	1	0	0	0	0	7	0	0	1	4	1	0	17	214
8:05 AM	1	0	0	0	1	0	0	0	0	5	0	0	5	11	0	0	23	219
8:10 AM	0	0	1	0	0	0	0	0	0	4	0	0	2	4	0	0	11	214
8:15 AM	0	0	1	0	0	0	1	0	0	6	0	0	2	8	1	0	19	221
8:20 AM	0	0	1	0	0	0	0	0	0	2	0	0	1	4	1	0	9	208
8:25 AM	0	0	0	0	1	0	0	0	0	0	0	0	0	2	1	0	4	190
8:30 AM	0	0	0	0	0	0	0	0	1	3	1	0	0	5	0	0	10	189
8:35 AM	3	0	1	0	0	0	0	0	0	2	1	0	1	6	0	0	14	184
8:40 AM	2	0	1	0	0	0	0	0	0	3	3	0	2	3	1	0	15	179
8:45 AM	0	1	2	0	0	0	0	0	0	5	2	0	3	7	2	0	22	182
8:50 AM	2	1	1	0	1	0	0	0	1	4	0	0	3	0	1	0	14	180

Peak 15-Min Flowrates	Northbound				Southbound				Eastbound				Westbound				Total
	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U	
All Vehicles	12	0	8	0	8	0	0	0	0	84	0	0	36	96	4	0	248
Heavy Trucks	0	0	4		4	0	0		0	4	0		0	16	4		32
Buses																	
Pedestrians		0				0				0				0			0
Bicycles	0	0	0		0	0	0		0	0	0		0	0	0		0
Scooters																	

Comments:

Report generated on 8/16/2024 2:46 PM

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

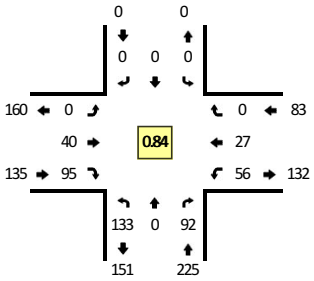
Type of peak hour being reported: Intersection Peak

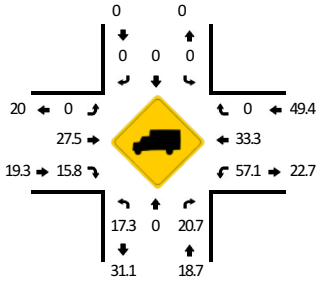
Method for determining peak hour: Total Entering Volume

LOCATION: Laurel Ln -- Columbia Blvd
CITY/STATE: Boardman, OR

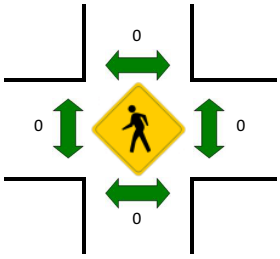
QC JOB #: 16719904
DATE: Tue, May 21 2024

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

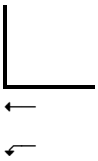


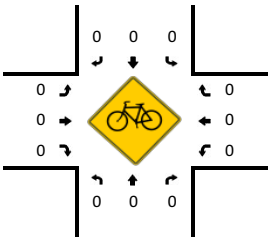


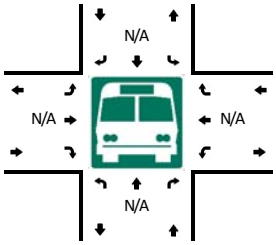
TRUE DATA TO IMPROVE MOBILITY

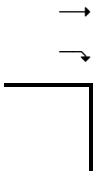


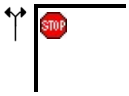


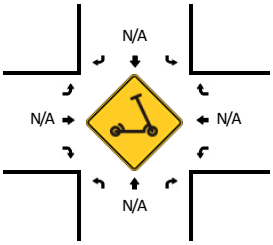












5-Min Count Period Beginning At	Laurel Ln (Northbound)				Laurel Ln (Southbound)				Columbia Blvd (Eastbound)				Columbia Blvd (Westbound)				Total	Hourly Totals
	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U		
7:00 AM	11	0	11	0	0	0	0	0	0	6	4	0	4	2	0	0	38	
7:05 AM	17	0	5	0	0	0	0	0	0	4	5	0	4	2	0	0	37	
7:10 AM	6	0	5	0	0	0	0	0	0	5	11	0	7	6	0	0	40	
7:15 AM	7	0	9	0	0	0	0	0	0	3	17	0	5	0	0	0	41	
7:20 AM	7	0	5	0	0	0	0	0	0	2	12	0	9	7	0	0	42	
7:25 AM	17	0	9	0	0	0	0	0	0	4	12	0	6	1	0	0	49	
7:30 AM	13	0	4	0	0	0	0	0	0	3	7	0	5	0	0	0	32	
7:35 AM	11	0	11	0	0	0	0	0	0	2	9	0	2	4	0	0	39	
7:40 AM	6	0	9	0	0	0	0	0	0	2	5	0	5	2	0	0	29	
7:45 AM	12	0	9	0	0	0	0	0	0	5	6	0	3	0	0	0	35	
7:50 AM	11	0	9	0	0	0	0	0	0	2	2	0	1	1	0	0	26	
7:55 AM	15	0	6	0	0	0	0	0	0	2	5	0	5	2	0	0	35	443
8:00 AM	8	0	7	0	0	0	0	0	0	7	6	0	6	4	0	0	38	443
8:05 AM	9	0	8	0	0	0	0	0	0	1	6	0	2	0	0	0	26	432
8:10 AM	3	0	9	0	0	0	0	0	0	6	3	0	7	1	0	0	29	421
8:15 AM	12	0	11	0	0	0	0	0	0	3	6	0	7	2	0	0	41	421
8:20 AM	9	0	8	0	0	0	0	0	0	0	3	0	5	2	0	0	27	406
8:25 AM	5	0	5	0	0	0	0	0	0	0	4	0	6	1	0	0	21	378
8:30 AM	4	0	8	0	0	0	0	0	0	4	2	0	6	1	0	0	25	371
8:35 AM	7	0	9	0	0	0	0	0	0	4	2	0	5	3	0	0	30	362
8:40 AM	4	0	10	0	0	0	0	0	0	2	3	0	7	0	0	0	26	359
8:45 AM	5	0	6	0	0	0	0	0	0	2	9	0	13	4	0	0	39	363
8:50 AM	6	0	8	0	0	0	0	0	0	5	4	0	7	2	0	0	32	369

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	124	0	92	0	0	0	0	0	0	36	164	0	80	32	0	0	528
Heavy Trucks	16	0	24		0	0	0		0	8	20		40	8	0		116
Buses																	
Pedestrians		0				0				0				0			0
Bicycles	0	0	0		0	0	0		0	0	0		0	0	0		0
Scooters																	

Comments:

Report generated on 8/16/2024 2:46 PM

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

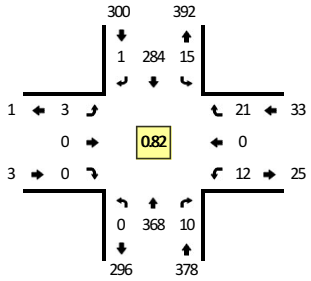
Type of peak hour being reported: Intersection Peak

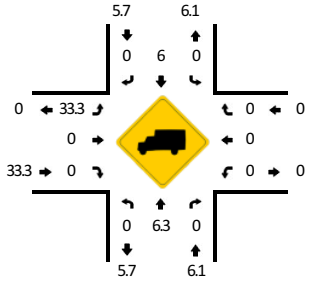
Method for determining peak hour: Total Entering Volume

LOCATION: S Main St -- SE Front St
CITY/STATE: Boardman, OR

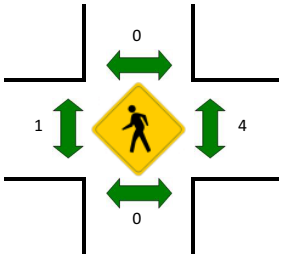
QC JOB #: 16719905
DATE: Tue, May 21 2024

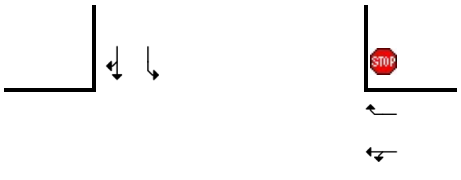
Peak-Hour: 7:00 AM -- 8:00 AM
Peak 15-Min: 7:10 AM -- 7:25 AM

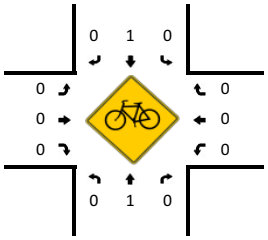


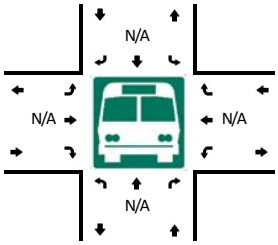


TRUE DATA TO IMPROVE MOBILITY

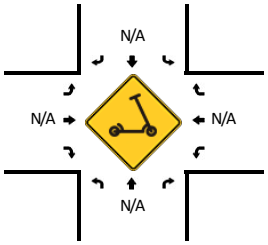












5-Min Count Period Beginning At	S Main St (Northbound)				S Main St (Southbound)				SE Front St (Eastbound)				SE Front St (Westbound)				Total	Hourly Totals
	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U		
7:00 AM	0	36	1	0	0	14	1	0	0	0	0	0	0	0	5	0	57	
7:05 AM	0	36	0	0	1	23	0	0	0	0	0	0	2	0	2	0	64	
7:10 AM	0	34	1	0	0	28	0	0	1	0	0	0	0	0	1	0	65	
7:15 AM	0	43	0	0	3	24	0	0	0	0	0	0	1	0	3	0	74	
7:20 AM	0	40	1	0	3	33	0	0	1	0	0	0	1	0	0	0	79	
7:25 AM	0	21	3	0	1	30	0	0	0	0	0	0	1	0	1	0	57	
7:30 AM	0	18	1	0	1	18	0	0	0	0	0	0	0	0	3	0	41	
7:35 AM	0	21	0	0	1	19	0	0	0	0	0	0	2	0	1	0	44	
7:40 AM	0	30	0	0	3	15	0	0	0	0	0	0	1	0	2	0	51	
7:45 AM	0	21	0	0	1	31	0	0	1	0	0	0	2	0	2	0	58	
7:50 AM	0	39	3	0	1	23	0	0	0	0	0	0	1	0	0	0	67	
7:55 AM	0	29	0	0	0	26	0	0	0	0	0	0	1	0	1	0	57	714
8:00 AM	0	25	2	0	1	20	0	0	0	0	0	0	0	0	1	0	49	706
8:05 AM	0	32	2	0	1	26	0	0	0	0	0	0	0	0	0	0	61	703
8:10 AM	0	29	0	0	2	15	0	0	1	0	0	0	1	0	2	0	50	688
8:15 AM	0	14	0	0	0	17	0	0	0	0	0	0	0	0	2	0	33	647
8:20 AM	0	13	1	0	1	15	0	0	0	0	0	0	0	0	4	0	34	602
8:25 AM	0	12	0	0	2	14	1	0	0	0	1	0	1	0	1	0	32	577
8:30 AM	0	12	0	0	2	9	0	0	0	0	0	0	0	0	0	0	23	559
8:35 AM	0	25	1	0	2	11	0	0	0	0	0	0	0	0	3	0	42	557
8:40 AM	0	15	0	0	1	11	1	0	1	0	0	0	0	0	3	0	32	538
8:45 AM	1	23	1	0	3	13	1	0	1	0	0	0	1	0	1	0	45	525
8:50 AM	0	21	1	0	1	9	1	0	2	0	0	0	0	0	6	0	41	499

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	468	8	0	24	340	0	0	8	0	0	0	8	0	16	0	872
Heavy Trucks	0	16	0		0	16	0		4	0	0		0	0	0		36
Buses																	
Pedestrians		0				0				4				4			8
Bicycles	0	0	0		0	4	0		0	0	0		0	0	0		4
Scooters																	

Comments:

Report generated on 8/16/2024 2:46 PM

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

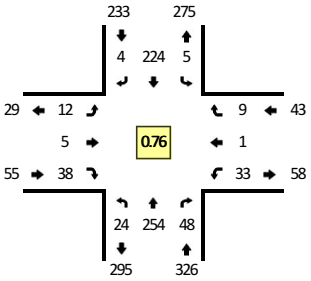
Type of peak hour being reported: Intersection Peak

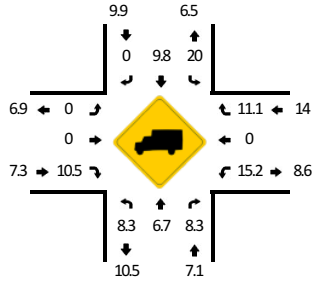
Method for determining peak hour: Total Entering Volume

LOCATION: N Main St -- Front St NW
CITY/STATE: Boardman, OR

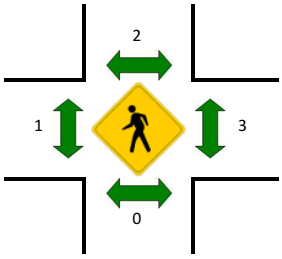
QC JOB #: 16719906
DATE: Tue, May 21 2024

Peak-Hour: 7:10 AM -- 8:10 AM
Peak 15-Min: 7:10 AM -- 7:25 AM

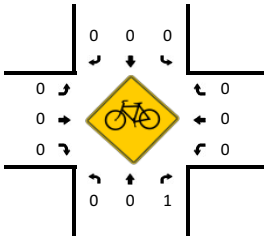


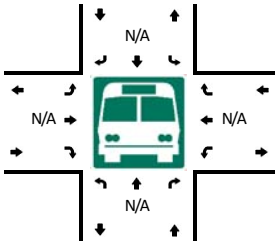


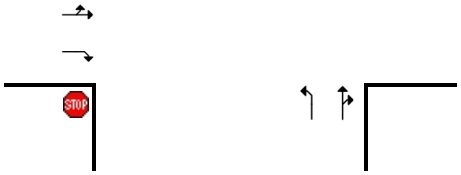
TRUE DATA TO IMPROVE MOBILITY

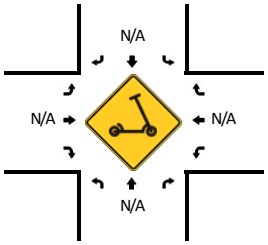












5-Min Count Period Beginning At	N Main St (Northbound)				N Main St (Southbound)				Front St NW (Eastbound)				Front St NW (Westbound)				Total	Hourly Totals
	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U		
7:00 AM	3	35	4	0	1	9	1	0	0	0	1	0	1	0	1	0	56	
7:05 AM	4	31	4	0	0	16	0	0	0	0	1	0	3	0	0	0	59	
7:10 AM	1	28	3	0	0	26	0	0	3	0	3	0	4	0	1	0	69	
7:15 AM	1	34	3	0	0	23	0	0	1	0	1	0	1	0	2	0	66	
7:20 AM	1	40	4	0	1	30	0	0	0	0	4	0	0	0	2	0	82	
7:25 AM	0	10	3	0	0	18	0	0	0	1	4	0	2	0	0	0	38	
7:30 AM	2	11	1	0	0	16	0	0	1	1	1	0	1	1	0	0	35	
7:35 AM	4	9	5	0	1	9	0	0	2	1	3	0	5	0	0	0	39	
7:40 AM	2	15	4	0	0	13	0	0	0	0	2	0	5	0	0	0	41	
7:45 AM	0	21	2	0	1	21	0	0	2	0	1	0	3	0	0	0	51	
7:50 AM	3	24	7	0	0	15	2	0	1	0	3	0	2	0	1	0	58	
7:55 AM	4	15	9	0	1	15	2	0	0	0	6	0	3	0	3	0	58	652
8:00 AM	4	21	2	0	0	15	0	0	1	2	7	0	2	0	0	0	54	650
8:05 AM	2	26	5	0	1	23	0	0	1	0	3	0	5	0	0	0	66	657
8:10 AM	0	18	8	0	0	15	0	0	0	0	2	0	1	0	0	0	44	632
8:15 AM	0	14	3	0	1	19	0	0	1	1	4	0	1	0	0	0	44	610
8:20 AM	1	9	2	0	0	12	1	0	1	0	1	0	3	0	0	0	30	558
8:25 AM	3	19	1	0	1	15	1	0	0	0	4	0	2	0	1	0	47	567
8:30 AM	2	10	5	0	0	6	0	0	2	0	5	0	3	0	1	0	34	566
8:35 AM	4	16	7	0	0	13	0	0	2	0	3	0	2	2	1	0	50	577
8:40 AM	0	14	7	0	1	14	1	0	2	0	2	0	4	0	0	0	45	581
8:45 AM	1	17	2	0	1	11	1	0	0	1	3	0	4	0	0	0	41	571
8:50 AM	2	27	6	0	1	10	1	0	0	0	4	0	4	0	0	0	55	568

Peak 15-Min Flowrates	Northbound				Southbound				Eastbound				Westbound				Total
	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U	
All Vehicles	12	408	40	0	4	316	0	0	16	0	32	0	20	0	20	0	868
Heavy Trucks	0	12	0		0	28	0		0	0	4		4	0	4		52
Buses																	
Pedestrians		0				0				0				4			4
Bicycles	0	0	0		0	0	0		0	0	0		0	0	0		0
Scooters																	

Comments:

Report generated on 8/16/2024 2:46 PM

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

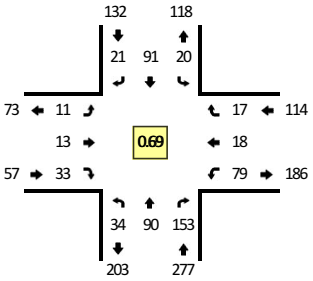
Type of peak hour being reported: Intersection Peak

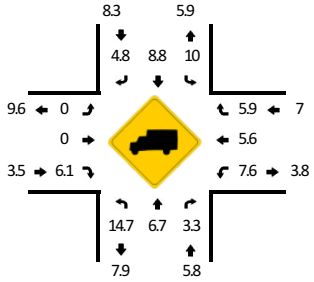
Method for determining peak hour: Total Entering Volume

LOCATION: N Main St -- Boardman Ave NE
CITY/STATE: Boardman, OR

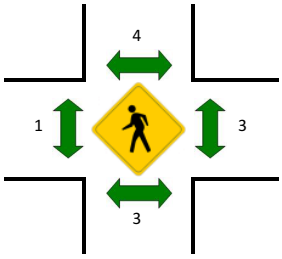
QC JOB #: 16719907
DATE: Tue, May 21 2024

Peak-Hour: 7:00 AM -- 8:00 AM
Peak 15-Min: 7:10 AM -- 7:25 AM

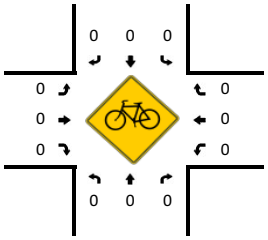


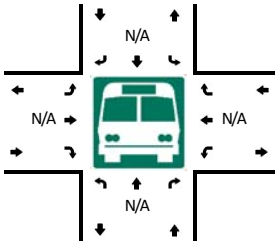


TRUE DATA TO IMPROVE MOBILITY

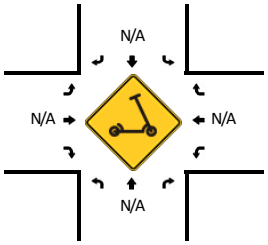












5-Min Count Period Beginning At	N Main St (Northbound)				N Main St (Southbound)				Boardman Ave NE (Eastbound)				Boardman Ave NE (Westbound)				Total	Hourly Totals
	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U		
7:00 AM	2	12	19	0	5	4	0	0	1	4	4	0	4	0	0	0	55	
7:05 AM	3	6	22	0	3	4	3	0	1	3	1	0	11	4	3	0	64	
7:10 AM	2	4	24	0	1	6	1	0	0	1	2	0	10	4	5	0	60	
7:15 AM	0	7	28	0	3	8	1	0	0	3	2	0	12	3	0	0	67	
7:20 AM	3	7	32	0	3	10	3	0	1	0	1	0	18	3	2	0	83	
7:25 AM	1	6	2	0	1	8	3	0	3	0	1	0	8	3	2	0	38	
7:30 AM	3	3	6	0	0	11	2	0	0	0	3	0	3	0	0	0	31	
7:35 AM	1	2	5	0	0	4	1	0	0	1	4	0	1	0	0	0	19	
7:40 AM	4	9	2	0	1	5	1	0	0	0	2	0	3	1	3	0	31	
7:45 AM	5	13	4	0	1	13	1	0	2	0	5	0	4	0	1	0	49	
7:50 AM	5	14	6	0	1	12	3	0	3	1	3	0	2	0	0	0	50	
7:55 AM	5	7	3	0	1	6	2	0	0	0	5	0	3	0	1	0	33	580
8:00 AM	6	9	6	0	2	7	4	0	4	1	3	0	4	0	1	0	47	572
8:05 AM	6	11	9	0	0	14	1	0	0	0	4	0	3	0	1	0	49	557
8:10 AM	7	8	3	0	0	9	2	0	1	2	1	0	3	1	0	0	37	534
8:15 AM	6	8	1	0	1	5	1	0	2	0	4	0	3	2	0	0	33	500
8:20 AM	2	5	4	0	2	10	0	0	0	0	5	0	1	0	0	0	29	446
8:25 AM	4	4	7	0	1	9	0	0	0	1	2	0	2	0	0	0	30	438
8:30 AM	4	5	4	0	1	6	2	0	0	0	0	0	1	1	0	0	24	431
8:35 AM	1	6	7	0	1	5	1	0	0	0	7	0	2	0	1	0	31	443
8:40 AM	1	7	7	0	0	5	1	0	1	1	9	0	5	0	0	0	37	449
8:45 AM	2	4	13	0	1	8	2	0	0	1	2	0	0	1	1	0	35	435
8:50 AM	5	8	11	0	1	8	0	0	0	0	2	0	0	1	1	0	37	422

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	20	72	336	0	28	96	20	0	4	16	20	0	160	40	28	0	840
Heavy Trucks	4	16	0		0	16	4		0	0	0		8	4	0		52
Buses																	
Pedestrians		0				4				0				0			4
Bicycles	0	0	0		0	0	0		0	0	0		0	0	0		0
Scooters																	

Comments:

Report generated on 8/16/2024 2:46 PM

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

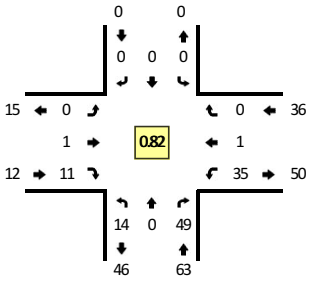
Type of peak hour being reported: Intersection Peak

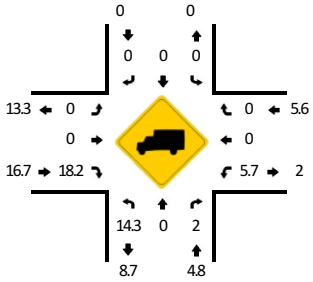
Method for determining peak hour: Total Entering Volume

LOCATION: N Main St -- Marine Dr NW
CITY/STATE: Boardman, OR

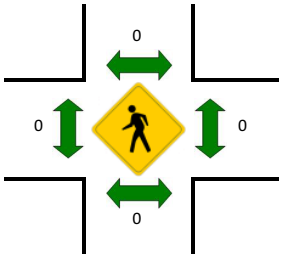
QC JOB #: 16719908
DATE: Tue, May 21 2024

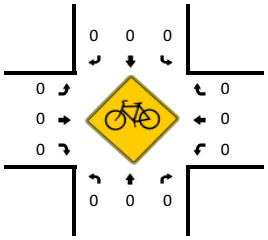
Peak-Hour: 7:25 AM -- 8:25 AM
Peak 15-Min: 7:40 AM -- 7:55 AM

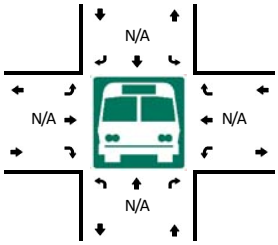


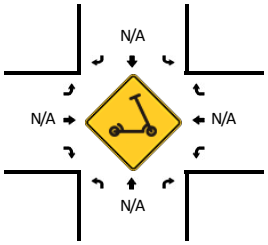


TRUE DATA TO IMPROVE MOBILITY









5-Min Count Period Beginning At	N Main St (Northbound)				N Main St (Southbound)				Marine Dr NW (Eastbound)				Marine Dr NW (Westbound)				Total	Hourly Totals
	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U		
7:00 AM	0	0	4	0	0	0	0	0	0	0	2	0	3	0	0	0	9	
7:05 AM	0	0	5	0	0	0	0	0	0	0	0	0	5	0	0	0	10	
7:10 AM	1	0	0	0	0	0	0	0	0	0	0	0	4	0	0	0	5	
7:15 AM	1	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	2	
7:20 AM	1	0	3	0	0	0	0	0	0	0	2	0	1	0	0	0	7	
7:25 AM	0	0	5	0	0	0	0	0	0	0	0	0	2	0	0	0	7	
7:30 AM	0	0	6	0	0	0	0	0	0	0	1	0	4	0	0	0	11	
7:35 AM	1	0	1	0	0	0	0	0	0	0	1	0	0	0	0	0	3	
7:40 AM	2	0	4	0	0	0	0	0	0	0	0	0	3	0	0	0	9	
7:45 AM	1	0	4	0	0	0	0	0	0	0	4	0	5	0	0	0	14	
7:50 AM	1	0	4	0	0	0	0	0	0	0	0	0	6	0	0	0	11	
7:55 AM	1	0	4	0	0	0	0	0	0	0	1	0	3	0	0	0	9	97
8:00 AM	1	0	7	0	0	0	0	0	0	0	2	0	2	0	0	0	12	100
8:05 AM	3	0	3	0	0	0	0	0	0	1	1	0	4	0	0	0	12	102
8:10 AM	0	0	2	0	0	0	0	0	0	0	0	0	2	0	0	0	4	101
8:15 AM	2	0	4	0	0	0	0	0	0	0	1	0	2	0	0	0	9	108
8:20 AM	2	0	5	0	0	0	0	0	0	0	0	0	2	1	0	0	10	111
8:25 AM	1	0	0	0	0	0	0	0	0	0	3	0	1	0	0	0	5	109
8:30 AM	0	0	4	0	0	0	0	0	0	0	1	0	3	0	0	0	8	106
8:35 AM	2	0	2	0	0	0	0	0	0	0	0	0	1	0	0	0	5	108
8:40 AM	1	0	3	0	0	0	0	0	0	0	3	0	1	0	0	0	8	107
8:45 AM	2	0	2	0	0	0	0	0	0	0	1	0	4	0	0	0	9	102
8:50 AM	0	0	1	0	0	0	0	0	0	1	2	0	1	0	0	0	5	96

Peak 15-Min Flowrates	Northbound				Southbound				Eastbound				Westbound				Total
	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U	
All Vehicles	16	0	48	0	0	0	0	0	0	0	16	0	56	0	0	0	136
Heavy Trucks	4	0	0		0	0	0		0	0	8		4	0	0		16
Buses																	
Pedestrians		0				0				0				0			0
Bicycles	0	0	0		0	0	0		0	0	0		0	0	0		0
Scooters																	

Comments:

Report generated on 8/16/2024 2:46 PM

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

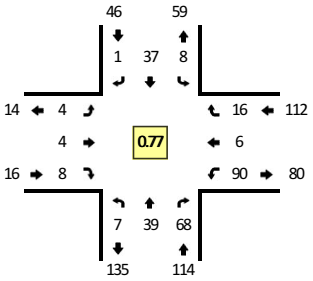
Type of peak hour being reported: Intersection Peak

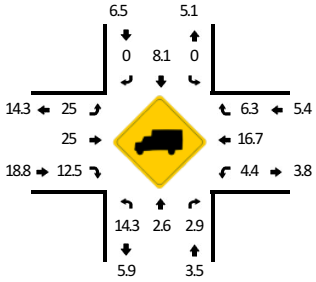
Method for determining peak hour: Total Entering Volume

LOCATION: N Main St -- Columbia Ave NW
CITY/STATE: Boardman, OR

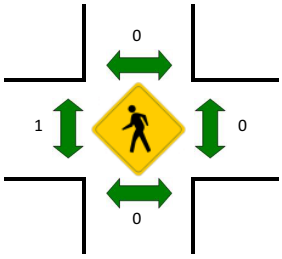
QC JOB #: 16719909
DATE: Tue, May 21 2024

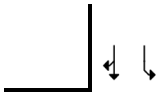
Peak-Hour: 7:20 AM -- 8:20 AM
Peak 15-Min: 7:45 AM -- 8:00 AM

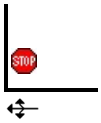


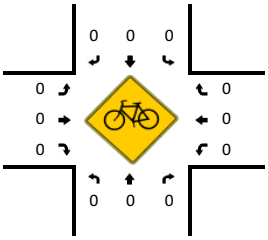


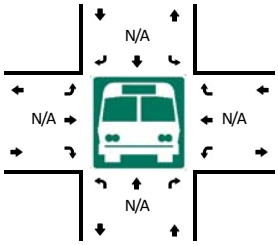
TRUE DATA TO IMPROVE MOBILITY

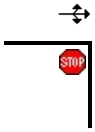


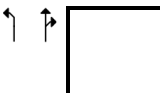


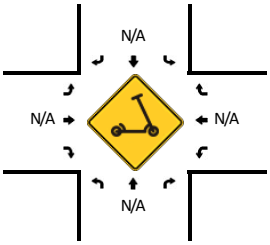












5-Min Count Period Beginning At	N Main St (Northbound)				N Main St (Southbound)				Columbia Ave NW (Eastbound)				Columbia Ave NW (Westbound)				Total	Hourly Totals
	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U		
7:00 AM	0	5	11	0	1	3	1	0	0	0	2	0	2	0	0	0	25	
7:05 AM	1	5	6	0	1	2	2	0	0	0	0	0	6	0	1	0	24	
7:10 AM	0	1	4	0	0	4	0	0	0	0	2	0	2	0	0	0	13	
7:15 AM	0	1	6	0	0	0	0	0	0	1	0	0	7	0	0	0	15	
7:20 AM	0	4	5	0	0	3	0	0	0	0	1	0	12	1	0	0	26	
7:25 AM	1	5	3	0	0	2	0	0	1	1	1	0	9	1	1	0	25	
7:30 AM	0	2	1	0	0	5	0	0	0	1	0	0	6	0	2	0	17	
7:35 AM	0	0	3	0	0	0	0	0	0	0	0	0	3	1	2	0	9	
7:40 AM	0	5	6	0	0	2	0	0	0	0	0	0	5	0	1	0	19	
7:45 AM	0	5	10	0	3	6	0	0	0	1	0	0	12	1	0	0	38	
7:50 AM	1	3	12	0	1	6	0	0	1	0	3	0	7	1	1	0	36	
7:55 AM	1	2	5	0	1	2	1	0	0	0	0	0	6	0	2	0	20	267
8:00 AM	0	6	7	0	0	4	0	0	0	0	2	0	9	0	2	0	30	272
8:05 AM	3	6	5	0	2	3	0	0	0	0	1	0	11	1	0	0	32	280
8:10 AM	1	0	5	0	1	1	0	0	0	1	0	0	8	0	2	0	19	286
8:15 AM	0	1	6	0	0	3	0	0	2	0	0	0	2	0	3	0	17	288
8:20 AM	0	5	0	0	0	2	0	0	0	0	1	0	8	1	2	0	19	281
8:25 AM	2	1	3	0	0	3	0	0	0	0	0	0	6	0	1	0	16	272
8:30 AM	1	2	3	0	0	5	0	0	0	2	1	0	3	0	1	0	18	273
8:35 AM	1	3	2	0	1	0	0	0	0	1	1	0	5	2	1	0	17	281
8:40 AM	1	3	3	0	1	2	1	0	0	1	1	0	4	1	1	0	19	281
8:45 AM	0	3	4	0	1	4	1	0	0	2	1	0	6	0	1	0	23	266
8:50 AM	1	2	2	0	1	2	0	0	0	0	2	0	4	0	1	0	15	245

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	8	40	108	0	20	56	4	0	4	4	12	0	100	8	12	0	376
Heavy Trucks	0	0	0		0	8	0		0	0	0		4	0	4		16
Buses																	
Pedestrians		0				0				4				0			4
Bicycles	0	0	0		0	0	0		0	0	0		0	0	0		0
Scooters																	

Comments:

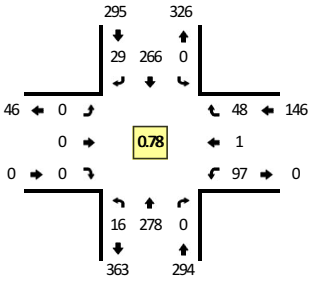
Report generated on 8/16/2024 2:46 PM

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

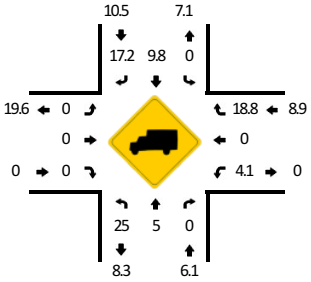
Type of peak hour being reported: Intersection Peak | Method for determining peak hour: Total Entering Volume

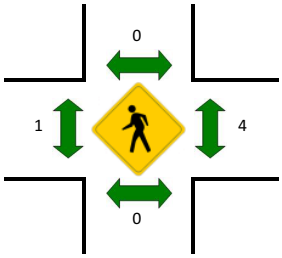
LOCATION: N Main St -- I-84 WB Ramps | **QC JOB #:** 16719910
CITY/STATE: Boardman, OR | **DATE:** Tue, May 21 2024

Peak-Hour: 7:10 AM -- 8:10 AM
Peak 15-Min: 7:10 AM -- 7:25 AM

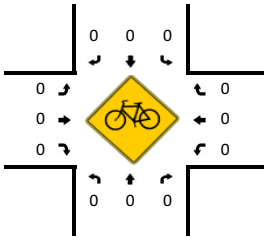


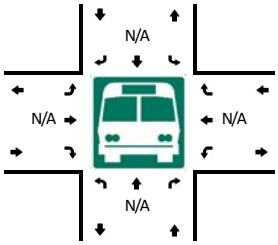




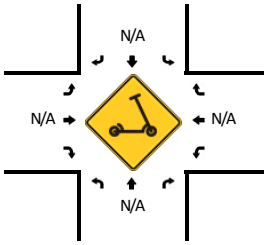












5-Min Count Period Beginning At	N Main St (Northbound)				N Main St (Southbound)				I-84 WB Ramps (Eastbound)				I-84 WB Ramps (Westbound)				Total	Hourly Totals
	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U		
7:00 AM	1	29	0	0	0	10	0	0	0	0	0	0	7	0	13	0	60	
7:05 AM	2	30	0	0	0	21	1	0	0	0	0	0	6	0	9	0	69	
7:10 AM	2	28	0	0	0	29	4	0	0	0	0	0	7	0	4	0	74	
7:15 AM	0	38	0	0	0	21	4	0	0	0	0	0	8	0	2	0	73	
7:20 AM	3	38	0	0	0	33	0	0	0	0	0	0	8	0	6	0	88	
7:25 AM	2	9	0	0	0	22	3	0	0	0	0	0	11	0	3	0	50	
7:30 AM	1	14	0	0	0	16	0	0	0	0	0	0	5	1	0	0	37	
7:35 AM	0	13	0	0	0	17	2	0	0	0	0	0	6	0	5	0	43	
7:40 AM	1	20	0	0	0	18	2	0	0	0	0	0	7	0	2	0	50	
7:45 AM	4	18	0	0	0	21	4	0	0	0	0	0	12	0	4	0	63	
7:50 AM	0	35	0	0	0	18	2	0	0	0	0	0	8	0	2	0	65	
7:55 AM	1	22	0	0	0	21	2	0	0	0	0	0	13	0	3	0	62	734
8:00 AM	1	20	0	0	0	22	3	0	0	0	0	0	6	0	8	0	60	734
8:05 AM	1	23	0	0	0	28	3	0	0	0	0	0	6	0	9	0	70	735
8:10 AM	1	22	0	0	0	16	2	0	0	0	0	0	5	0	4	0	50	711
8:15 AM	0	14	0	0	0	19	5	0	0	0	0	0	1	0	3	0	42	680
8:20 AM	0	10	0	0	0	15	1	0	0	0	0	0	4	0	3	0	33	625
8:25 AM	0	17	0	0	0	19	1	0	0	0	0	0	3	0	6	0	46	621
8:30 AM	0	13	0	0	0	12	3	0	0	0	0	0	2	0	3	0	33	617
8:35 AM	0	20	0	0	0	12	6	0	0	0	0	0	3	0	8	0	49	623
8:40 AM	2	17	0	0	0	19	1	0	0	0	0	0	4	0	4	0	47	620
8:45 AM	1	18	0	0	0	16	1	0	0	0	0	0	7	0	3	0	46	603
8:50 AM	1	25	0	0	0	15	2	0	0	0	0	0	4	0	10	0	57	595

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	20	416	0	0	0	332	32	0	0	0	0	0	92	0	48	0	940
Heavy Trucks	8	8	0		0	24	12		0	0	0		0	0	4		56
Buses																	
Pedestrians		0				0				0				4			4
Bicycles	0	0	0		0	0	0		0	0	0		0	0	0		0
Scooters																	

Comments:

Report generated on 8/16/2024 2:46 PM | SOURCE: Quality Counts, LLC (http://www.qualitycounts.net) 1-877-580-2212

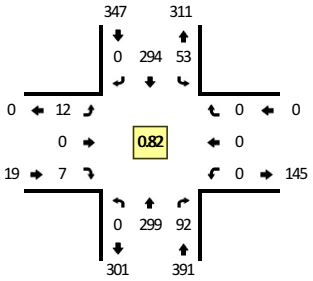
Type of peak hour being reported: Intersection Peak

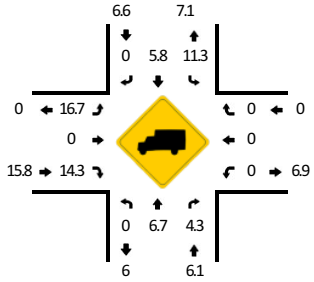
Method for determining peak hour: Total Entering Volume

LOCATION: S Main St -- I-84 EB Ramps
CITY/STATE: Boardman, OR

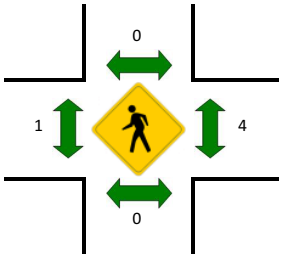
QC JOB #: 16719911
DATE: Tue, May 21 2024

Peak-Hour: 7:00 AM -- 8:00 AM
Peak 15-Min: 7:10 AM -- 7:25 AM

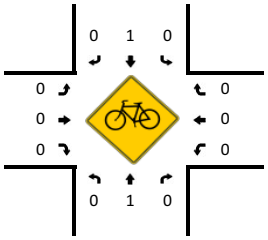


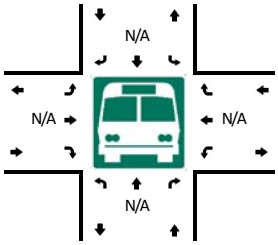


TRUE DATA TO IMPROVE MOBILITY

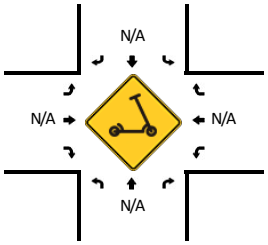












5-Min Count Period Beginning At	S Main St (Northbound)				S Main St (Southbound)				I-84 EB Ramps (Eastbound)				I-84 EB Ramps (Westbound)				Total	Hourly Totals
	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U		
7:00 AM	0	31	11	0	6	14	0	0	1	0	1	0	0	0	0	0	64	
7:05 AM	0	32	6	0	4	23	0	0	1	0	1	0	0	0	0	0	67	
7:10 AM	0	28	8	0	5	28	0	0	0	0	0	0	0	0	0	0	69	
7:15 AM	0	39	5	0	3	27	0	0	5	0	0	0	0	0	0	0	79	
7:20 AM	0	33	10	0	4	36	0	0	1	0	0	0	0	0	0	0	84	
7:25 AM	0	9	12	0	3	30	0	0	2	0	1	0	0	0	0	0	57	
7:30 AM	0	15	7	0	3	19	0	0	0	0	0	0	0	0	0	0	44	
7:35 AM	0	13	9	0	5	19	0	0	0	0	1	0	0	0	0	0	47	
7:40 AM	0	23	8	0	4	19	0	0	0	0	0	0	0	0	0	0	54	
7:45 AM	0	19	5	0	3	31	0	0	1	0	1	0	0	0	0	0	60	
7:50 AM	0	34	6	0	5	23	0	0	1	0	0	0	0	0	0	0	69	
7:55 AM	0	23	5	0	8	25	0	0	0	0	2	0	0	0	0	0	63	757
8:00 AM	0	21	7	0	8	19	0	0	0	0	1	0	0	0	0	0	56	749
8:05 AM	0	24	8	0	7	27	0	0	0	0	0	0	0	0	0	0	66	748
8:10 AM	0	23	9	0	5	17	0	0	2	0	1	0	0	0	0	0	57	736
8:15 AM	0	13	3	0	3	16	0	0	0	0	0	0	0	0	0	0	35	692
8:20 AM	0	10	6	0	4	16	0	0	1	0	0	0	0	0	0	0	37	645
8:25 AM	0	12	2	0	3	17	0	0	4	0	0	0	0	0	0	0	38	626
8:30 AM	0	10	2	0	4	11	0	0	2	0	0	0	0	0	0	0	29	611
8:35 AM	0	19	9	0	6	9	0	0	1	0	4	0	0	0	0	0	48	612
8:40 AM	0	17	2	0	11	13	0	0	3	0	0	0	0	0	0	0	46	604
8:45 AM	0	16	9	0	5	17	0	0	2	0	0	0	0	0	0	0	49	593
8:50 AM	0	26	3	0	8	11	0	0	1	0	0	0	0	0	0	0	49	573

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	400	92	0	48	364	0	0	24	0	0	0	0	0	0	0	928
Heavy Trucks	0	16	4		8	16	0		0	0	0		0	0	0		44
Buses																	
Pedestrians		0				0				4				4			8
Bicycles	0	0	0		0	4	0		0	0	0		0	0	0		4
Scooters																	

Comments:

Report generated on 8/16/2024 2:46 PM

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

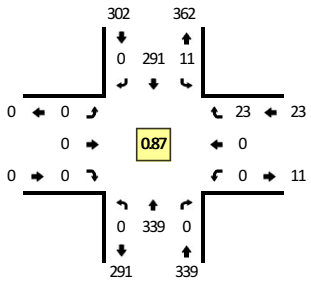
Type of peak hour being reported: Intersection Peak

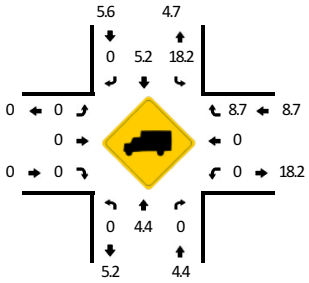
Method for determining peak hour: Total Entering Volume

LOCATION: S Main St -- Oregon Trail Blvd
CITY/STATE: Boardman, OR

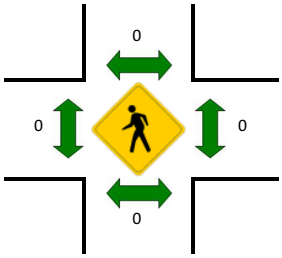
QC JOB #: 16719912
DATE: Tue, May 21 2024

Peak-Hour: 7:05 AM -- 8:05 AM
Peak 15-Min: 7:10 AM -- 7:25 AM

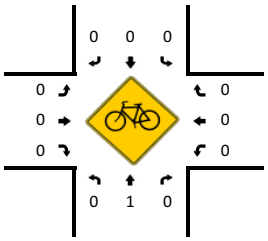


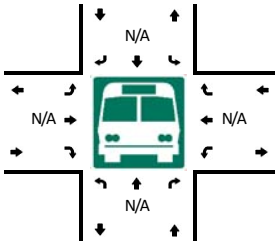


TRUE DATA TO IMPROVE MOBILITY

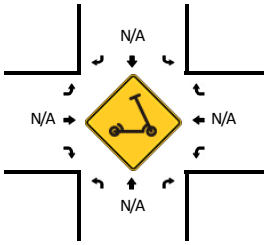












5-Min Count Period Beginning At	S Main St (Northbound)				S Main St (Southbound)				Oregon Trail Blvd (Eastbound)				Oregon Trail Blvd (Westbound)				Total	Hourly Totals
	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U		
7:00 AM	0	26	0	0	0	13	0	0	0	0	0	0	0	0	6	0	45	
7:05 AM	0	29	0	0	1	23	0	0	0	0	0	0	0	0	3	0	56	
7:10 AM	0	35	0	0	0	27	0	0	0	0	0	0	0	0	2	0	64	
7:15 AM	0	40	0	0	1	22	0	0	0	0	0	0	0	0	3	0	66	
7:20 AM	0	30	0	0	1	27	0	0	0	0	0	0	0	0	3	0	61	
7:25 AM	0	18	0	0	2	29	0	0	0	0	0	0	0	0	3	0	52	
7:30 AM	0	17	0	0	1	19	0	0	0	0	0	0	0	0	2	0	39	
7:35 AM	0	20	0	0	0	22	0	0	0	0	0	0	0	0	2	0	44	
7:40 AM	0	28	0	0	0	17	0	0	0	0	0	0	0	0	1	0	46	
7:45 AM	0	22	0	0	1	31	0	0	0	0	0	0	0	0	0	0	54	
7:50 AM	0	42	0	0	0	27	0	0	0	0	0	0	0	0	2	0	71	
7:55 AM	0	32	0	0	2	26	0	0	0	0	0	0	0	0	0	0	60	658
8:00 AM	0	26	0	0	2	21	0	0	0	0	0	0	0	0	2	0	51	664
8:05 AM	0	30	0	0	1	24	0	0	0	0	0	0	0	0	0	0	55	663
8:10 AM	0	22	0	0	0	17	0	0	0	0	0	0	0	0	3	0	42	641
8:15 AM	0	17	0	0	2	13	0	0	0	0	0	0	0	0	0	0	32	607
8:20 AM	0	14	0	0	2	15	0	0	0	0	0	0	0	0	0	0	31	577
8:25 AM	0	9	0	0	0	15	0	0	0	0	0	0	0	0	1	0	25	550
8:30 AM	0	14	0	0	0	10	0	0	0	0	0	0	0	0	1	0	25	536
8:35 AM	0	19	0	0	1	10	0	0	0	0	0	0	0	0	1	0	31	523
8:40 AM	0	16	0	0	0	10	0	0	0	0	0	0	0	0	0	0	26	503
8:45 AM	0	23	0	0	0	13	0	0	0	0	0	0	0	0	0	0	36	485
8:50 AM	0	21	0	0	0	7	0	0	0	0	0	0	1	0	0	0	29	443

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	420	0	0	8	304	0	0	0	0	0	0	0	0	32	0	764
Heavy Trucks	0	16	0		0	8	0		0	0	0		0	0	0		24
Buses																	
Pedestrians		0				0				0				0			0
Bicycles	0	0	0		0	0	0		0	0	0		0	0	0		0
Scooters																	

Comments:

Report generated on 8/16/2024 2:46 PM

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

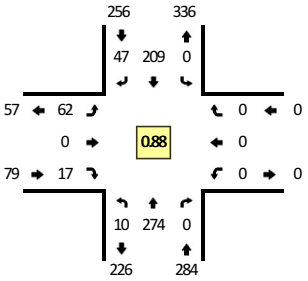
Type of peak hour being reported: Intersection Peak

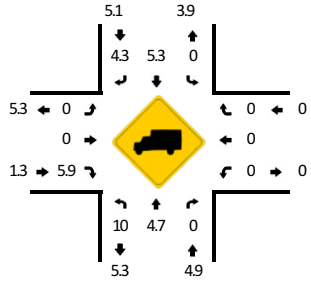
Method for determining peak hour: Total Entering Volume

LOCATION: S Main St -- Kinkade Rd
CITY/STATE: Boardman, OR

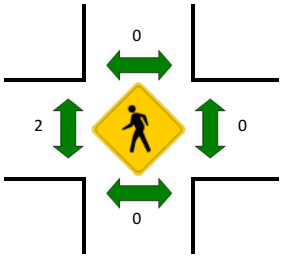
QC JOB #: 16719913
DATE: Tue, May 21 2024

Peak-Hour: 7:05 AM -- 8:05 AM
Peak 15-Min: 7:45 AM -- 8:00 AM

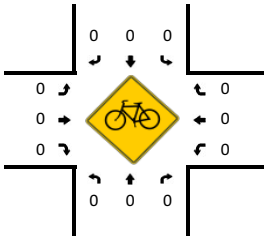


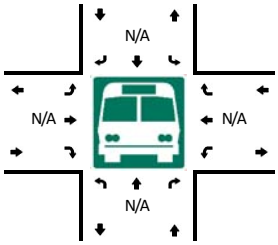


TRUE DATA TO IMPROVE MOBILITY

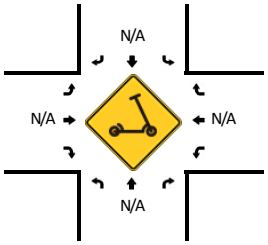












5-Min Count Period Beginning At	S Main St (Northbound)				S Main St (Southbound)				Kinkade Rd (Eastbound)				Kinkade Rd (Westbound)				Total	Hourly Totals
	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U		
7:00 AM	0	20	0	0	0	9	2	0	6	0	0	0	0	0	0	0	37	
7:05 AM	0	29	0	0	0	19	2	0	4	0	0	0	0	0	0	0	54	
7:10 AM	0	22	0	0	0	17	2	0	10	0	0	0	0	0	0	0	51	
7:15 AM	1	33	0	0	0	17	1	0	9	0	1	0	0	0	0	0	62	
7:20 AM	1	21	0	0	0	20	7	0	5	0	0	0	0	0	0	0	54	
7:25 AM	1	13	0	0	0	26	1	0	3	0	5	0	0	0	0	0	49	
7:30 AM	3	8	0	0	0	14	2	0	8	0	2	0	0	0	0	0	37	
7:35 AM	0	18	0	0	0	19	4	0	2	0	0	0	0	0	0	0	43	
7:40 AM	0	29	0	0	0	14	1	0	1	0	0	0	0	0	0	0	45	
7:45 AM	0	17	0	0	0	18	8	0	5	0	3	0	0	0	0	0	51	
7:50 AM	0	37	0	0	0	15	5	0	5	0	1	0	0	0	0	0	63	
7:55 AM	3	24	0	0	0	19	5	0	6	0	4	0	0	0	0	0	61	607
8:00 AM	1	23	0	0	0	11	9	0	4	0	1	0	0	0	0	0	49	619
8:05 AM	1	24	0	0	0	6	6	0	5	0	1	0	0	0	0	0	43	608
8:10 AM	1	16	0	0	0	12	2	0	5	0	3	0	0	0	0	0	39	596
8:15 AM	2	9	0	0	0	7	5	0	7	0	1	0	0	0	0	0	31	565
8:20 AM	1	6	0	0	0	12	1	0	5	0	1	0	0	0	0	0	26	537
8:25 AM	2	11	0	0	0	10	3	0	2	0	0	0	0	0	0	0	28	516
8:30 AM	3	9	0	0	0	6	1	0	3	0	3	0	0	0	0	0	25	504
8:35 AM	0	16	0	0	0	2	2	0	3	0	2	0	0	0	0	0	25	486
8:40 AM	0	14	0	0	0	5	3	0	2	0	1	0	0	0	0	0	25	466
8:45 AM	0	17	0	0	0	7	2	0	3	0	2	0	0	0	0	0	31	446
8:50 AM	0	11	0	0	0	7	2	0	7	0	0	0	0	0	0	0	27	410

Peak 15-Min Flowrates	Northbound				Southbound				Eastbound				Westbound				Total
	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U	
All Vehicles	12	312	0	0	0	208	72	0	64	0	32	0	0	0	0	0	700
Heavy Trucks	0	24	0		0	8	0		0	0	0		0	0	0		32
Buses																	
Pedestrians		0				0				0				0			0
Bicycles	0	0	0		0	0	0		0	0	0		0	0	0		0
Scooters																	

Comments:

Report generated on 8/16/2024 2:46 PM

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

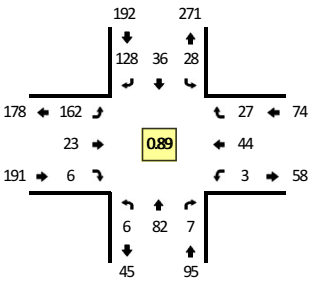
Type of peak hour being reported: Intersection Peak

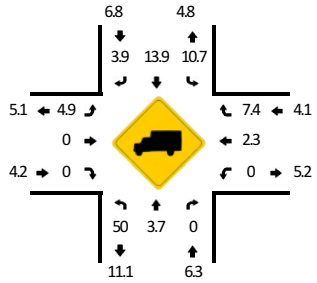
Method for determining peak hour: Total Entering Volume

LOCATION: S Main St -- Wilson Ln SE
CITY/STATE: Boardman, OR

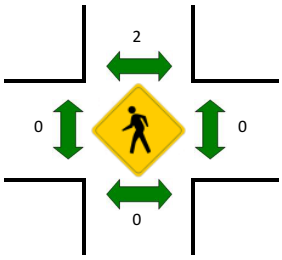
QC JOB #: 16719914
DATE: Tue, May 21 2024

Peak-Hour: 7:05 AM -- 8:05 AM
Peak 15-Min: 7:40 AM -- 7:55 AM

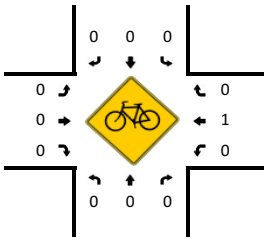


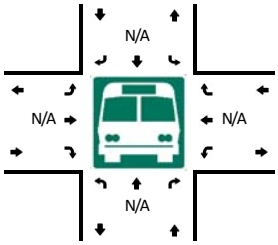


TRUE DATA TO IMPROVE MOBILITY

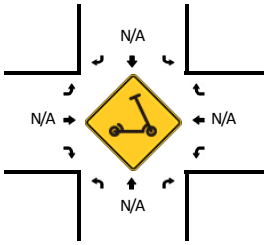












5-Min Count Period Beginning At	S Main St (Northbound)				S Main St (Southbound)				Wilson Ln SE (Eastbound)				Wilson Ln SE (Westbound)				Total	Hourly Totals
	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U		
7:00 AM	0	4	1	0	1	1	4	0	14	1	0	0	0	2	1	0	29	
7:05 AM	1	11	0	0	3	1	10	0	17	2	0	0	0	2	2	0	49	
7:10 AM	1	7	0	0	3	2	9	0	14	0	0	0	0	3	0	0	39	
7:15 AM	0	9	1	0	1	3	12	0	18	2	0	0	0	1	3	0	50	
7:20 AM	0	7	1	0	2	2	13	0	6	2	0	0	0	5	4	0	42	
7:25 AM	0	4	0	0	4	9	18	0	8	0	0	0	0	2	3	0	48	
7:30 AM	0	6	0	0	2	2	10	0	3	2	0	0	1	1	1	0	28	
7:35 AM	1	11	2	0	1	2	10	0	8	0	0	0	0	7	0	0	42	
7:40 AM	2	8	0	0	1	4	12	0	17	4	2	0	0	7	3	0	60	
7:45 AM	1	5	0	0	2	3	10	0	14	1	1	0	0	3	2	0	42	
7:50 AM	0	5	0	0	2	1	9	0	23	1	2	0	2	4	4	0	53	
7:55 AM	0	3	1	0	3	2	10	0	19	6	0	0	0	9	3	0	56	538
8:00 AM	0	6	2	0	4	5	5	0	15	3	1	0	0	0	2	0	43	552
8:05 AM	1	4	1	0	1	3	3	0	17	4	0	0	0	4	2	0	40	543
8:10 AM	0	2	1	0	4	1	8	0	9	3	0	0	0	0	2	0	30	534
8:15 AM	0	2	2	0	0	2	4	0	3	4	0	0	0	1	4	0	22	506
8:20 AM	0	3	0	0	3	3	9	0	4	0	0	0	1	2	3	0	28	492
8:25 AM	0	3	0	0	5	2	1	0	5	0	0	0	2	3	3	0	24	468
8:30 AM	0	2	2	0	1	2	3	0	6	2	0	0	0	2	7	0	27	467
8:35 AM	0	6	0	0	3	2	0	0	9	1	0	0	1	3	0	0	25	450
8:40 AM	0	5	0	0	4	1	1	0	4	1	0	0	0	0	2	0	18	408
8:45 AM	0	3	0	0	0	1	4	0	6	2	0	0	0	3	4	0	23	389
8:50 AM	0	2	0	0	2	4	2	0	8	1	0	0	0	0	1	0	20	356

Peak 15-Min Flowrates	Northbound				Southbound				Eastbound				Westbound				Total
	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U	
All Vehicles	12	72	0	0	20	32	124	0	216	24	20	0	8	56	36	0	620
Heavy Trucks	4	8	0		0	12	4		24	0	0		0	0	4		56
Buses																	
Pedestrians		0				4				0				0			4
Bicycles	0	0	0		0	0	0		0	0	0		0	4	0		4
Scooters																	

Comments:

Report generated on 8/16/2024 2:46 PM

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

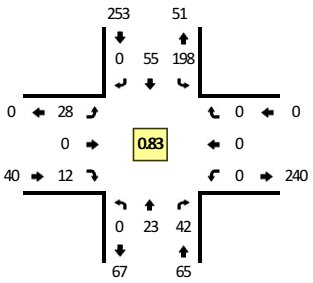
Type of peak hour being reported: Intersection Peak

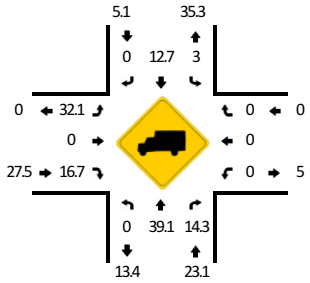
Method for determining peak hour: Total Entering Volume

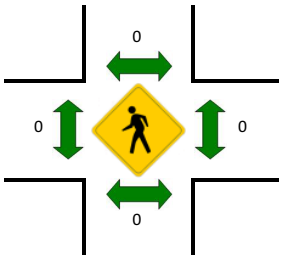
LOCATION: Laurel Ln -- I-84 EB Ramps
CITY/STATE: Boardman, OR

QC JOB #: 16719915
DATE: Tue, May 21 2024

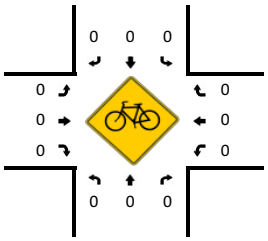
Peak-Hour: 4:05 PM -- 5:05 PM
Peak 15-Min: 4:05 PM -- 4:20 PM

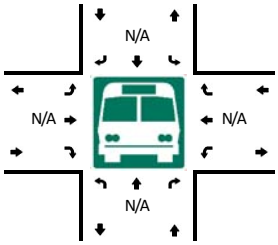




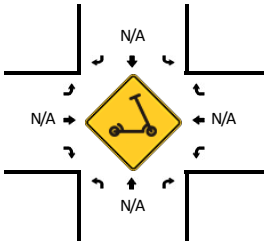












5-Min Count Period Beginning At	Laurel Ln (Northbound)				Laurel Ln (Southbound)				I-84 EB Ramps (Eastbound)				I-84 EB Ramps (Westbound)				Total	Hourly Totals
	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U		
4:00 PM	0	1	0	0	13	5	0	0	2	0	2	0	0	0	0	0	23	
4:05 PM	0	1	3	0	37	7	0	0	1	0	2	0	0	0	0	0	51	
4:10 PM	0	2	3	0	26	2	0	0	0	0	0	0	0	0	0	0	33	
4:15 PM	0	1	1	0	14	6	0	0	1	0	1	0	0	0	0	0	24	
4:20 PM	0	2	4	0	11	4	0	0	4	0	0	0	0	0	0	0	25	
4:25 PM	0	5	2	0	10	6	0	0	6	0	3	0	0	0	0	0	32	
4:30 PM	0	1	1	0	17	7	0	0	3	0	0	0	0	0	0	0	29	
4:35 PM	0	1	5	0	18	5	0	0	3	0	3	0	0	0	0	0	35	
4:40 PM	0	1	9	0	20	3	0	0	4	0	0	0	0	0	0	0	37	
4:45 PM	0	5	6	0	7	3	0	0	3	0	1	0	0	0	0	0	25	
4:50 PM	0	1	3	0	8	2	0	0	2	0	1	0	0	0	0	0	17	
4:55 PM	0	0	4	0	11	6	0	0	1	0	1	0	0	0	0	0	23	354
5:00 PM	0	3	1	0	19	4	0	0	0	0	0	0	0	0	0	0	27	358
5:05 PM	0	4	2	0	14	3	0	0	0	0	0	0	0	0	0	0	23	330
5:10 PM	0	2	1	0	12	6	0	0	0	0	0	0	0	0	0	0	21	318
5:15 PM	0	1	1	0	9	5	0	0	0	0	1	0	0	0	0	0	17	311
5:20 PM	0	2	1	0	13	5	0	0	1	0	1	0	0	0	0	0	23	309
5:25 PM	0	2	1	0	14	7	0	0	1	0	0	0	0	0	0	0	25	302
5:30 PM	0	1	0	0	10	4	0	0	1	0	0	0	0	0	0	0	16	289
5:35 PM	0	4	1	0	15	1	0	0	0	0	1	0	0	0	0	0	22	276
5:40 PM	0	4	3	0	13	2	0	0	2	0	0	0	0	0	0	0	24	263
5:45 PM	0	1	1	0	6	1	0	0	4	0	0	0	0	0	0	0	13	251
5:50 PM	0	3	2	0	5	2	0	0	1	0	0	0	0	0	0	0	13	247

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	16	28	0	308	60	0	0	8	0	12	0	0	0	0	0	432
Heavy Trucks	0	4	0		0	4	0		4	0	4		0	0	0		16
Buses																	
Pedestrians		0				0				0				0			0
Bicycles	0	0	0		0	0	0		0	0	0		0	0	0		0
Scooters																	

Comments:

Report generated on 8/16/2024 2:46 PM

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

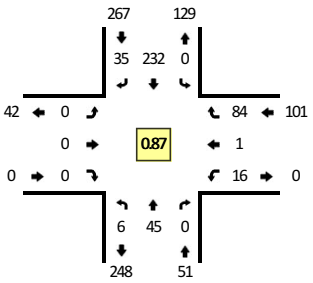
Type of peak hour being reported: Intersection Peak

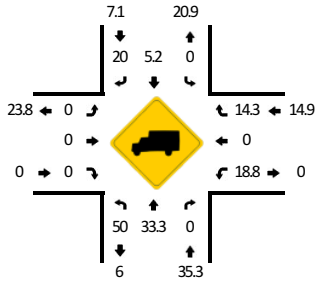
Method for determining peak hour: Total Entering Volume

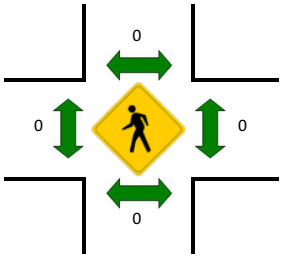
LOCATION: Laurel Ln -- I-84 WB Ramps
CITY/STATE: Boardman, OR

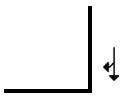
QC JOB #: 16719916
DATE: Tue, May 21 2024

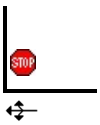
Peak-Hour: 4:00 PM -- 5:00 PM
Peak 15-Min: 4:00 PM -- 4:15 PM

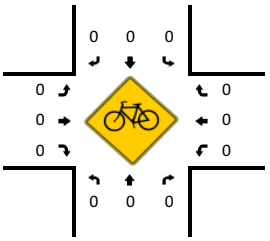


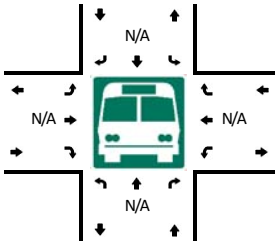




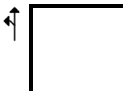


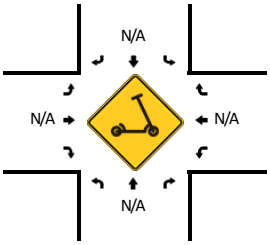












5-Min Count Period Beginning At	Laurel Ln (Northbound)				Laurel Ln (Southbound)				I-84 WB Ramps (Eastbound)				I-84 WB Ramps (Westbound)				Total	Hourly Totals
	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U		
4:00 PM	2	1	0	0	0	22	2	0	0	0	0	0	0	0	6	0	33	
4:05 PM	1	1	0	0	0	41	1	0	0	0	0	0	2	0	4	0	50	
4:10 PM	0	2	0	0	0	26	3	0	0	0	0	0	0	0	6	0	37	
4:15 PM	0	2	0	0	0	17	2	0	0	0	0	0	2	0	3	0	26	
4:20 PM	0	6	0	0	0	13	3	0	0	0	0	0	2	0	5	0	29	
4:25 PM	1	10	0	0	0	16	5	0	0	0	0	0	0	0	8	0	40	
4:30 PM	0	4	0	0	0	23	3	0	0	0	0	0	2	0	6	0	38	
4:35 PM	0	3	0	0	0	23	3	0	0	0	0	0	1	0	9	0	39	
4:40 PM	0	5	0	0	0	21	2	0	0	0	0	0	1	0	12	0	41	
4:45 PM	1	7	0	0	0	10	2	0	0	0	0	0	1	0	8	0	29	
4:50 PM	1	3	0	0	0	8	3	0	0	0	0	0	1	1	7	0	24	
4:55 PM	0	1	0	0	0	12	6	0	0	0	0	0	4	0	10	0	33	419
5:00 PM	0	3	0	0	0	24	1	0	0	0	0	0	0	0	4	0	32	418
5:05 PM	0	4	0	0	0	17	1	0	0	0	0	0	0	0	5	0	27	395
5:10 PM	0	2	0	0	0	14	2	0	0	0	0	0	3	0	6	0	27	385
5:15 PM	0	1	0	0	0	15	2	0	0	0	0	0	4	0	8	0	30	389
5:20 PM	0	3	0	0	0	15	1	0	0	0	0	0	2	0	10	0	31	391
5:25 PM	1	2	0	0	0	14	0	0	0	0	0	0	3	0	5	0	25	376
5:30 PM	0	1	0	0	0	11	0	0	0	0	0	0	4	0	10	0	26	364
5:35 PM	1	4	0	0	0	15	3	0	0	0	0	0	1	0	5	0	29	354
5:40 PM	0	5	0	0	0	15	2	0	0	0	0	0	0	0	3	0	25	338
5:45 PM	0	6	0	0	0	5	4	0	0	0	0	0	1	0	7	0	23	332
5:50 PM	1	3	0	0	0	5	0	0	0	0	0	0	2	0	2	0	13	321

Peak 15-Min Flowrates	Northbound				Southbound				Eastbound				Westbound				Total
	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U	
All Vehicles	12	16	0	0	0	356	24	0	0	0	0	0	8	0	64	0	480
Heavy Trucks	4	4	0		0	12	12		0	0	0		0	0	12		44
Buses																	
Pedestrians		0				0				0				0			0
Bicycles	0	0	0		0	0	0		0	0	0		0	0	0		0
Scooters																	

Comments:

Report generated on 8/16/2024 2:46 PM

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

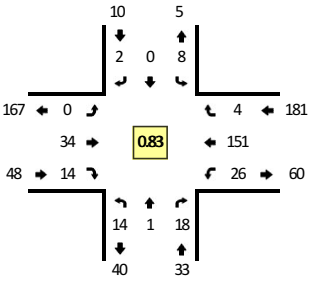
Type of peak hour being reported: Intersection Peak

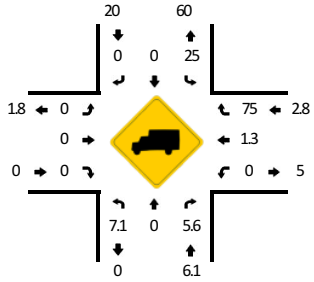
Method for determining peak hour: Total Entering Volume

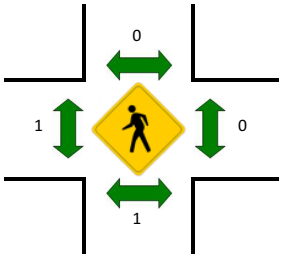
LOCATION: Olson Rd -- Columbia Ave NE
CITY/STATE: Boardman, OR

QC JOB #: 16719917
DATE: Tue, May 21 2024

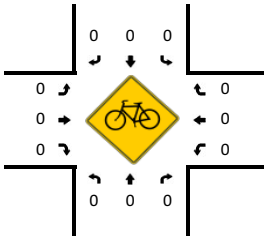
Peak-Hour: 4:40 PM -- 5:40 PM
Peak 15-Min: 4:55 PM -- 5:10 PM

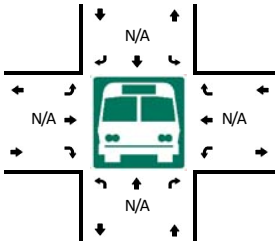


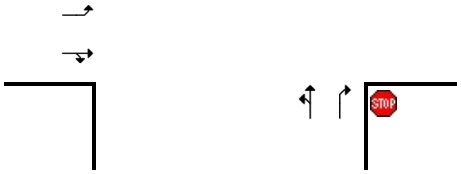


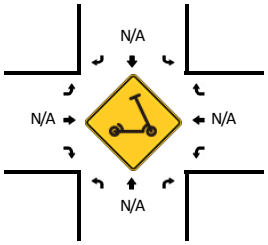












5-Min Count Period Beginning At	Olson Rd (Northbound)				Olson Rd (Southbound)				Columbia Ave NE (Eastbound)				Columbia Ave NE (Westbound)				Total	Hourly Totals
	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U		
4:00 PM	2	0	1	0	0	0	0	0	0	6	0	0	3	10	0	0	22	
4:05 PM	2	1	4	0	0	0	0	0	0	0	2	0	2	22	2	0	35	
4:10 PM	0	0	3	0	1	0	0	0	0	1	0	0	2	12	1	0	20	
4:15 PM	0	0	3	0	0	0	0	0	0	9	0	0	0	12	0	0	24	
4:20 PM	1	1	0	0	0	0	0	0	0	2	0	0	2	7	1	0	14	
4:25 PM	1	0	3	0	0	0	0	0	1	3	0	0	0	11	0	0	19	
4:30 PM	1	0	1	0	0	0	0	0	0	3	1	0	2	12	0	0	20	
4:35 PM	1	0	1	0	0	0	0	0	0	6	0	0	0	9	0	0	17	
4:40 PM	1	0	1	0	2	0	0	0	0	3	0	0	3	13	1	0	24	
4:45 PM	1	0	4	0	1	0	0	0	0	4	1	0	1	10	0	0	22	
4:50 PM	0	0	3	0	1	0	0	0	0	0	0	0	1	20	0	0	25	
4:55 PM	1	0	0	0	0	0	0	0	0	4	3	0	2	13	1	0	24	266
5:00 PM	4	0	1	0	0	0	0	0	0	2	1	0	2	15	0	0	25	269
5:05 PM	3	0	1	0	0	0	0	0	0	1	2	0	4	21	1	0	33	267
5:10 PM	1	0	1	0	0	0	0	0	0	3	2	0	1	12	1	0	21	268
5:15 PM	0	0	3	0	0	0	0	0	0	3	1	0	3	15	0	0	25	269
5:20 PM	0	0	1	0	1	0	0	0	0	3	2	0	4	5	0	0	16	271
5:25 PM	0	0	2	0	0	0	0	0	0	6	0	0	1	7	0	0	16	268
5:30 PM	1	1	1	0	3	0	0	0	0	2	1	0	2	11	0	0	22	270
5:35 PM	2	0	0	0	0	0	2	0	0	3	1	0	2	9	0	0	19	272
5:40 PM	0	0	0	0	0	0	0	0	0	2	0	0	0	6	0	0	8	256
5:45 PM	1	0	0	0	1	0	0	0	0	3	0	0	3	2	0	0	10	244
5:50 PM	0	0	2	0	1	0	0	0	0	3	1	0	1	4	1	0	13	232

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	32	0	8	0	0	0	0	0	0	28	24	0	32	196	8	0	328
Heavy Trucks	0	0	4		0	0	0		0	0	0		0	4	4		12
Buses																	
Pedestrians		0				0				0				0			0
Bicycles	0	0	0		0	0	0		0	0	0		0	0	0		0
Scooters																	

Comments:

Report generated on 8/16/2024 2:46 PM

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

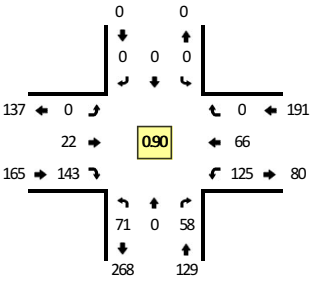
Type of peak hour being reported: Intersection Peak

Method for determining peak hour: Total Entering Volume

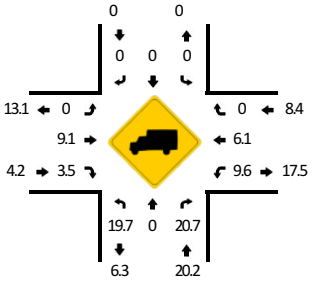
LOCATION: Laurel Ln -- Columbia Blvd
CITY/STATE: Boardman, OR

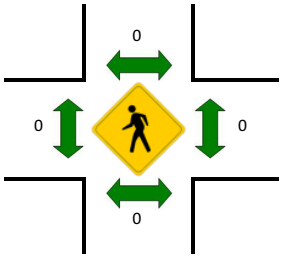
QC JOB #: 16719918
DATE: Tue, May 21 2024

Peak-Hour: 4:05 PM -- 5:05 PM
Peak 15-Min: 4:30 PM -- 4:45 PM

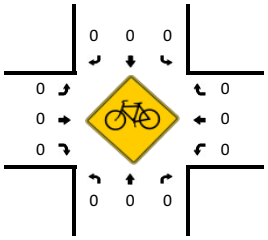


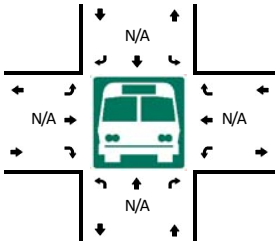




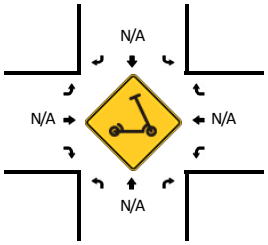












5-Min Count Period Beginning At	Laurel Ln (Northbound)				Laurel Ln (Southbound)				Columbia Blvd (Eastbound)				Columbia Blvd (Westbound)				Total	Hourly Totals
	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U		
4:00 PM	5	0	2	0	0	0	0	0	0	0	13	0	11	10	0	0	41	
4:05 PM	2	0	3	0	0	0	0	0	0	1	30	0	13	3	0	0	52	
4:10 PM	7	0	1	0	0	0	0	0	0	1	16	0	12	4	0	0	41	
4:15 PM	3	0	2	0	0	0	0	0	0	4	17	0	3	4	0	0	33	
4:20 PM	4	0	6	0	0	0	0	0	0	3	10	0	8	2	0	0	33	
4:25 PM	10	0	9	0	0	0	0	0	0	0	9	0	9	4	0	0	41	
4:30 PM	5	0	5	0	0	0	0	0	0	2	14	0	13	2	0	0	41	
4:35 PM	4	0	8	0	0	0	0	0	0	3	8	0	17	4	0	0	44	
4:40 PM	11	0	6	0	0	0	0	0	0	3	11	0	12	7	0	0	50	
4:45 PM	6	0	8	0	0	0	0	0	0	2	6	0	6	8	0	0	36	
4:50 PM	5	0	5	0	0	0	0	0	0	1	8	0	5	8	0	0	32	
4:55 PM	7	0	5	0	0	0	0	0	0	1	3	0	13	11	0	0	40	484
5:00 PM	7	0	0	0	0	0	0	0	0	1	11	0	14	9	0	0	42	485
5:05 PM	8	0	1	0	0	0	0	0	0	1	4	0	14	18	0	0	46	479
5:10 PM	5	0	1	0	0	0	0	0	0	0	2	0	14	5	0	0	27	465
5:15 PM	7	0	4	0	0	0	0	0	0	2	9	0	9	5	0	0	36	468
5:20 PM	9	0	4	0	0	0	0	0	0	0	5	0	10	1	0	0	29	464
5:25 PM	5	0	2	0	0	0	0	0	0	1	9	0	6	3	0	0	26	449
5:30 PM	10	0	1	0	0	0	0	0	0	1	5	0	5	3	0	0	25	433
5:35 PM	7	0	2	0	0	0	0	0	0	1	5	0	13	3	0	0	31	420
5:40 PM	4	0	3	0	0	0	0	0	0	0	9	0	8	4	0	0	28	398
5:45 PM	5	0	9	0	0	0	0	0	0	1	2	0	7	1	0	0	25	387
5:50 PM	4	0	1	0	0	0	0	0	0	2	5	0	0	1	0	0	13	368

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	80	0	76	0	0	0	0	0	0	32	132	0	168	52	0	0	540
Heavy Trucks	12	0	4		0	0	0		0	0	8		16	4	0		44
Buses																	
Pedestrians		0				0				0				0			0
Bicycles	0	0	0		0	0	0		0	0	0		0	0	0		0
Scooters																	

Comments:

Report generated on 8/16/2024 2:46 PM

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

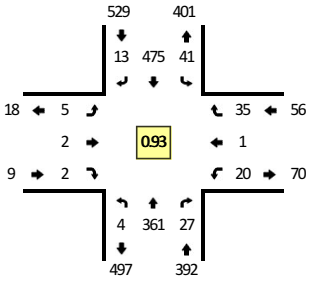
Type of peak hour being reported: Intersection Peak

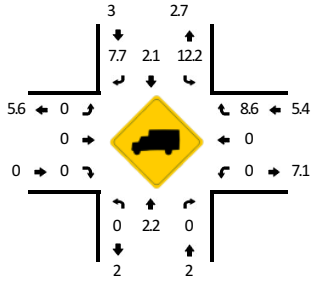
Method for determining peak hour: Total Entering Volume

LOCATION: S Main St -- SE Front St
CITY/STATE: Boardman, OR

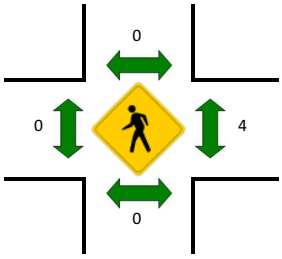
QC JOB #: 16719919
DATE: Tue, May 21 2024

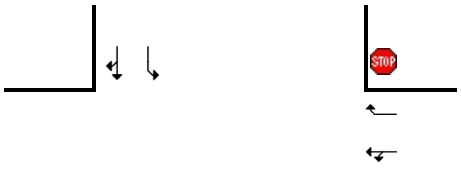
Peak-Hour: 4:10 PM -- 5:10 PM
Peak 15-Min: 4:20 PM -- 4:35 PM

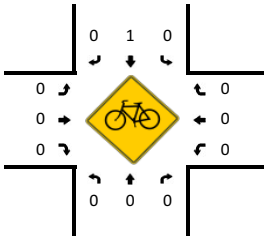


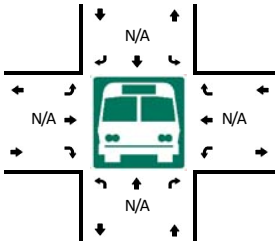


TRUE DATA TO IMPROVE MOBILITY

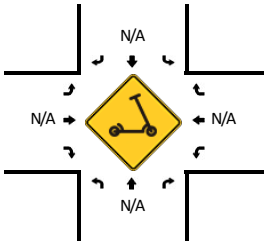












5-Min Count Period Beginning At	S Main St (Northbound)				S Main St (Southbound)				SE Front St (Eastbound)				SE Front St (Westbound)				Total	Hourly Totals
	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U		
4:00 PM	0	33	1	0	0	30	1	0	0	0	0	0	2	0	1	0	68	
4:05 PM	0	28	1	0	2	46	0	0	0	0	0	0	2	0	1	0	80	
4:10 PM	0	44	2	0	2	46	0	0	1	0	0	0	0	0	1	0	96	
4:15 PM	0	28	2	0	5	30	0	0	0	0	0	0	3	0	0	0	68	
4:20 PM	1	31	0	0	5	40	3	0	1	0	0	0	2	0	3	0	86	
4:25 PM	0	29	2	0	2	51	3	0	0	1	0	0	0	0	4	0	92	
4:30 PM	0	35	2	0	2	39	1	0	1	0	1	0	4	0	1	0	86	
4:35 PM	2	27	4	0	1	35	2	0	1	0	1	0	3	0	3	0	79	
4:40 PM	0	26	2	0	3	34	0	0	0	0	0	0	2	0	4	0	71	
4:45 PM	0	19	4	0	4	35	0	0	0	0	0	0	0	0	5	0	67	
4:50 PM	0	25	3	0	6	41	1	0	0	0	0	0	1	0	3	0	80	
4:55 PM	1	29	1	0	5	38	0	0	1	0	0	0	2	1	2	0	80	953
5:00 PM	0	35	1	0	4	42	1	0	0	0	0	0	2	0	7	0	92	977
5:05 PM	0	33	4	0	2	44	2	0	0	1	0	0	1	0	2	0	89	986
5:10 PM	0	21	2	0	3	42	3	0	3	0	5	0	5	1	4	0	89	979
5:15 PM	0	23	1	0	0	24	3	0	3	0	2	0	2	0	3	0	61	972
5:20 PM	1	30	4	0	0	35	0	0	1	0	1	0	1	0	2	0	75	961
5:25 PM	0	24	4	0	6	32	1	0	0	0	0	0	2	0	5	0	74	943
5:30 PM	0	22	2	0	2	32	0	0	0	0	1	0	0	0	1	0	60	917
5:35 PM	0	29	0	0	2	36	1	0	0	0	0	0	6	0	3	0	77	915
5:40 PM	0	30	2	0	0	23	0	0	0	0	0	0	1	0	3	0	59	903
5:45 PM	0	38	1	0	5	28	1	0	1	0	0	0	0	0	0	0	74	910
5:50 PM	0	34	0	0	1	27	1	0	0	0	0	0	1	0	2	0	66	896

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	4	380	16	0	36	520	28	0	8	4	4	0	24	0	32	0	1056
Heavy Trucks	0	4	0		4	8	4		0	0	0		0	0	4		24
Buses																	
Pedestrians		0				0				0				4			4
Bicycles	0	0	0		0	0	0		0	0	0		0	0	0		0
Scooters																	

Comments:

Report generated on 8/16/2024 2:46 PM

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

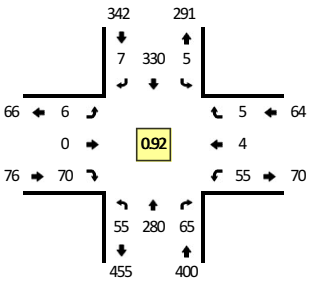
Type of peak hour being reported: Intersection Peak

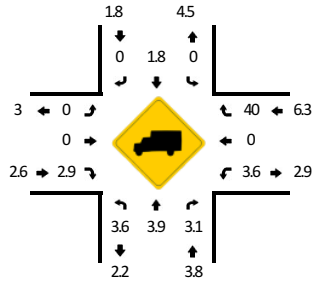
Method for determining peak hour: Total Entering Volume

LOCATION: N Main St -- Front St NW
CITY/STATE: Boardman, OR

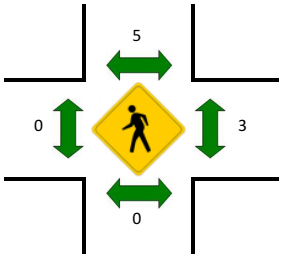
QC JOB #: 16719920
DATE: Tue, May 21 2024

Peak-Hour: 4:10 PM -- 5:10 PM
Peak 15-Min: 4:20 PM -- 4:35 PM

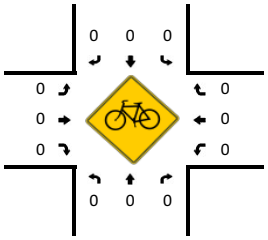


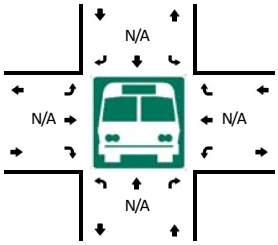


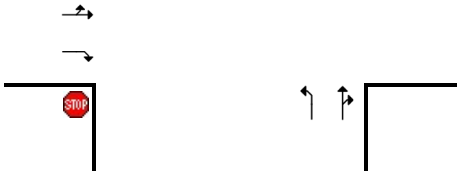
TRUE DATA TO IMPROVE MOBILITY

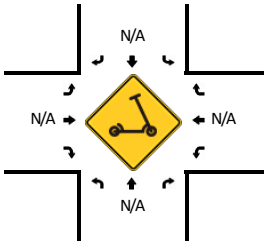












5-Min Count Period Beginning At	N Main St (Northbound)				N Main St (Southbound)				Front St NW (Eastbound)				Front St NW (Westbound)				Total	Hourly Totals
	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U		
4:00 PM	6	28	7	0	0	23	0	0	1	1	2	0	0	1	0	0	69	
4:05 PM	1	16	3	0	0	34	1	0	1	0	8	0	7	0	0	0	71	
4:10 PM	5	24	4	0	0	30	1	0	1	0	5	0	12	1	1	0	84	
4:15 PM	2	22	1	0	0	25	0	0	0	0	4	0	4	0	0	0	58	
4:20 PM	8	17	7	0	0	35	0	0	0	0	11	0	2	0	1	0	81	
4:25 PM	4	29	5	0	0	33	1	0	0	0	3	0	3	0	0	0	78	
4:30 PM	7	29	8	0	1	22	0	0	1	0	6	0	5	0	1	0	80	
4:35 PM	2	28	4	0	1	22	0	0	1	0	5	0	5	1	1	0	70	
4:40 PM	4	29	3	0	0	24	1	0	1	0	5	0	3	0	0	0	70	
4:45 PM	5	14	6	0	1	27	0	0	0	0	6	0	5	0	0	0	64	
4:50 PM	6	18	8	0	0	26	0	0	1	0	6	0	2	1	1	0	69	
4:55 PM	5	22	7	0	2	20	1	0	0	0	2	0	5	1	0	0	65	859
5:00 PM	5	27	5	0	0	29	2	0	1	0	10	0	5	0	0	0	84	874
5:05 PM	2	21	7	0	0	37	1	0	0	0	7	0	4	0	0	0	79	882
5:10 PM	3	19	8	0	0	28	1	0	0	0	4	0	4	0	2	0	69	867
5:15 PM	5	26	7	0	0	21	1	0	0	1	2	0	5	0	0	0	68	877
5:20 PM	8	26	5	0	2	23	1	0	0	0	3	0	2	0	0	0	70	866
5:25 PM	1	24	6	0	2	22	0	0	3	0	7	0	4	0	2	0	71	859
5:30 PM	5	22	2	0	2	17	1	0	0	1	8	0	6	0	2	0	66	845
5:35 PM	2	27	0	0	0	24	0	0	0	0	3	0	1	1	0	0	58	833
5:40 PM	5	21	4	0	0	16	0	0	0	0	4	0	2	0	0	0	52	815
5:45 PM	8	28	4	0	0	20	0	0	5	0	5	0	7	0	1	0	78	829
5:50 PM	2	30	7	0	0	18	0	0	1	0	6	0	1	1	1	0	67	827

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	76	300	80	0	4	360	4	0	4	0	80	0	40	0	8	0	956
Heavy Trucks	0	12	0		0	8	0		0	0	0		4	0	4		28
Buses																	
Pedestrians		0				8				0				0			8
Bicycles	0	0	0		0	0	0		0	0	0		0	0	0		0
Scooters																	

Comments:

Report generated on 8/16/2024 2:46 PM

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

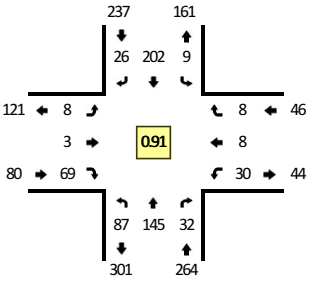
Type of peak hour being reported: Intersection Peak

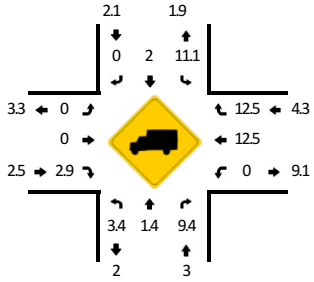
Method for determining peak hour: Total Entering Volume

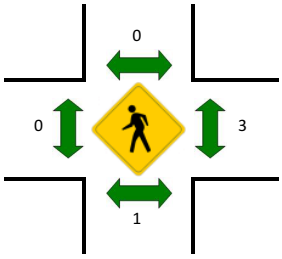
LOCATION: N Main St -- Boardman Ave NE
CITY/STATE: Boardman, OR

QC JOB #: 16719921
DATE: Tue, May 21 2024

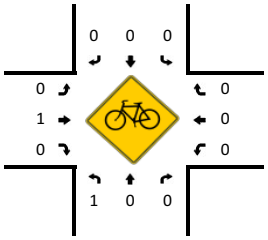
Peak-Hour: 4:20 PM -- 5:20 PM
Peak 15-Min: 5:00 PM -- 5:15 PM

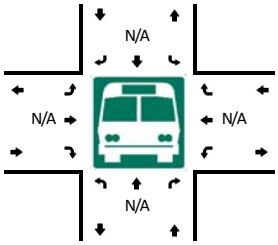




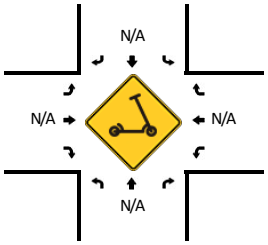












5-Min Count Period Beginning At	N Main St (Northbound)				N Main St (Southbound)				Boardman Ave NE (Eastbound)				Boardman Ave NE (Westbound)				Total	Hourly Totals
	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U		
4:00 PM	9	14	3	0	1	13	3	0	1	0	7	0	2	0	1	0	54	
4:05 PM	6	7	3	0	1	23	2	0	0	1	10	0	4	1	2	0	60	
4:10 PM	9	10	2	0	0	20	1	0	3	0	5	0	1	0	1	0	52	
4:15 PM	9	4	6	0	1	17	1	0	1	0	5	0	0	3	0	0	47	
4:20 PM	8	8	2	0	0	19	1	0	1	0	9	0	6	0	0	0	54	
4:25 PM	9	14	2	0	1	20	1	0	0	0	4	0	4	1	1	0	57	
4:30 PM	12	9	7	0	1	14	2	0	2	0	5	0	1	1	0	0	54	
4:35 PM	9	14	5	0	1	12	2	0	1	0	8	0	2	0	2	0	56	
4:40 PM	7	15	1	0	1	14	1	0	0	1	6	0	1	0	1	0	48	
4:45 PM	8	7	2	0	1	23	1	0	0	1	2	0	1	1	0	0	47	
4:50 PM	6	8	1	0	0	10	3	0	0	0	9	0	2	0	1	0	40	
4:55 PM	5	14	4	0	3	17	1	0	0	0	5	0	1	0	0	0	50	619
5:00 PM	8	13	2	0	1	14	4	0	0	0	7	0	5	2	0	0	56	621
5:05 PM	7	11	1	0	0	23	6	0	2	0	5	0	4	1	1	0	61	622
5:10 PM	4	16	3	0	0	21	1	0	2	1	5	0	0	1	2	0	56	626
5:15 PM	4	16	2	0	0	15	3	0	0	0	4	0	3	1	0	0	48	627
5:20 PM	8	12	1	0	0	16	1	0	3	0	6	0	1	1	1	0	50	623
5:25 PM	11	10	4	0	1	13	2	0	1	0	5	0	3	0	1	0	51	617
5:30 PM	9	9	5	0	1	10	0	0	0	1	6	0	1	0	1	0	43	606
5:35 PM	9	10	11	0	0	16	1	0	0	0	5	0	2	0	1	0	55	605
5:40 PM	8	11	2	0	0	8	1	0	1	0	6	0	2	0	0	0	39	596
5:45 PM	8	17	8	0	2	10	1	0	2	2	5	0	5	0	0	0	60	609
5:50 PM	9	13	9	0	0	5	3	0	2	4	5	0	5	1	0	0	56	625

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	76	160	24	0	4	232	44	0	16	4	68	0	36	16	12	0	692
Heavy Trucks	8	4	0		0	8	0		0	0	4		0	0	0		24
Buses																	
Pedestrians		0				0				0				8			8
Bicycles	4	0	0		0	0	0		0	0	0		0	0	0		4
Scooters																	

Comments:

Report generated on 8/16/2024 2:46 PM

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

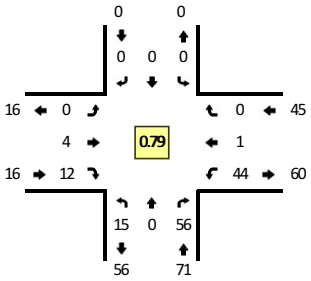
Type of peak hour being reported: Intersection Peak

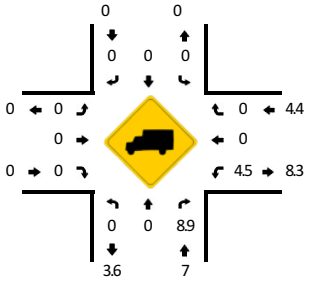
Method for determining peak hour: Total Entering Volume

LOCATION: N Main St -- Marine Dr NW
CITY/STATE: Boardman, OR

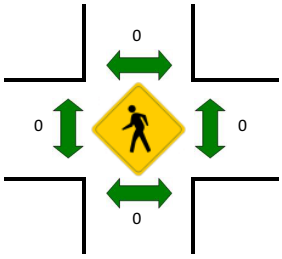
QC JOB #: 16719922
DATE: Tue, May 21 2024

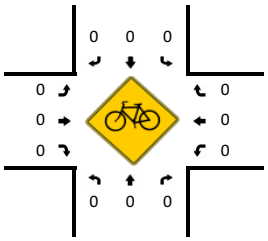
Peak-Hour: 4:55 PM -- 5:55 PM
Peak 15-Min: 5:15 PM -- 5:30 PM

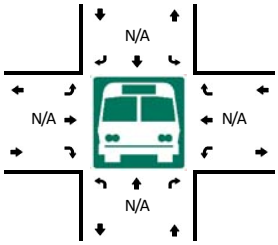


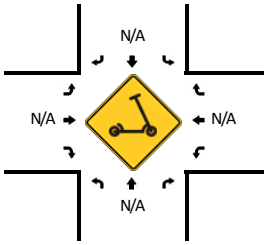


TRUE DATA TO IMPROVE MOBILITY









5-Min Count Period Beginning At	N Main St (Northbound)				N Main St (Southbound)				Marine Dr NW (Eastbound)				Marine Dr NW (Westbound)				Total	Hourly Totals
	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U		
4:00 PM	2	0	5	0	0	0	0	0	0	0	0	0	4	0	0	0	11	
4:05 PM	2	0	2	0	0	0	0	0	0	0	0	0	4	0	0	0	8	
4:10 PM	0	0	3	0	0	0	0	0	0	0	2	0	4	1	0	0	10	
4:15 PM	0	0	1	0	0	0	0	0	0	1	3	0	3	0	0	0	8	
4:20 PM	1	0	4	0	0	0	0	0	0	0	0	0	0	0	0	0	5	
4:25 PM	0	0	1	0	0	0	0	0	0	0	0	0	1	1	0	0	3	
4:30 PM	1	0	5	0	0	0	0	0	0	0	4	0	1	0	0	0	11	
4:35 PM	2	0	2	0	0	0	0	0	0	0	1	0	1	0	0	0	6	
4:40 PM	1	0	8	0	0	0	0	0	0	1	1	0	2	0	0	0	13	
4:45 PM	0	0	4	0	0	0	0	0	0	0	4	0	3	0	0	0	11	
4:50 PM	0	0	2	0	0	0	0	0	0	0	1	0	1	1	0	0	5	
4:55 PM	0	0	6	0	0	0	0	0	0	0	0	0	4	0	0	0	10	101
5:00 PM	0	0	2	0	0	0	0	0	0	0	2	0	4	0	0	0	8	98
5:05 PM	0	0	3	0	0	0	0	0	0	0	1	0	6	0	0	0	10	100
5:10 PM	5	0	7	0	0	0	0	0	0	0	0	0	1	0	0	0	13	103
5:15 PM	0	0	5	0	0	0	0	0	0	1	1	0	5	1	0	0	13	108
5:20 PM	0	0	4	0	0	0	0	0	0	1	2	0	6	0	0	0	13	116
5:25 PM	3	0	4	0	0	0	0	0	0	1	1	0	7	0	0	0	16	129
5:30 PM	1	0	3	0	0	0	0	0	0	1	3	0	2	0	0	0	10	128
5:35 PM	2	0	3	0	0	0	0	0	0	0	1	0	1	0	0	0	7	129
5:40 PM	1	0	4	0	0	0	0	0	0	0	1	0	2	0	0	0	8	124
5:45 PM	1	0	11	0	0	0	0	0	0	0	0	0	2	0	0	0	14	127
5:50 PM	2	0	4	0	0	0	0	0	0	0	0	0	4	0	0	0	10	132

Peak 15-Min Flowrates	Northbound				Southbound				Eastbound				Westbound				Total
	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U	
All Vehicles	12	0	52	0	0	0	0	0	0	12	16	0	72	4	0	0	168
Heavy Trucks	0	0	0		0	0	0		0	0	0		4	0	0		4
Buses																	
Pedestrians		0				0				0				0			0
Bicycles	0	0	0		0	0	0		0	0	0		0	0	0		0
Scooters																	

Comments:

Report generated on 8/16/2024 2:46 PM

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

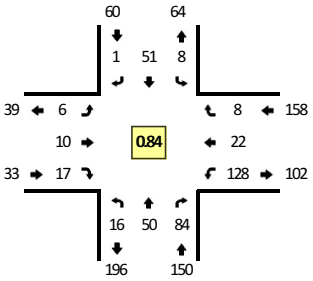
Type of peak hour being reported: Intersection Peak

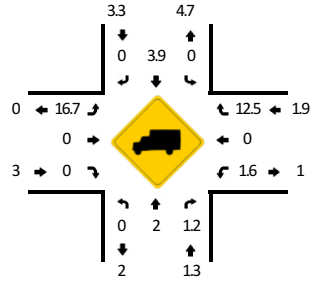
Method for determining peak hour: Total Entering Volume

LOCATION: N Main St -- Columbia Ave NW
CITY/STATE: Boardman, OR

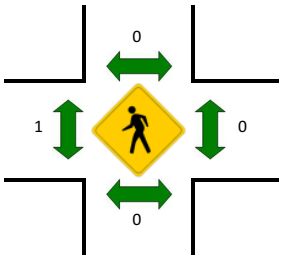
QC JOB #: 16719923
DATE: Tue, May 21 2024

Peak-Hour: 4:35 PM -- 5:35 PM
Peak 15-Min: 5:00 PM -- 5:15 PM

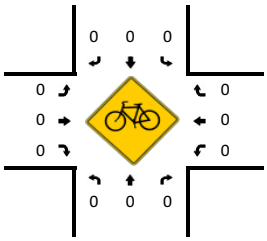


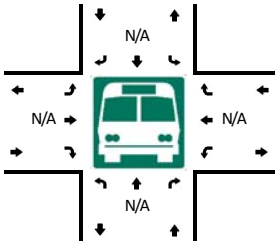


TRUE DATA TO IMPROVE MOBILITY

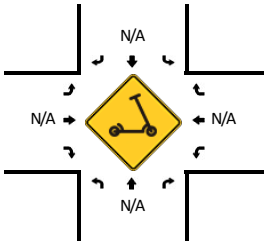












5-Min Count Period Beginning At	N Main St (Northbound)				N Main St (Southbound)				Columbia Ave NW (Eastbound)				Columbia Ave NW (Westbound)				Total	Hourly Totals
	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U		
4:00 PM	2	5	10	0	0	5	0	0	0	0	0	0	10	3	1	0	36	
4:05 PM	1	2	5	0	0	4	0	0	0	0	0	0	22	1	3	0	38	
4:10 PM	0	1	9	0	0	7	0	0	0	3	1	0	12	2	1	0	36	
4:15 PM	0	0	7	0	0	5	1	0	0	2	0	0	12	0	1	0	28	
4:20 PM	1	5	3	0	0	0	0	0	0	0	2	0	15	1	0	0	27	
4:25 PM	1	3	6	0	0	1	0	0	0	0	2	0	18	0	0	0	31	
4:30 PM	1	1	8	0	1	3	0	0	1	1	0	0	9	1	2	0	28	
4:35 PM	1	4	7	0	0	3	0	0	0	1	1	0	7	2	0	0	26	
4:40 PM	3	11	9	0	0	3	0	0	2	0	2	0	8	0	0	0	38	
4:45 PM	1	2	2	0	0	7	0	0	0	1	1	0	16	1	1	0	32	
4:50 PM	1	2	8	0	1	0	0	0	0	1	2	0	10	1	0	0	26	
4:55 PM	1	4	5	0	4	1	0	0	0	1	0	0	16	4	1	0	37	383
5:00 PM	1	1	7	0	1	6	0	0	1	0	1	0	12	1	0	0	31	378
5:05 PM	1	2	12	0	0	5	0	0	1	0	3	0	19	2	0	0	45	385
5:10 PM	2	8	8	0	0	3	0	0	0	0	1	0	16	2	3	0	43	392
5:15 PM	3	3	6	0	1	5	0	0	0	0	1	0	8	2	2	0	31	395
5:20 PM	0	5	9	0	1	7	0	0	0	3	1	0	4	0	0	0	30	398
5:25 PM	2	5	3	0	0	6	1	0	1	3	2	0	6	4	0	0	33	400
5:30 PM	0	3	8	0	0	5	0	0	1	0	2	0	6	3	1	0	29	401
5:35 PM	3	4	3	0	0	3	0	0	0	0	2	0	8	0	1	0	24	399
5:40 PM	0	5	7	0	0	3	0	0	0	1	2	0	5	1	0	0	24	385
5:45 PM	2	9	7	0	0	1	0	0	1	0	2	0	7	1	0	0	30	383
5:50 PM	0	4	8	0	1	3	0	0	0	1	1	0	4	0	1	0	23	380

Peak 15-Min Flowrates	Northbound				Southbound				Eastbound				Westbound				Total
	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U	
All Vehicles	16	44	108	0	4	56	0	0	8	0	20	0	188	20	12	0	476
Heavy Trucks	0	4	0		0	4	0		4	0	0		4	0	0		16
Buses																	
Pedestrians		0				0				0				0			0
Bicycles	0	0	0		0	0	0		0	0	0		0	0	0		0
Scooters																	

Comments:

Report generated on 8/16/2024 2:46 PM

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

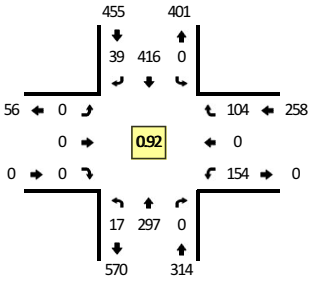
Type of peak hour being reported: Intersection Peak

Method for determining peak hour: Total Entering Volume

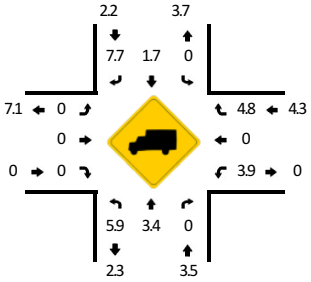
LOCATION: N Main St -- I-84 WB Ramps
CITY/STATE: Boardman, OR

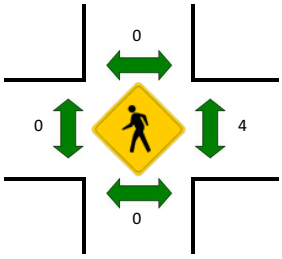
QC JOB #: 16719924
DATE: Tue, May 21 2024

Peak-Hour: 4:10 PM -- 5:10 PM
Peak 15-Min: 4:20 PM -- 4:35 PM

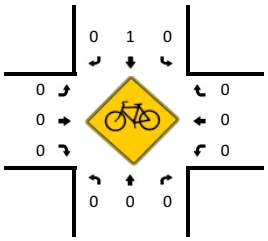


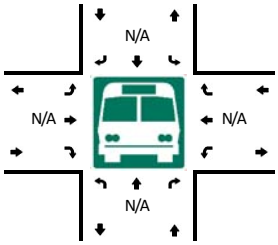




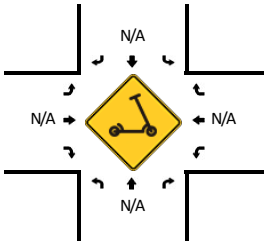












5-Min Count Period Beginning At	N Main St (Northbound)				N Main St (Southbound)				I-84 WB Ramps (Eastbound)				I-84 WB Ramps (Westbound)				Total	Hourly Totals
	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U		
4:00 PM	1	29	0	0	0	22	4	0	0	0	0	0	8	0	12	0	76	
4:05 PM	0	15	0	0	0	44	5	0	0	0	0	0	11	0	5	0	80	
4:10 PM	0	25	0	0	0	40	7	0	0	0	0	0	13	0	8	0	93	
4:15 PM	1	19	0	0	0	27	6	0	0	0	0	0	13	0	6	0	72	
4:20 PM	2	23	0	0	0	41	7	0	0	0	0	0	13	0	9	0	95	
4:25 PM	0	28	0	0	0	37	2	0	0	0	0	0	17	0	10	0	94	
4:30 PM	1	30	0	0	0	33	0	0	0	0	0	0	11	0	14	0	89	
4:35 PM	1	26	0	0	0	31	1	0	0	0	0	0	11	0	8	0	78	
4:40 PM	3	25	0	0	0	28	4	0	0	0	0	0	12	0	11	0	83	
4:45 PM	1	20	0	0	0	35	2	0	0	0	0	0	8	0	7	0	73	
4:50 PM	2	22	0	0	0	33	2	0	0	0	0	0	14	0	8	0	81	
4:55 PM	1	26	0	0	0	23	3	0	0	0	0	0	20	0	8	0	81	995
5:00 PM	4	28	0	0	0	42	3	0	0	0	0	0	11	0	9	0	97	1016
5:05 PM	1	25	0	0	0	46	2	0	0	0	0	0	11	0	6	0	91	1027
5:10 PM	1	23	0	0	0	35	0	0	0	0	0	0	9	0	6	0	74	1008
5:15 PM	0	29	0	0	0	26	3	0	0	0	0	0	5	0	9	0	72	1008
5:20 PM	0	28	0	0	0	28	0	0	0	0	0	0	8	0	11	0	75	988
5:25 PM	4	24	0	0	0	31	2	0	0	0	0	0	8	0	7	0	76	970
5:30 PM	1	27	0	0	0	29	1	0	0	0	0	0	11	0	2	0	71	952
5:35 PM	0	23	0	0	0	25	4	0	0	0	0	0	14	0	6	0	72	946
5:40 PM	1	26	0	0	0	19	2	0	0	0	0	0	9	0	4	0	61	924
5:45 PM	1	34	0	0	0	32	1	0	0	0	0	0	7	0	7	0	82	933
5:50 PM	0	33	0	0	0	24	1	0	0	0	0	0	11	0	5	0	74	926

Peak 15-Min Flowrates	Northbound				Southbound				Eastbound				Westbound				Total
	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U	
All Vehicles	12	324	0	0	0	444	36	0	0	0	0	0	164	0	132	0	1112
Heavy Trucks	0	8	0		0	4	8		0	0	0		4	0	4		28
Buses																	
Pedestrians		0				0				0				4			4
Bicycles	0	0	0		0	0	0		0	0	0		0	0	0		0
Scooters																	

Comments:

Report generated on 8/16/2024 2:46 PM

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

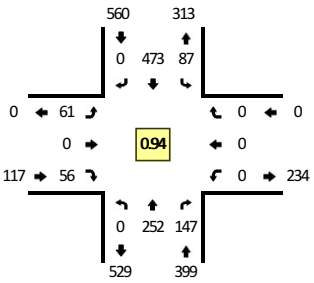
Type of peak hour being reported: Intersection Peak

Method for determining peak hour: Total Entering Volume

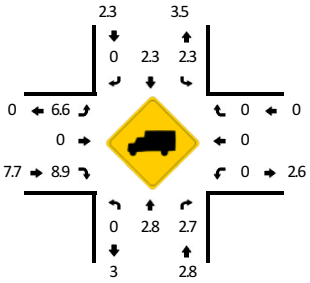
LOCATION: S Main St -- I-84 EB Ramps
CITY/STATE: Boardman, OR

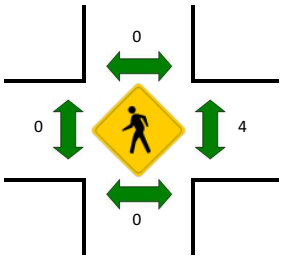
QC JOB #: 16719925
DATE: Tue, May 21 2024

Peak-Hour: 4:10 PM -- 5:10 PM
Peak 15-Min: 4:55 PM -- 5:10 PM

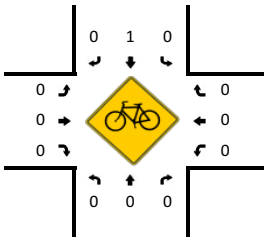


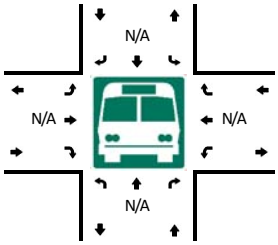




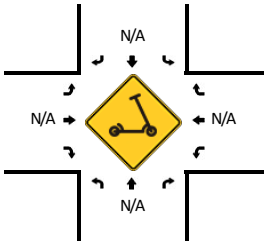












5-Min Count Period Beginning At	S Main St (Northbound)				S Main St (Southbound)				I-84 EB Ramps (Eastbound)				I-84 EB Ramps (Westbound)				Total	Hourly Totals
	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U		
4:00 PM	0	27	8	0	2	27	0	0	4	1	5	0	0	0	0	0	74	
4:05 PM	0	13	16	0	7	46	0	0	1	0	1	0	0	0	0	0	84	
4:10 PM	0	26	19	0	9	45	0	0	2	0	4	0	0	0	0	0	105	
4:15 PM	0	16	13	0	10	32	0	0	1	0	3	0	0	0	0	0	75	
4:20 PM	0	22	13	0	4	46	0	0	5	0	2	0	0	0	0	0	92	
4:25 PM	0	20	13	0	9	47	0	0	6	0	9	0	0	0	0	0	104	
4:30 PM	0	23	13	0	3	38	0	0	7	0	4	0	0	0	0	0	88	
4:35 PM	0	18	13	0	9	31	0	0	11	0	6	0	0	0	0	0	88	
4:40 PM	0	23	7	0	6	37	0	0	4	0	3	0	0	0	0	0	80	
4:45 PM	0	17	7	0	9	32	0	0	3	0	4	0	0	0	0	0	72	
4:50 PM	0	17	12	0	2	44	0	0	8	0	4	0	0	0	0	0	87	
4:55 PM	0	18	14	0	4	38	0	0	7	0	6	0	0	0	0	0	87	1036
5:00 PM	0	28	13	0	9	40	0	0	3	0	7	0	0	0	0	0	100	1062
5:05 PM	0	24	10	0	13	43	0	0	4	0	4	0	0	0	0	0	98	1076
5:10 PM	0	19	10	0	4	40	0	0	5	0	8	0	0	0	0	0	86	1057
5:15 PM	0	21	7	0	5	26	0	0	7	0	2	0	0	0	0	0	68	1050
5:20 PM	0	25	9	0	2	27	0	0	6	0	7	0	0	0	0	0	76	1034
5:25 PM	0	21	9	0	7	33	0	0	5	0	6	0	0	0	0	0	81	1011
5:30 PM	0	19	4	0	8	31	0	0	6	0	4	0	0	0	0	0	72	995
5:35 PM	0	23	9	0	6	36	0	0	3	0	2	0	0	0	0	0	79	986
5:40 PM	0	23	10	0	8	23	0	0	2	0	0	0	0	0	0	0	66	972
5:45 PM	0	30	8	0	7	32	0	0	7	0	2	0	0	0	0	0	86	986
5:50 PM	0	29	8	0	5	28	0	0	2	0	1	0	0	0	0	0	73	972

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	280	148	0	104	484	0	0	56	0	68	0	0	0	0	0	1140
Heavy Trucks	0	4	0		8	20	0		8	0	8		0	0	0		48
Buses																	
Pedestrians		0				0				0				4			4
Bicycles	0	0	0		0	0	0		0	0	0		0	0	0		0
Scooters																	

Comments:

Report generated on 8/16/2024 2:46 PM

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

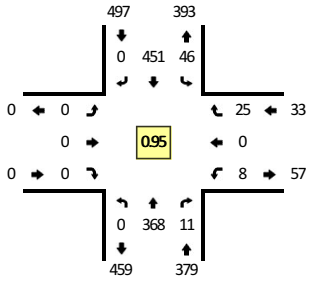
Type of peak hour being reported: Intersection Peak

Method for determining peak hour: Total Entering Volume

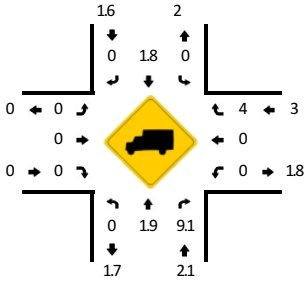
LOCATION: S Main St -- Oregon Trail Blvd
CITY/STATE: Boardman, OR

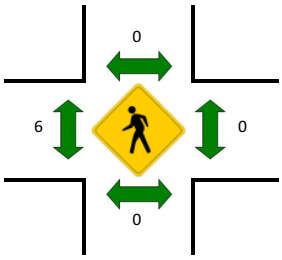
QC JOB #: 16719926
DATE: Tue, May 21 2024

Peak-Hour: 4:10 PM -- 5:10 PM
Peak 15-Min: 4:10 PM -- 4:25 PM

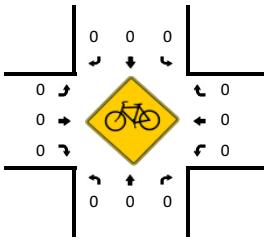


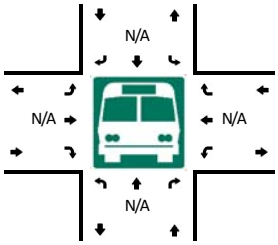




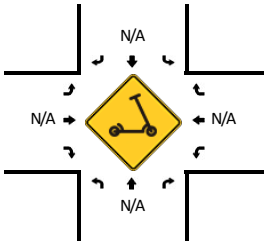












5-Min Count Period Beginning At	S Main St (Northbound)				S Main St (Southbound)				Oregon Trail Blvd (Eastbound)				Oregon Trail Blvd (Westbound)				Total	Hourly Totals
	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U		
4:00 PM	0	30	0	0	2	36	0	0	0	0	0	0	0	0	1	0	69	
4:05 PM	0	28	1	0	1	40	0	0	0	0	0	0	1	0	2	0	73	
4:10 PM	0	46	1	0	3	42	0	0	0	0	0	0	1	0	1	0	94	
4:15 PM	0	28	0	0	3	37	0	0	0	0	0	0	2	0	2	0	72	
4:20 PM	0	31	1	0	4	35	0	0	0	0	0	0	0	0	3	0	74	
4:25 PM	0	23	0	0	6	46	0	0	0	0	0	0	0	0	3	0	78	
4:30 PM	0	41	0	0	4	35	0	0	0	0	0	0	1	0	0	0	81	
4:35 PM	0	29	2	0	7	33	0	0	0	0	0	0	1	0	3	0	75	
4:40 PM	0	26	1	0	2	36	0	0	0	0	0	0	1	0	1	0	67	
4:45 PM	0	21	2	0	3	31	0	0	0	0	0	0	1	0	4	0	62	
4:50 PM	0	24	0	0	4	38	0	0	0	0	0	0	0	0	2	0	68	
4:55 PM	0	31	2	0	4	34	0	0	0	0	0	0	0	0	2	0	73	886
5:00 PM	0	37	1	0	1	41	0	0	0	0	0	0	0	0	2	0	82	899
5:05 PM	0	31	1	0	5	43	0	0	0	0	0	0	1	0	2	0	83	909
5:10 PM	0	21	1	0	6	46	0	0	0	0	0	0	1	0	0	0	75	890
5:15 PM	0	22	1	0	2	30	0	0	0	0	0	0	0	0	1	0	56	874
5:20 PM	0	31	0	0	5	32	0	0	0	0	0	0	1	0	1	0	70	870
5:25 PM	0	24	0	0	2	28	0	0	0	0	0	0	0	0	3	0	57	849
5:30 PM	0	25	0	0	4	31	0	0	0	0	0	0	0	0	3	0	63	831
5:35 PM	0	26	1	0	1	43	0	0	0	0	0	0	3	0	2	0	76	832
5:40 PM	0	33	2	0	2	24	0	0	0	0	0	0	1	0	0	0	62	827
5:45 PM	0	33	0	0	4	23	0	0	0	0	0	0	2	0	3	0	65	830
5:50 PM	0	33	2	0	2	13	0	0	0	0	0	0	0	0	2	0	52	814

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	420	8	0	40	456	0	0	0	0	0	0	12	0	24	0	960
Heavy Trucks	0	16	0		0	8	0		0	0	0		0	0	4		28
Buses																	
Pedestrians		0				0				8				0			8
Bicycles	0	0	0		0	0	0		0	0	0		0	0	0		0
Scooters																	

Comments:

Report generated on 8/16/2024 2:46 PM

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

Type of peak hour being reported: Intersection Peak

Method for determining peak hour: Total Entering Volume

LOCATION: S Main St -- Kinkade Rd

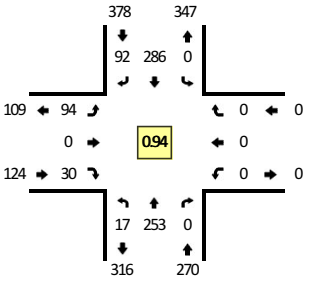
QC JOB #: 16719927

CITY/STATE: Boardman, OR

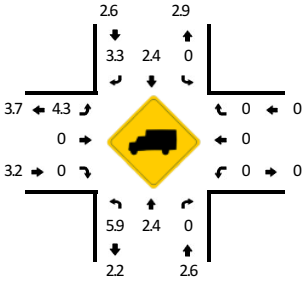
DATE: Tue, May 21 2024

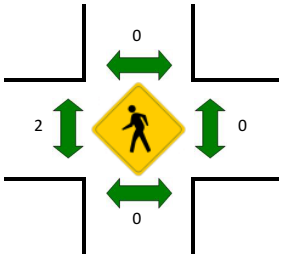
Peak-Hour: 4:05 PM -- 5:05 PM

Peak 15-Min: 4:05 PM -- 4:20 PM

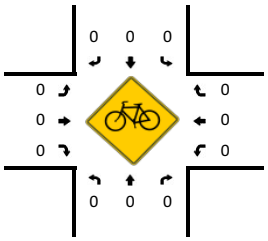


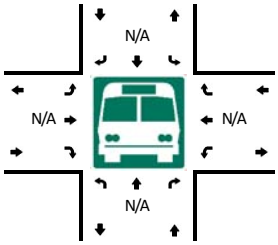




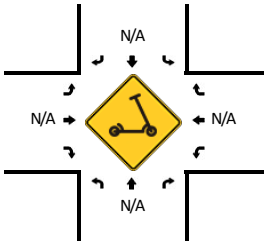












5-Min Count Period Beginning At	S Main St (Northbound)				S Main St (Southbound)				Kinkade Rd (Eastbound)				Kinkade Rd (Westbound)				Total	Hourly Totals
	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U		
4:00 PM	1	24	0	0	0	24	5	0	3	0	2	0	0	0	0	0	59	
4:05 PM	0	23	0	0	0	22	10	0	8	0	0	0	0	0	0	0	63	
4:10 PM	1	37	0	0	0	30	9	0	8	0	2	0	0	0	0	0	87	
4:15 PM	0	21	0	0	0	22	8	0	4	0	1	0	0	0	0	0	56	
4:20 PM	0	25	0	0	0	26	6	0	4	0	1	0	0	0	0	0	62	
4:25 PM	4	13	0	0	0	26	5	0	8	0	3	0	0	0	0	0	59	
4:30 PM	2	23	0	0	0	22	5	0	12	0	5	0	0	0	0	0	69	
4:35 PM	3	25	0	0	0	26	10	0	4	0	3	0	0	0	0	0	71	
4:40 PM	1	16	0	0	0	20	9	0	9	0	1	0	0	0	0	0	56	
4:45 PM	4	15	0	0	0	19	7	0	7	0	1	0	0	0	0	0	53	
4:50 PM	2	14	0	0	0	27	6	0	7	0	6	0	0	0	0	0	62	
4:55 PM	0	18	0	0	0	22	6	0	11	0	3	0	0	0	0	0	60	757
5:00 PM	0	23	0	0	0	24	11	0	12	0	4	0	0	0	0	0	74	772
5:05 PM	0	9	0	0	0	30	6	0	14	0	4	0	0	0	0	0	63	772
5:10 PM	0	13	0	0	0	33	8	0	6	0	3	0	0	0	0	0	63	748
5:15 PM	1	18	0	0	0	17	6	0	5	0	3	0	0	0	0	0	50	742
5:20 PM	1	17	0	0	0	14	11	0	7	0	1	0	0	0	0	0	51	731
5:25 PM	2	18	0	0	0	16	7	0	2	0	1	0	0	0	0	0	46	718
5:30 PM	1	19	0	0	0	19	4	0	8	0	3	0	0	0	0	0	54	703
5:35 PM	1	17	0	0	0	29	8	0	9	0	2	0	0	0	0	0	66	698
5:40 PM	3	24	0	0	0	19	4	0	6	0	1	0	0	0	0	0	57	699
5:45 PM	0	25	0	0	0	16	6	0	3	0	2	0	0	0	0	0	52	698
5:50 PM	2	18	0	0	0	15	2	0	9	0	2	0	0	0	0	0	48	684

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	4	324	0	0	0	296	108	0	80	0	12	0	0	0	0	0	824
Heavy Trucks	0	16	0		0	12	0		4	0	0		0	0	0		32
Buses																	
Pedestrians		0				0				0				0			0
Bicycles	0	0	0		0	0	0		0	0	0		0	0	0		0
Scooters																	

Comments:

Report generated on 8/16/2024 2:47 PM

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

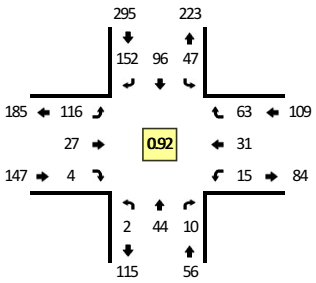
Type of peak hour being reported: Intersection Peak

Method for determining peak hour: Total Entering Volume

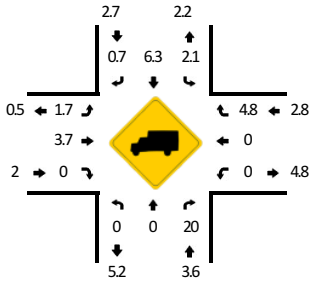
LOCATION: S Main St -- Wilson Ln SE
CITY/STATE: Boardman, OR

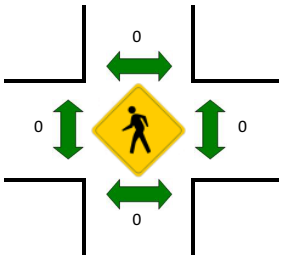
QC JOB #: 16719928
DATE: Tue, May 21 2024

Peak-Hour: 4:10 PM -- 5:10 PM
Peak 15-Min: 4:10 PM -- 4:25 PM

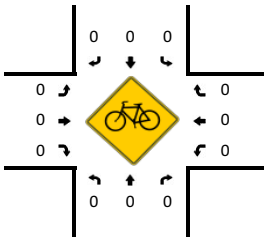


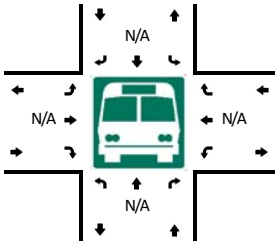




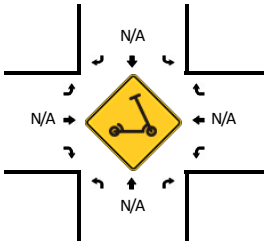












5-Min Count Period Beginning At	S Main St (Northbound)				S Main St (Southbound)				Wilson Ln SE (Eastbound)				Wilson Ln SE (Westbound)				Total	Hourly Totals
	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U		
4:00 PM	0	3	2	0	6	9	4	0	13	4	1	0	0	2	3	0	47	
4:05 PM	0	5	0	0	2	7	10	0	13	0	0	0	1	2	4	0	44	
4:10 PM	0	8	2	0	7	8	17	0	21	3	0	0	0	3	3	0	72	
4:15 PM	0	3	3	0	3	7	12	0	13	3	0	0	0	2	4	0	50	
4:20 PM	1	3	1	0	3	6	8	0	12	1	0	0	1	3	4	0	43	
4:25 PM	0	0	0	0	6	6	13	0	6	1	0	0	3	1	10	0	46	
4:30 PM	0	3	0	0	6	6	15	0	6	4	2	0	3	6	9	0	60	
4:35 PM	0	5	0	0	3	6	12	0	8	1	0	0	1	4	12	0	52	
4:40 PM	0	1	0	0	2	8	10	0	6	1	1	0	2	2	4	0	37	
4:45 PM	0	4	0	0	4	8	9	0	13	1	0	0	2	6	4	0	51	
4:50 PM	0	4	1	0	1	15	14	0	7	2	0	0	1	0	5	0	50	
4:55 PM	1	6	0	0	1	10	12	0	9	2	0	0	2	2	5	0	50	602
5:00 PM	0	7	2	0	7	4	16	0	10	1	1	0	0	1	2	0	51	606
5:05 PM	0	0	1	0	4	12	14	0	5	7	0	0	0	1	1	0	45	607
5:10 PM	0	3	0	0	4	8	15	0	5	3	1	0	0	0	4	0	43	578
5:15 PM	1	7	0	0	3	8	7	0	8	1	0	0	2	4	6	0	47	575
5:20 PM	0	8	0	0	4	7	8	0	4	0	0	0	0	3	4	0	38	570
5:25 PM	1	4	2	0	1	8	4	0	7	0	0	0	1	1	6	0	35	559
5:30 PM	0	5	0	0	4	5	13	0	9	2	1	0	1	4	2	0	46	545
5:35 PM	0	3	0	0	3	6	17	0	10	1	0	0	1	4	1	0	46	539
5:40 PM	1	12	2	0	2	5	12	0	5	0	0	0	0	1	6	0	46	548
5:45 PM	0	9	0	0	4	5	5	0	12	3	1	0	1	2	5	0	47	544
5:50 PM	0	2	0	0	6	6	2	0	9	3	0	0	0	2	1	0	31	525

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	4	56	24	0	52	84	148	0	184	28	0	0	4	32	44	0	660
Heavy Trucks	0	0	8		0	8	4		4	4	0		0	0	4		32
Buses																	
Pedestrians		0				0				0				0			0
Bicycles	0	0	0		0	0	0		0	0	0		0	0	0		0
Scooters																	

Comments:

Report generated on 8/16/2024 2:47 PM

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

Appendix B – 2009 Main Street IAMP

City of Boardman
Main Street Interchange Area Management Plan
City Council Public Hearing
September 15, 2009

IAMP ADOPTION SUMMARY

(Adapted from CC/PC Joint Work Session of July 22, 2009)

The City of Boardman is proposing to adopt the Main Street Interchange Area Management Plan (June 2009 Draft). The purpose of the Interchange Area Management Plan, or "IAMP," is to identify long-term circulation and access improvements to preserve the capacity and function of the interchange. The draft plan projects how growth is expected to change transportation conditions over the next 20 years and recommends transportation solutions to meet the needs of the community over this time horizon. To this end, the IAMP includes recommendations that enhance the reliability, safety and efficiency of the local transportation system in and around the interchange.

As part of the upcoming adoption process, the City will be considering amendments to the Development Code that implement the IAMP. Proposed Development Code amendments address access management, transportation analysis, and circulation and local street connectivity that may be required when parcels in the vicinity of the interchange develop or redevelop.

The following points summarize the City's actions in adopting the IAMP and the implications for future development in the vicinity of the interchange.

- **The City will legislatively amend the Transportation System Plan to incorporate the IAMP in the City's adopted long-range plan.**
    - The IAMP identifies a local street network, access management, and specific roadway and interchange improvements that will ensure that the transportation system around the interchange operates efficiently and safely.
    - Planning for an efficient local street system in advance of full build-out of development around the interchange will ensure that a logical and efficient network will be available to provide access to existing and future businesses.
    - Adopting the IAMP's list of needed transportation improvements prioritizes these projects locally, is a required action before the City can seek state funding, and will ensure that proportional private investment in the system, as part of future development, will be strategically allocated.

- **To implement the IAMP, the City will amend the Zoning Map to include an overlay district and will amend the Development Code to include a chapter devoted to land use, development, and redevelopment requirements within the district.**

    - The proposed IAMP Overlay District does not change the underlying zoning of property in the defined management area.

    - Development proposals for any parcel that is wholly or partially within the IAMP Overlay District boundary, as shown on the City's Zoning Map, will be reviewed pursuant to the new IAMP-related Development Code requirements.

    - In large part, the proposed IAMP Overlay District Overlay Zone chapter refines and clarifies existing city requirements, as they pertain to development within the overlay, and does not represent extra requirements; in many instances the IAMP reduces the requirements for commercial development traffic impact analyses.

- **The IAMP is a long-range plan with a 20-year planning horizon; the City's adoption of the IAMP will not result in immediate changes in the vicinity of the interchange, but rather will set the parameters for future development over time.**

    - Based on an annual growth rate of 2.5% and related development assumptions, no short-range (0-5 years) transportation improvements will be necessary in the vicinity of the interchange.

    - Medium- (5-10 years) and long-range (10 – 20 years) improvements identified in the IAMP will be triggered by system failures (such as the level of service drops below standards or an unacceptable increase in crashes) and will be implemented as money becomes available and/or property (re)develops.

    - Access management is key to safe and efficient traffic circulation near the interchange, **but under no circumstances will existing accesses be closed without a reasonable alternate access first being available.**

CITY of BOARDMAN
Community Development
STAFF REPORT

DATE: September 8, 2009

TO: Boardman City Council

FROM: Barry C. Beyeler, Community Development Director

SUBJECT: Post Acknowledgement Plan Amendment 01-2009 – Boardman Main Street Interchange Area Management Plan

HISTORY

The City of Boardman, through the Transportation Growth Management (TGM) Grant Program administered jointly by the Oregon Department of Land Conservation and Development (DLCD) and the Oregon Department of Transportation (ODOT), initiated an Interchange Area Management Plan (IAMP) study to establish an IAMP for the Interstate 84 interchanges within the City of Boardman. The previous public hearings on the IAMP in 2007 did not produce an approved IAMP. Then Mayor Ed Glenn appointed a Steering Committee, comprised of affected land owners and three City Councilors, to work collaboratively with ODOT to find solutions to the issues which posed barriers to approval of the IAMP. The appointed Steering Committee held numerous meetings with representatives of ODOT to work out these issues. As a result of the work of the Steering Committee, the City elected to remove the Port of Morrow interchange from the original plan and continued with planning for the Main Street interchange only. The City received additional funding, through ODOT and the TGM Program, to complete the revisions sought by the Steering Committee and to draft implementation language within the Boardman Development Code.

The Steering Committee and ODOT produced a Revised Final DRAFT Report of the Boardman Main Street IAMP in late April of 2009 and have finalized draft language for the Boardman Development Code to implement of the current version IAMP. There have been several public meetings held, concerning the changes to the report and the IAMP implementation language, an open house to explain the changes to affected landowners and citizens, and a joint Planning Commission and City Council workshop on the changes made to the Interchange Area Management Plan and the associated implementation language. The IAMP and draft code language is now at the Planning Commission public hearing stage in the Post Acknowledgement Plan Amendment process. The Planning Commission will gather testimony from the public on the approval and implementation of the IAMP and will forward a recommendation on to City Council for their consideration at a hearing scheduled for September 15, 2009.

APPLICANT'S PROPOSAL

The City of Boardman is the applicant in this proposal. The proposal is to legislatively amend the Transportation System Plan to incorporate the IAMP in the City's adopted long-range plan. The IAMP identifies a local street network, access management, and specific roadway and interchange improvements that, upon adoption, will become the long range transportation plan for the area identified as the Interchange Area Management Plan Overlay District (Figure 3.1). **Figure 3.1 is included as Attachment "A" The proposed zoning map changes indicating the Overlay District are attached as Attachment "A-1"**

The proposal includes actions to implement the IAMP, including establishing an Interchange Area Management Plan (IAMP) Overlay District on the City's Comprehensive Plan and Zoning Map. Associated changes to the Boardman Development Code will apply to the properties within the boundaries of the Interchange Area Management Plan, to implement the provisions of the Final Report for the Boardman Main Street Interchange Area Management Plan.

The City will establish an overlay district by addition of Chapter 2.5 – Interchange Area Management Plan Overlay District, which identifies the requirements of development approval within the district, including transportation impact review. The overlay district does not change the underlying zoning, and therefore does not change the allowable uses, of the properties within the district. **Chapter 2.5 is included as Attachment "B".**

The City will amend language Boardman Development Code Chapter 3.1 – Access and Circulation, to include cross references to Chapter 2.5 - Interchange Area Management Plan Overlay District and to indicate access requirements in the Overlay District. **Chapter 3.1 is included as Attachment "C".**

The City will amend Boardman Development Code 4.10 – Traffic Impact Study to include cross reference to the requirements of Development Code Chapter 2.5 and 3.1 and to clarify traffic impact review and traffic study requirements. **Chapter 4.10 is Included as Attachment "D".**

The City will adopt the amendments to Chapter 5 of the April 2009 Final Report of the Boardman Main Street Interchange Area Management Plan. **Amendments to Chapter 5 are included as Attachment "E", Figure 5.5 as Attachment "E-1" and Figure 5.6 as Attachment "E-2"..**

The Boardman Main Street IAMP Findings of Compliance: State Policies and Requirements is **included as Attachment "F".**

With language changes to the Boardman Development Code and amendments to Chapter 5 of the Boardman Main Street Interchange Area Management Plan (IAMP), which include figures 5.5 and 5.6, the implementation for the approval of the provisions contained within the IAMP can be approved and adopted by the City Council. Should the City Council adopt the IAMP, with noted amendments, and Development Code amendments the Oregon Transportation Commission (OTC) will begin review and the adoption process for the Main Street IAMP as an official part of the Oregon Highway Plan. The OTC, should they not approve

and adopt the Main Street IAMP, will remand the issue back to the City with noted necessary corrections for OTC approval.

OVERVIEW OF EXISTING CONDITIONS

The Boardman Main Street Overpass, I-84 Exit 164, is of a 1964 design and 1966 construction for freeway overpasses. The overpass is structurally sound and is currently functionally adequate. Although there are publicly identified deficiencies concerning sight lines and distances exiting the freeway off ramps, the interchange still meets ODOT standards for safety and function. The overpass does not have adequate bicycle lanes and must be significantly reconfigured to allow for bicycle lanes and a center turn lane to address future traffic demand projections.

Under existing Development Code requirements and applicable Oregon land use planning requirements, complete traffic impact studies and compliance with the Transportation Planning Rule (Oregon Administrative Rule 660.0012) and Oregon Department of Transportation Access Management Rules (Oregon Administrative Rule 734-051) would be required for approval of developments in the commercial areas adjacent to the Boardman Main Street Overpass.

Public Comment

As of September 7, 2009, the City has received no written public testimony.

Three members of the public provided oral testimony at the August 19, 2009 Planning Commission hearing. Their comments can be found in the meeting minutes in Attachment X. The following is a summary of public comments and concerns and staff response.

Long-range plans, such as the one proposed for adoption, are quickly out-of-date and can be overly restrictive and a detriment to economic development in Boardman.

Response: The IAMP is intended to plan for a 20-year time horizon, but the City may revisit the plan and undertake a legislative amendment to update the plan at any time. The proposed amendments to Chapter 5 of the IAMP (Attachment "E", "E-1" and "E-2") acknowledge the need to update the document to respond to growth in the area and include the circumstances under which an update will be required. In this way the IAMP will remain current and responsive to changes in the City's growth and development patterns.

Rather than hinder development, having an adopted long-range transportation plan for the area around the interchange provides certainty for future developers and simplifies the approval process. Upon adoption, City decisions in the Overlay District will be made consistent with the IAMP with regards to location of future right-of-way, access management, and prioritization of transportation investments. With the adoption of the associated code amendments, future development proposals that are consistent with the land use assumptions in the IAMP will only have to provide the number of trips expected to be generated. Once the IAMP is adopted, development proposals within the Overlay District may rely on the transportation analysis

therein, analysis that would otherwise be required of the applicant pursuant to existing city code. As an example of the previous statement, the motel/restaurant development on SE Front is part of the overall traffic generation assumptions in the IAMP document. This represents a significant development cost which the developer has avoided due to the work performed in development of the IAMP.

It is also important to note that projects in an adopted plan have been vetted through a public process, indicating a commitment on behalf of the City to preserve investments that are made through implementation of access management and development of the local street network. The City of Boardman's commitment to the transportation projects in the IAMP through local adoption of this plan increases possibility of state funding.

If ODOT would widen the Main Street overcrossing, no other local improvement would be necessary.

Response: The deficiencies of the existing overpass to accommodate non-motorized traffic and the future improvements that will be necessary to accommodate needed ramp-widening are detailed in the IAMP (see Table 5.3: Transportation Improvement Prioritization). Regardless of future improvements to the Main Street overpass, local transportation solutions will be necessary to ensure safe and efficient circulation in the vicinity of the interchange. The Boardman Main Street IAMP identifies that a key element of the long-range preservation of operational efficiency and safety of the interchange is the management of access to Main Street. Because access points introduce a number of potential vehicular conflicts on a roadway and are frequently the causes of slowing or stopping vehicles, they can significantly degrade the flow of traffic and reduce the efficiency of the transportation system. For the Main Street interchange, the problem is expected to be vehicles, including trucks, backing up onto the freeway ramps. Widening the deck on the overpass does not eliminate potential points of conflict caused by access onto Main Street and does not eliminate the queuing problems.

Safety issues on the ramps are anticipated to need addressing in the medium- to long-range time frame and the IAMP calls for the construction of additional approach lanes on the ramp terminals and, as traffic conditions meet warrants, the installation of a traffic signal at the westbound ramp to improve the operation of the intersections and reduce queuing. The ultimate improvement alternative includes expanding the current freeway interchange by widening the bridge, which would improve safety by eliminating the existing sight distance issue for vehicles on the off-ramps looking across the bridge.

The restrictive funding environment in the State of Oregon for transportation improvement projects is another compelling factor in implementing lower-cost improvements first. The Oregon Highway Plan, which helps guide where ODOT invests transportation dollars, includes a policy that requires ODOT to improve efficiency and management before adding capacity to the system. This policy also would effectively eliminate serious consideration of more costly improvements, such as moving the interchange ramps in order to gain more space between them and local access roads.

Proposed access restrictions on South Main Street, the needed access sharing that results, and the right-of-way needed to accommodate the proposed local roadway system will have negative impacts on property values in the Overlay District.

Response: The IAMP includes an Access Management Plan that includes short-, medium-, and long-range actions that, over time, will reduce the overall number of access points on Main Street. This will provide greater separation between access points and will minimize the number of potential vehicular conflict points on the roadway. In large part, changes to access will be required at the time of development, through the City's development approval process. A notable exception to this may be City-initiated improvements to South Main Street as a result of the FHWA Small Cities economic stimulus grant. However, under no circumstances will existing access points to a subject parcel be closed without a reasonable alternate access first being available.

Having a well-planned, safe, and efficient roadway system south of the Main Street Interchange will enhance property values in the area. Adopting a long-range transportation plan for the area ensures that the most efficient, cost-effective infrastructure solutions can be implemented prior to or concurrent with development. Planning for a local street system in advance of full build-out of development around the interchange will ensure that a logical and efficient network will be available to proved access to existing and future businesses. In addition, adopting a list of needed transportation improvements prioritizing these projects locally, is a required action before the City can seek state funding, and will ensure that proportional private investment in the system, as part of future development, will be strategically allocated.

Eliminating access off of South Front Street will reduce the economic viability of development projects on properties that currently take access from this street.

Response: When traffic warrants it, the full-access intersections at North and South Front Street will need to be more restricted, which may include limiting to right-turn movements only or full closure (see Transportation Alternatives, IAMP Chapter 5). However, based on an annual population growth rate of 2.5% and associated traffic projections, this action is considered a "Long-Range Improvement" (see Figure 5.1b) and is not anticipated to be necessary until 10 to 20 years in the future. Without access management, it is anticipated that at some point in the future the economic viability of this area of Boardman will more likely be negatively impacted by increased traffic and travelers trying to negotiate queuing lines and multiple access points on Main Street. Addressing these safety and livability issues after this area is substantially built out will limit viable, cost-effective solutions.

FINDINGS OF FACT

1) Public Notice of the Planning Commission Hearing was published in the East Oregonian on July 30, 2009.

2) Public Notification was mailed to all property owners within 250 feet of the IAMP boundaries on July 30, 2009.

3) Public Notice was sent to all individuals whom have requested information on the IAMP on July 30, 2009.

4) On June 22, 2009, two Focus Groups and an Open House were conducted to gather citizen input and to answer questions about the Boardman Main Street Interchange Area Management Plan.

5) Invitation letters were sent to Focus Group stakeholders in advance of the June 22 meeting. The Focus Group stakeholders were also contacted by phone one week before the meeting.

6) The Open House was advertised on the local electronic reader board and by notices posted throughout the community for one week prior to the June 22 meeting.

7) On July 22, 2009, a joint workshop of the Boardman city council and Boardman Planning Commission was held concerning the Boardman Main Street Interchange Area Management Plan.

8) The Joint Workshop of the City Council and Planning Commission on the Boardman Main Street Interchange Area Management Plan was advertised on the local electronic reader board and posted throughout town for one week prior to the meeting on July 22, 2009.

9) The April, 2009, Final Report for the Boardman Main Street Interchange Area Management Plan meets the relevant policies of Boardman Comprehensive Plan Chapters 1, 2, 9, 10, and 12 as referenced later in this report.

10) The April, 2009, Final Report for the Boardman Main Street Interchange Area Management Plan will require changes to Chapter 11 of the Boardman Comprehensive Plan to incorporate the additions and recalculations of the Capital Improvement Plan, updates to the Public Facilities Plan and establishment of transportation Systems Development Charges as referenced later in this report.

11) The April, 2009, Final Report for the Boardman Main Street Interchange Area Management Plan meets all relevant policies of the Boardman Transportation System Plan as referenced later in this report.

12) On August 19, 2009, the Boardman Planning Commission met for a public hearing on the Boardman Main Street Interchange Area Management Plan.

13) In accordance with Boardman Municipal Code 2.16.060 – Quorum – rules and regulations, the three members present for the public hearing comprise a legal quorum of the 5 current members of the Planning Commission.

14) During public testimony at the August 19, 2009 hearing, no citizens testified in support of the project. Three citizens spoke as opponents, identifying specific elements of the plan that they were opposed to (see summary under "Public Comment" section of this report), but two of these speakers also praised the long-range planning effort and the IAMP in their remarks.

15) Teresa Penninger, of the Oregon Department of Transportation, testified in support of the proposed plan at the Planning Commission public hearing.

16) Grant Young, of the Oregon Department of Land Conservation, and Development testified in support of the proposed plan at the Planning Commission public hearing.

17) The Boardman Planning Commission, after hearing public testimony and deliberation of the testimony voted to approve the plan as submitted with the two conditions contained in the Boardman Planning Commission Staff Report on the Boardman Main Street Interchange Area Management Plan.

18) The Boardman Planning Commission forwarded a recommendation to the Boardman City Council to adopt the Boardman Main Street Interchange Area Management Plan with the stipulated conditions and to approve an implementing ordinance which included the conditions stipulated in the Planning Commission Staff Report.

19) Public Notice for the City Council Hearing was published on August 26, 2009, in the East Oregonian newspaper.

20) Public Notification was mailed to all property owners within 250 feet of the IAMP boundaries on August 26, 2009.

21) Public Notice was sent to all individuals whom have requested information on the IAMP on August 26, 2009.

APPLICABLE COMPREHENSIVE PLAN GOALS OVERVIEW

There are six planning Goals of the Boardman Comprehensive Plan directly applicable in this application. They are; Goal 1 Citizen Involvement; Goal 2: Housing; Goal 9: Economic Needs; Goal 10 Housing; Goal 11: Public Facilities; and Goal 12 Transportation.

CHAPTER 1: CITIZEN INVOLVEMENT: Notification of all potential affected property owners has been accomplished by notice letters to each property, posting of the property and publication in the East Oregonian daily newspaper. In addition the City has the notice available on the city's website at www.cityofboardman.com along with the staff report for the applicant's request.

CHAPTER 1 – CITIZEN INVOLVEMENT COMPREHENSIVE PLAN POLICIES:

1. Provide for change in Comprehensive Plan relative to new or unanticipated developments, major change in community, change in Council or Planning Commission policy, and through regular review and re-evaluation.

2. Consistency must be maintained between the Comprehensive Plan and Development Code and other supplemental ordinances and policies in order to maintain the integrity of the planning effort.

3. The City should endeavor to adhere to the spirit of the Land Conservation and Development Commission in its planning activities.

4. The Planning Commission is officially designated as the Citizen Involvement Committee.

5. The City completed a Community Visioning workshop in 1997 to gain understanding of the current needs and concerns of the community.

The request is consistent with policies 1-4 of Goal 1 Citizen Involvement polices of the Boardman Comprehensive Plan. Adoption of the Main Street IAMP, which will become an element of the City's Transportation System Plan, will amend the City's Comprehensive Plan. Consistent with Policy #1, the IAMP has been developed to respond to the City's long-range development needs. As demonstrated in findings elsewhere within this report, the development of the Main Street IAMP is consistent with State transportation goals and policies and the adoption of the plan is consistent with LCDC's Goals (**included as Attachment "F"**). Policy #5 is not related to the proposed action; however, additional citizen input was gathered through the Interchange Area Management Plan process, as such policy #5 this action is consistent with policy #5.

CHAPTER 2: LAND USE PLANNING: The directly related policies of this proposed action are policies #3, #4, #5 and #6. These policies are to coordinate the land use planning efforts of the city and to meet the overall Comprehensive Plan Policies and Goals.

CHAPTER 2 – LAND USE PLANNING COMPREHENSIVE PLAN POLICIES:

1. *The City completed a Buildable Lands Analysis in 1997 which reflected that the City has ample land within its Urban Growth Boundary to meet commercial and housing needs of the City for the next 20 years.*
2. *The City encourages the development of infill and redevelopment of existing land in order to balance the need to expand the Urban Growth Boundary (UGB).*
3. *The City has adopted the City of Boardman Development Code, a unified zoning and subdivision land use code to facilitate the development process and implement the land use goals of the City as outlined in the Comprehensive Plan.*
4. *The City recognizes that the location of a City Center is important to the development of the City of Boardman.*
5. *The City has adopted language in the Development Code as Chapter 2.2.190 that will assist in the implementation of a City Center in Boardman.*
6. *The development of the City Center will use the Downtown Plan completed in 2000 as a resource document when guiding future development within the City of Boardman.*
7. *The City will continue to work with Morrow County to maintain a consistent and coordinated plan for management of the Urban Growth Boundary (UGB) and the Urban Growth Area (UGA).*
8. *The City will continue to work with the Port of Morrow to encourage development of industrial lands within the Urban Growth Boundary.*

This proposal is consistent with policies #1 and #2 but not directly related to the proposal. The proposal is consistent with policies #3 - #6 as it directly addresses policies concerning the downtown plan and areas around the freeway interchange by provision of transportation connectivity planning and protection of the existing system function until improvements are necessary. As this proposal does not include industrial lands or areas outside of the city limits of the city policies #7 and #8.

CHAPTER 9: ECONOMIC NEEDS: The directly related policies in Goal 9 – Economic Needs are #1, #2, and #4. Polices #3 and #5 are related to industrial lands which this proposal does not address directly.

CHAPTER 9 – ECONOMIC NEEDS COMPREHENSIVE PLAN POLICIES:

1. *Advance the position of Boardman as a regional center for industry, power generation, commerce, recreation, and culture.*
2. *Encourage tourist commercial activity near Interstate 84.*
3. *Allow for the creation of industrial park development with adequate off-street parking, landscaping, and site screening.*
4. *Promote cooperation among the city, the Port of Morrow, and other interested parties to facilitate the most effective uses of public facilities serving the planning area.*
5. *As resources permit, review the City's supply industrial land to monitor supply and demand.*

Adoption of this proposal directly addresses policy #1, #2 and #4 in it provides a plan to address the transportation needs and connectivity for the commercial areas in an effective manner, providing for future commercial growth while meeting transportation demands. Policies #3 and #5 are unrelated in they deal with industrial lands issues which are not related to the IAMP proposal.

CHAPTER 10: HOUSING: Goal 10 policies, although not directly related to the adoption of the April 2009 Boardman Main Street Interchange Area Management Plan, do influence the overall functional operation of the interchange area through traffic counts from housing projects adding to overall traffic at the interchange.

CHAPTER 10 – HOUSING COMPREHENSIVE PLAN POLICIES

1. *The City shall provide a variety of living environments to meet regional housing needs for those of different family size and income.*
2. *The City, recognizing the financial difficulties of a segment of the City's population in providing themselves safe, sanitary and healthful shelter, shall work cooperatively with the private sector to seek state and federal aid where desirable to assist persons to obtain suitable housing.*
3. *Encourage new development concepts to meet changing housing demands and to provide self-contained recreation facilities.*
4. *Locate high-density multiple-family developments in areas to offer a buffer between single-family residential and commercial or industrial uses, close to schools and shopping, and with quick access to arterial streets.*
5. *Encourage planned unit developments while maintaining an overall low-density profile by incorporation of more open space in the development.*
6. *Promote energy efficient programs.*
7. *Provide infill opportunities for attached rowhouse development, duplex and triplex development in residential neighborhoods.*
8. *The City shall promote where possible, the evolution of safe and aesthetically pleasing residential neighborhoods that are efficiently integrated with business and commercial property, schools, parks, public facilities and other urban development.*
9. *The City shall give consideration to development of alternative residential construction both in form and layout for such reasons as aesthetics, energy conservation, reduced development costs and provision of open space.*

10. *Encourage through provisions in the City's Development Code, the opportunity to develop mixed use Development (commercial and higher density residential) to provide affordable housing options for all residents of Boardman.*
11. *The City shall encourage residential development within city limits in areas which are appropriate for urban development.*
12. *Work with federal and State agencies to establish funding for low to moderate income housing projects within Boardman.*
13. *Given recent growth trends, it will be important for the City and Morrow County staff to monitor the supply of buildable land and, if necessary, revise future housing need and land supply projections.*

Although these policies are not directly related to the Interchange Area Management Plan, housing uses do add to the traffic totals at the Main Street interchange. The IAMP accounts for overall existing and future trips from all types of land uses at the interchange by identifying triggers for improvements as traffic demand warrants them. The triggers are based on overall traffic demand in the interchange area and will be tracked through a system of traffic generation reports from commercial development and by review of projected trip generation based on the ITE Traffic Generation Manual for proposed residential developments outside of the IAMP boundaries. This proposal is consistent with the policies of Goal 10 - Housing.

It should be noted there are approximately 27 acres of "Manufactured Home Park Sub-district" zoned property within the IAMP boundaries. This acreage was calculated in the IAMP traffic projections as "commercial" zoning. This provides a worse case scenario in terms of traffic generation; however, the current zoning does not change with the adoption of the IAMP, even though the property owner has expressed a desire to change this zone in the future and the city supports this desire. A future zone change for this parcel will require a separate land use action and the replacement of residential acreage to meet the 20-year needs for the Manufactured Home Park Sub-District zone prior to any change of zone being finalized.

CHAPTER 11: PUBLIC FACILITIES: Policies #1, #2, #3, #5, #6, #8, #9, #11, #12, #13, #14, #16, and #20 are directly or indirectly related to transportation. The provisions of these policies are met; however, several actions will be required in the near future to ensure that funding is available for the improvements identified in the IAMP. Most of these changes will be related to current efforts being undertaken by the City concerning reconfiguration of the Capital Improvement Plan (CIP) projects list. This reconfiguration of the CIP includes numerous projects which are not currently contained in the Public Facilities Plan, mostly through the addition of projects associated with the IAMP and overall transportation circulation connectivity. The completion of the CIP is an essential element to accurately work out the funding mechanisms to be used for funding improvements associated with the IAMP. The City Council has provided guidelines for the addition of several options to fund transportation improvements, which include systems development charges (SDC's), local improvement districts (LID's), general fund transfers, exactions at the time of development, portions of the transient room tax devoted to transportation, and others to adequately fund future roadway improvements to facilitate the IAMP and overall network connectivity. The city will need to complete this work within a 12 -18 month period to adequately fund all the identified projects in the IAMP. There are currently 109 projects in the CIP of which approximately 35% currently have accurate cost estimates. When these changes are accomplished an additional Post Acknowledgement Plan Amendment to make the required changes to the Public Facilities Plan, the Capital Improvement Plan and the Comprehensive Plan will need to be accomplished.

CHAPTER 11 – PUBLIC FACILITIES COMPREHENSIVE PLAN POLICIES

1. The City shall assure urban services (water, sewer and storm drainage services and transportation infrastructure) to residential, commercial and industrial lands within the City's Urban Growth Area as these lands are urbanized.

2. To minimize the cost of providing public services and infrastructure, the City shall discourage inefficient development without adequate public services and promote efficient use of urban and urbanizable land within the City's urban growth boundary, including requiring all urban development to be served by full urban services.

3. The City shall support development that is compatible with the City's ability to provide adequate public facilities and services.

4. The City shall assure there are adequate sites for solid waste disposal and solid waste collection for the City and Urban Growth Boundary. The service may be provided by private contractors or public entities.

5. The City shall promote coordination among the City, Port of Morrow, and other interested parties to facilitate the most effective uses of public facilities serving the planning area.

6. The City shall prioritize development of land serviced by utilities and require the extension of water, sewer and storm drainage facilities for all urban level development within the UGB.

7. The City shall coordinate provision of public services with annexation of land outside the City limits.

8. The City shall adopt long range master plans for its water, sewer, storm drainage and transportation systems and review and/or update them periodically.

9. The City shall adopt and periodically update the City's Public Facilities Plan for development of public services and facilities in conformance with the policies of the Comprehensive Plan. Significant changes in projected capacity of public facilities required by proposed new development to be served by the City may necessitate update of the Public Facilities Plan.

10. The City shall comply with state and federal regulations for utility systems.

11. The City shall establish and maintain a range of funding mechanisms for building new water, sewer, storm drainage and transportation infrastructure and maintaining existing infrastructure.

12. The City shall monitor the condition of water, sewer, storm drainage and transportation infrastructure and finance regular maintenance of these facilities.

13. The City shall utilize its adopted System Development Charges (SDCs) to finance new water and wastewater infrastructure as allowed by state law, and adjust SDCs to keep them up to date with current costs.

14. The City shall establish and maintain utility rates and user fees that equitably allocate costs for operations and maintenance to users.

15. The City shall maintain an eight (8) year supply of commercial and industrial land that is serviceable by water, sewer, storm drainage and transportation infrastructure.

16. The City will periodically amend the Comprehensive Plan list of public facility projects when implementing plans or agreements are updated.

17. The City shall protect its water supply and enhance groundwater quality and quantity of the City's drinking water supplies by:

- *Establishing wellhead protection measures;*
- *Working with landowners and managers for protection of water sources; and*
- *Adhering to applicable permitting requirements when approving new residential, commercial and industrial development and when constructing new water, sewer, storm drainage transportation infrastructure.*

18. The City shall plan for and establish standards for storm drainage detention and management facilities for management of urban storm runoff as an environmental service, rather than flood control, during periods of heavy rain. In doing so, where feasible, the City will encourage natural storm drainage management techniques, such as modified bio-swales, landscaping, retention ponds and natural drainage ways.

19. The City shall take steps to minimize adverse impacts from construction and other sources of erosion and sedimentation on natural drainage ways and storm drainage facilities.

20. In order to allow for safe, orderly and coordinated development, the City shall adopt utility and transportation design standards and construction specifications as part of its development code.

21. The City will continue to work with the Boardman Rural Fire Protection District in their provision of fire protection services for the City.

22. The City is working (as of 2003) with the Oregon Water Resources Department to complete and obtain approval for, a Water Management and Conservation Plan, pursuant to OAR 690-86. Should the approved Plan include system improvement projects, the Capital Improvements Project list will be updated to reflect these additional projects.

The general provisions of Goal 11 policies are met with this proposed Interchange Area Management Plan. The necessary actions noted above concerning funding mechanisms are currently being pursued for completion. The recommendation is for the City to commit the capital outlay necessary for establishment of SDC's, LID's and other funding mechanisms to ensure that the transportation improvements of the IAMP are available to sustain future growth and development.

CHAPTER 12: TRANSPORTATION:

CHAPTER 12 – TRANSPORTATION COMPREHENSIVE PLAN POLICIES:

1. *The Transportation System Plan is an element of the Boardman Comprehensive Plan (as a Technical Appendix).*
2. *The City of Boardman shall protect the function of existing and planned roadways as identified in the Transportation System Plan.*

3. *The City of Boardman shall include a consideration of land use impacts on existing or planned transportation facilities in all land use decisions.*

4. *The City of Boardman will plan and develop a network of streets, accessways and other improvements, including bikeways, sidewalks, and safe street crossings to promote safe and convenient bicycle and pedestrian circulation within the community.*

5. *Several large properties in the southern portion of Boardman that are categorized in the North Morrow County TGM Project Community Visioning Analysis of Buildable Lands and Housing Needs as having potential for infill have limited access, posing potential problems for future development. In addition, other areas, such as the one south of Kunze Road, are served by unpaved roads that are in very poor condition. A well connected street pattern will be essential for efficient future urban development in these areas both to provide the opportunity for development at more urban densities and to make it possible to travel easily between and among different parts of the community. The City has developed a local street plan, as part of the Transportation System Plan and require development to improve local streets to city standards.*

The approval and adoption of the Boardman Main Street Interchange Area Management Plan is consistent will all of the transportation policies of the Comprehensive Plan. Adoption of the Main Street IAMP will become an element of the City's Transportation System Plan, thereby amending the City's Comprehensive Plan. The IAMP includes a planned local street system south of the Main Street interchanges and other transportation improvements that were developed in response to projected traffic from planned land uses. Bicycle and pedestrian improvements are part of the preferred interchange alternative, including the long-range reconstruction and expansion of the Main Street overpass to accommodate a center left turn lane, bicycle lanes and wider sidewalks.

TRANSPORTATION SYSTEM PLAN POLICIES

The Transportation System Plan (TSP) Policies, contained in Section 7 of the Boardman Transportation System Plan, associated with this proposed Interchange Area Management Plan (IAMP) are as follows; policies of approval process, policies for protection of transportation facilities, policies for coordinated review, and policies for pedestrian and bicycle circulation. Each of these categories has several policies and directives to accomplish the goals of the Transportation System Plan.

POLICIES FOR APPROVAL PROCESS:

- *The Transportation System Plan is an element of the Boardman Comprehensive Plan. It identifies the general location of transportation improvements. Changes in the specific alignment of proposed public road and highway projects that shall be permitted without plan amendment if the new alignment falls within a transportation corridor identified in the Transportation System Plan.*

- *Operation, maintenance, repair, and preservation of existing transportation facilities shall be allowed without land use review, except where specifically regulated.*

- *Dedication of right-of-way, authorization of construction and the construction of facilities and improvements, for improvements designated in the Transportation System Plan, the classification of the roadway and approved road standards shall be allowed without land use review.*

- *Changes in the frequency of transit, rail and airport services that are consistent with the Transportation System Plan shall be allowed without land use review.*

- *For State projects that require an Environmental Impact Study (EIS) or Environmental Assessment (EA), the draft EIS or EA shall serve as the documentation for local land use review, if local review is required.*

Review of this proposal indicates all of the policies for the approval process are met and will be enhanced by the adoption of this Interchange Area Management Plan by the City of Boardman and the Oregon Transportation Commission.

POLICIES FOR PROTECTING EXISTING AND FUTURE OPERATION OF FACILITIES

- *The City of Boardman shall protect the function of existing and planned roadways as identified in the Transportation System Plan.*

- *The City of Boardman shall include a consideration of their impact on existing or planned transportation facilities in all land use decisions.*

- *The City of Boardman shall protect the function of existing or planned roadways or roadway corridors through the application of appropriate land use regulations.*

- *The City of Boardman shall consider the potential to establish or maintain accessways, paths, or trails prior to the vacation of any public easement or right-of-way.*

- *The City of Boardman shall preserve right-of-way for planned transportation facilities through exactions, voluntary dedication, or setbacks.*

The Interchange Area Management Plan is specifically designed to address the policies of protection of existing and future operation of the transportation infrastructure in the vicinity of the Main Street interchange. The IAMP identifies necessary transportation projects and actions to meet the needs of planned land uses within the area, including an enhanced local street network and access management measures to improve safety and operations of the interchange facility and I-84. The steps necessary to implement the improvements, and the "triggers" at which point the traffic demand requires the improvements, are identified in the plan. Upon adoption by the City of Boardman and the Oregon Transportation Commission, the projects and actions in the IAMP will become the blueprint for incremental steps to attain protection of the existing system and enhancement of the future transportation system. All of the City's TSP policies are met in this Interchange Area Management Plan.

POLICIES FOR COORDINATED REVIEW

- *The City of Boardman shall coordinate with the Department of Transportation to implement the highway improvements listed in the Statewide Transportation Improvement Program (STIP) that are consistent with the Transportation System Plan and comprehensive plan.*

- *The City of Boardman shall consider the findings of ODOT's draft Environmental Impact Statements and Environmental Assessments as integral parts of the land use decision-making procedures. Other actions*

required, such as a goal exception or plan amendment, will be combined with review of the draft EA or EIS and land use approval process.

Existing language in the Boardman Development Code provide for the required coordination of traffic reviews by the Department of Transportation. Proposed changes in the language to the Boardman Development Code enhance the notification and coordination between the City of Boardman and Department of Transportation in the review of land use and development proposals within the IAMP Overlay District. Additionally, changes to the language also clarify when updates to the IAMP are necessary.

POLICIES FOR PEDESTRIAN AND BICYCLE CIRCULATION AND ACCESS

- *It is the policy of the City of Boardman to plan and develop a network of streets, accessways, and other improvements, including bikeways, sidewalks, and safe street crossings to promote safe and convenient bicycle and pedestrian circulation within the community.*

- *The City of Boardman shall require streets and accessways where appropriate to provide direct and convenient access to major activity centers, including downtown, schools, shopping areas, and community centers.*

- *In areas of new development the City of Boardman shall investigate the existing and future opportunities for bicycle and pedestrian accessways. Many existing accessways such as user trails established by school children distinguish areas of need and should be incorporated into the transportation system.*

- *Bikeways shall be included on all new arterials and collectors within the Urban Growth Boundary except on limited access freeways.*

- *Retrofitting existing arterials and collectors with bike lanes shall proceed on a prioritized schedule as appropriate and practical (i.e., bike lanes may not be appropriate in downtown core areas where it would require the removal of parking).*

- *Sidewalks shall be included on all new streets within the Urban Growth Boundary except on limited access freeways.*

- *Retrofitting existing streets with sidewalks shall proceed on a prioritized schedule.*

- *Priority shall be given to developing accessways to major activity centers within the Urban Growth Boundary, such as the downtown commercial center, schools, and community centers.*

- *Bikeways and pedestrian accessways shall connect to local and regional travel routes.*

- *Bikeways and pedestrian accessways shall be designed and constructed to minimize potential conflicts between transportation modes. Design and construction of such facilities shall follow the guidelines established by the Oregon Bicycle and Pedestrian Plan.*

- *Maintenance and repair of existing bikeways and pedestrian accessways (including sidewalks) shall be given equal priority to the maintenance and repair of motor vehicle facilities.*

- *Bicycle parking facilities shall be provided at all new residential multifamily developments of four units or more, commercial, industrial, recreational, and institutional facilities.*

- *A citizens advisory committee shall be established to protect and promote bicycle and pedestrian transportation within the Urban Growth Boundary.*

Existing pedestrian and bicycle circulation and access was evaluated as part of the IAMP planning process and future improvements are part of the preferred interchange alternative. All incremental improvements along with the connective roadways identified in the IAMP are to include provisions for pedestrian and bicycle travel routes. The provisions of pedestrian and bicycle circulation and access polices are met with this proposal.

APPLICABLE STATE GOALS, POLICIES AND RULES

The City is proposing to adopt the Boardman Main Street Interchange Area Management Plan (IAMP) as an element of the City of Boardman Transportation System Plan, thereby amending the state-acknowledged City of Boardman Comprehensive Plan. Findings have been made to demonstrate that the adoption of the Boardman Main Street IAMP is consistent with LCDC's Goals. In addition, an IAMP must be consistent with applicable State transportation goals and policies. Findings of compatibility with the Oregon Transportation Plan and the Oregon Highway Plan, as well as the Administrative Rules that govern transportation planning, will be part of the basis for IAMP approval.

Pertinent State goals and policies for interchange planning are found in Attachment "E" and include findings addressing:

- Statewide Planning Goals
- OAR 660 Division 12 Transportation Planning Rule (TPR)
- OAR 731-015-0065 Coordination Procedures for Adopting Final Facility Plans
- OAR 734, Division 51. Highway Approaches, Access Control, Spacing Standards and Medians

CONDITIONS OF APPROVAL FOR CONSIDERATION

The following list of items includes possible conditions to be considered by the Planning Commission in their deliberations on the April 2009 Final Report for Boardman Main Street Interchange Area Management Plan.

1) Complete within 12 months the necessary changes to the Public Facilities Plan, Capital Improvement Plan and Chapter 11 of the Boardman Comprehensive Plan to solidify the funding mechanisms necessary to implement the IAMP.

2) Establish transportation funding mechanisms, including transportation systems development charges, consistent with the consensus of the Council developed at the City Council Workshop on Transportation Funding held September 20, 2008.

SUMMARY, CONCLUSIONS AND RECOMMENDATIONS

The Boardman Main Street Interchange Area Management Plan has been open to public input and has been thoughtfully crafted by the consultants, the Boardman Steering Committee,

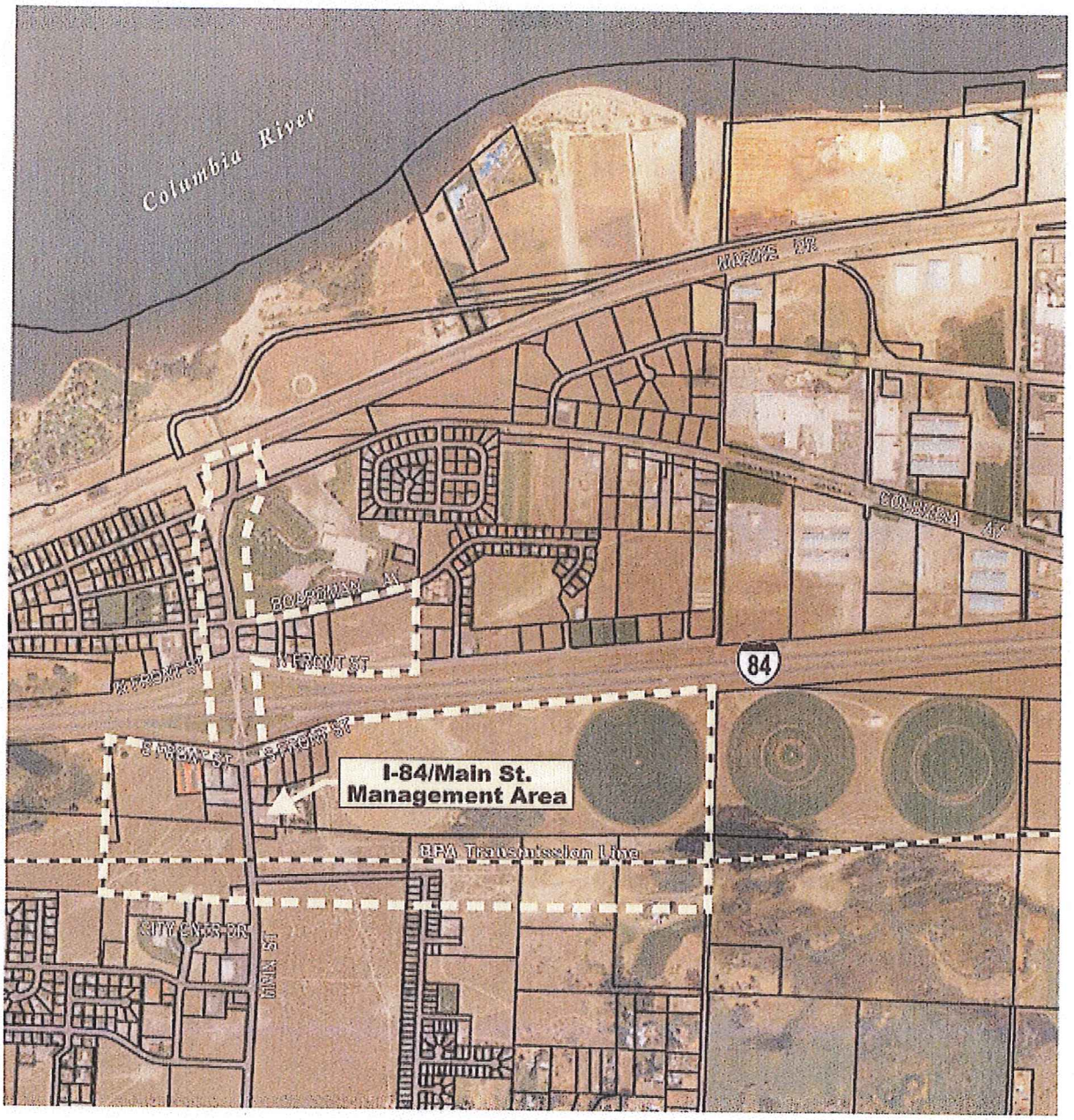
the Oregon Department of Transportation, the Oregon Department of Land Conservation and Development and Boardman staff. The IAMP provides a blueprint to assuring transportation improvements are accomplished commensurate with traffic demand created by development.

Staff recommends, and the Planning Commission recommends the City Council approve the April, 2009, Final Report for the Boardman Main Street Interchange Area Management Plan, including the amendments to Chapter 5 of the IAMP (see Attachment "E") and revised Figures 5.5 and 5.6, and the implementation measures included in the associated code amendments (see Attachments "B," "C," and "D"),. The Planning Commission further recommends the Boardman City Council to adopt the plan through an implementing ordinance which includes the following conditions:

1) Complete within 12 months the necessary changes to the Public Facilities Plan, Capital Improvement Plan and Chapter 11 of the Boardman Comprehensive Plan to solidify the funding mechanisms necessary to implement the IAMP.

2) Establish transportation funding mechanisms, including transportation systems development charges, consistent with the consensus of the Council developed at the City Council Workshop on Transportation Funding held September 20, 2008.

ATTACHMENT "A"



City of Boardman Main Street IAMP
April 2009

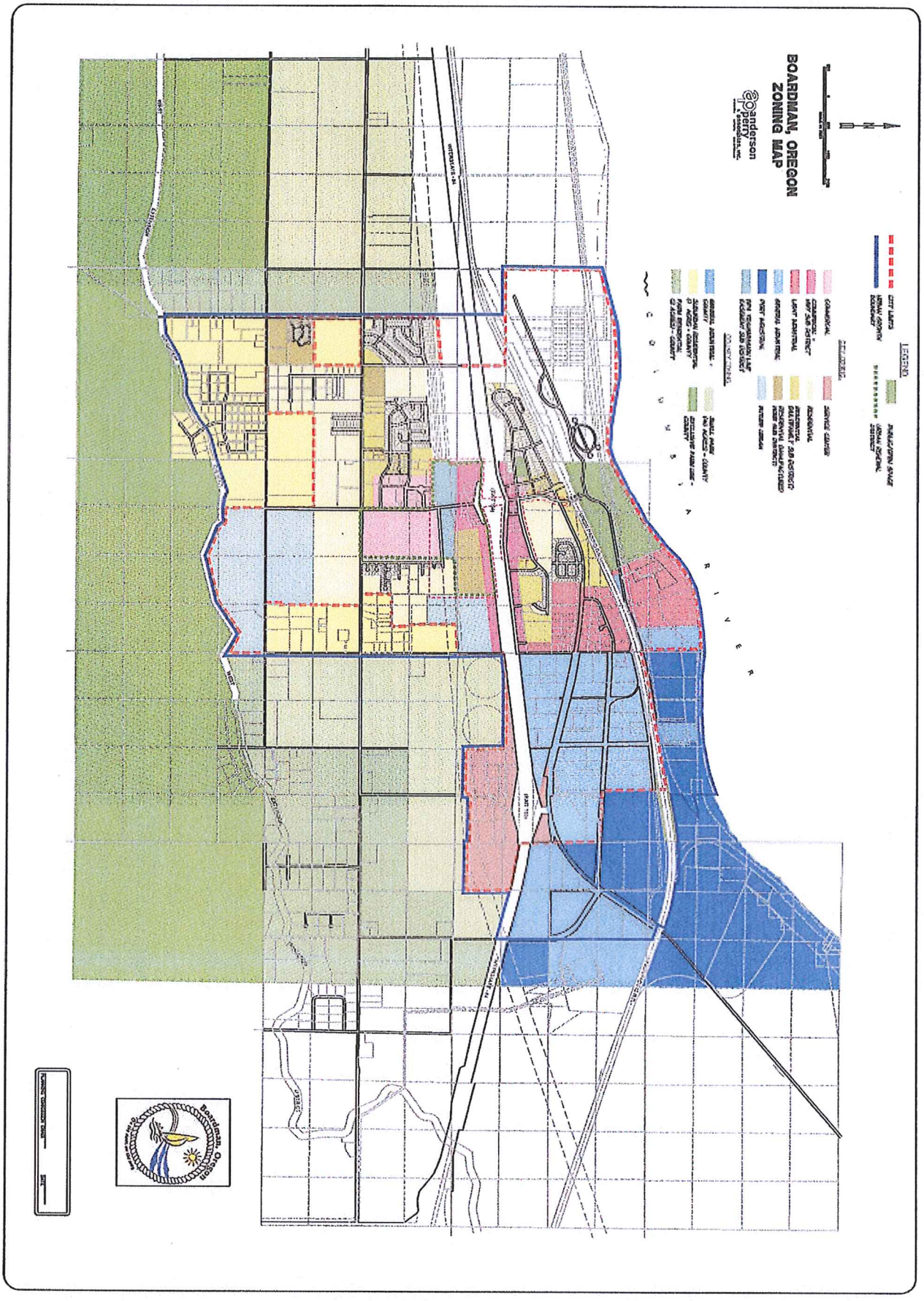
NO SCALE

DKS Associates
TRANSPORTATION SOLUTIONS

Figure 3.1
STUDY AREA

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ATTACHMENT "A-1"



Attachment "B"

Chapter 2.5 - Interchange Area Management Plan (IAMP) Overlay District

Sections:

2.5.100 - Purpose
2.5.110 - Boundary of the IAMP Overlay District
2.5.120 - Applicability
2.5.130 - Permitted Land Uses
2.5.140 - Access Management
2.5.150 - Administration
2.5.160 - Comprehensive Plan and Zoning Map Amendments

2.5.100 Purpose

The purpose of the IAMP Overlay District is the long-range preservation of operational efficiency and safety of the Main Street Interchange that provides access from and to Interstate 84 through the City of Boardman. The Main Street Interchange is a vital link for regional travel and it provides a connection between the two sides of the community. Preserving capacity and ensuring safety of this interchange is essential to existing businesses and residents in the western parts of the city and to the continued economic and community growth and development in the vicinity of Main Street and the interchange.

2.5.110 Boundary of the IAMP Overlay District

The boundary of the IAMP Overlay District is shown on the Boardman Comprehensive Plan and Zoning Map.

2.5.120 Applicability

The provisions of Chapter 2.5 shall apply to all Type II, III and IV land use applications for parcels wholly or partially within the IAMP Overlay District, as defined by Section 2.5.110. Any conflict between the standards of the IAMP Overlay District and those contained within other chapters of the Development Code shall be resolved in favor of the IAMP Overlay District.

For Discussion: Pursuant to this proposed code section all applications, with the exception of Type I decisions, would be subject to the requirements of the new Overlay District. Type II procedures are administrative, with decisions made by City staff with public notice and are appealable to Planning Commission; Type III and Type IV decisions require public hearing. According to code requirements, ODOT receives notice of all Type II, III and IV land use applications.

2.5.130 Permitted Land Uses

Uses allowed in the underlying zoning districts are allowed subject to other applicable provisions in the City of Boardman Development Code and Chapter 2.5.

2.5.140 Access Management

In addition to the standards and requirements of Chapter 3.1 Access and Circulation, parcels wholly or partially within the IAMP Overlay District are governed by the Access Management Plan in the Boardman Main Street Interchange Area Management Plan. The following applies to land use and development applications subject to Chapter 2.5.

A. Access Permit.

1. Access to public streets within the IAMP Overlay District requires an Access Permit in accordance with Chapter 3.1. An Access Permit is required as part of subdivision approval (Chapter 4.3) and approval of land use and zoning amendments (Chapter 4.7).
2. Development and redevelopment of tax lots that are identified in the Access Management Plan (see Table 5.1 and Figures 5.4, 5.5, and 5.6 in the Boardman Main Street Interchange Area Management Plan) require an Access Permit if one or more of the following applies:
   a. Proposed building improvements are greater than or equal to 50% of the assessed value of the existing built improvements.
   b. Proposed building improvements are expected to generate up to or greater than 25 average daily trips.
   c. A change in use is proposed.
3. Permits for access to City streets within the IAMP Overlay District shall be subject to joint review by the City and the Oregon Department of Transportation (ODOT). Coordination of this review will occur pursuant to Section 2.5.150.C.
4. Approval of an access permit is a Type I decision and is based on the standards contained in this Chapter, the provisions of Chapter 3.4.100 Transportation Standards, and the Access Management Plan in the Boardman Main Street Interchange Area Management Plan. Where the recommendations of the Access Management Plan conflict with other access and spacing requirements in Chapter 3.1 of the Development Code, the Access Management Plan shall govern.

For Discussion: Currently, all development within the City is required to go though either a Site Review (discretionary) or Development Review (non-discretionary or "ministerial") procedure. Site Design Review requires compliance with Chapter 3.1 Access and Circulation, but Development Review does not. The language proposed here would establish the City's authority to require access consolidation and closure in the IAMP Overlay District for development and redevelopment projects that require only Development Review.

Requiring an access permit is consistent with existing requirements in Chapter 3.1, with the added specification that ODOT will review the proposal.

B. Cross access easements.

1. Prior to approving access permits for tax lots that are identified in the Access Management Plan (see Table 5.1 and, Figures 5.4, 5.5, and 5.6 in the Boardman Main Street Interchange Area Management Plan), the City shall require that:
   a. The applicant demonstrate how cross access can be accomplished for sites contiguous to the subject property or properties, consistent with the circulation and planned local street network shown in the Interchange Area Management Plan;
   b. If access across an adjacent parcel or parcels is necessary for the development of the subject site, a signed cross access agreement is submitted with the application; and,

c. For applications reviewed as part of a subdivision approval process, necessary cross access easements are shown and recorded on the final plat. Access widths shall be a minimum of 10 feet of width for every travel lane and shall not exceed 30 feet.

For Discussion: This proposed language requires that an applicant demonstrate that a proposed development project within the Overlay District will not preclude any necessary cross access to adjacent parcels and that, if the proposed development relies on cross access, a signed agreement is part of the development proposal. A cross access easement would only be required if the subject site were being subdivided.

C. Access Management Plan Modifications.

Recommended actions in the Access Management Plan are based on property configurations and ownership existing at the time of the Boardman Main Street Interchange Area Management Plan's adoption. Lot consolidation and other land use actions may necessitate an amendment to the Access Management Plan. Modifications to the Access Management Plan:

1. May occur through agreement by the City of Boardman and ODOT and require an amendment to the Boardman Main Street Interchange Area Management Plan; and
2. Will only be allowed if the proposed modifications meet, or move in the direction of meeting, the adopted access management spacing requirements in the Boardman Main Street Interchange Area Management Plan.

For Discussion: This proposed language mirrors language in the draft IAMP (Chapter 5).

2.5.150 Administration

Section 2.5.150 delineates the responsibilities of the City and ODOT to monitor and evaluate vehicle trip generation impacts on the Boardman Main Street Interchange in Boardman from development approval under this section. Notwithstanding Chapter 4.10.200.A, an application for development within the IAMP Overlay District will not generally require detailed traffic analysis (i.e. a Traffic Impact Study) because the Boardman Main Street Interchange Area Management Plan (IAMP) has already established the transportation plan. Section A describes the Traffic Generation Report, the level of transportation analysis that is generally required. Section B defines conditions under which a more detailed Traffic Impact Study is required.

A. Traffic Generation Report. A Traffic Generation Report is required for development proposals within the IAMP Overlay District to demonstrate consistency with the assumptions of the Boardman Main Street Interchange Area Management Plan.

1. All applications for development within the IAMP Overlay District must be accompanied by information about the amount of proposed development in sufficient detail to allow the City to prepare a Traffic Generation Report that estimates the motor vehicle traffic that will enter and exit the site.
2. In addition, an applicant may elect to prepare and submit their own Traffic Generation Report; however, the City retains discretion to accept the applicant's Traffic Generation Report or use the Traffic Generation Report prepared by the City.
3. Trip Generation Reports may assume a trip reduction factor to account for multiple stops made by a single vehicle only if the proposed use is consistent with the specific land use assumptions in the IAMP. Specifically, the following reductions for the following types of uses may be

taken after using conventional techniques to estimate trips based on the size of the development:
   a. Convenience Store – 60%
   b. Fast Food – 43%
   c. Retail – 35%
   d. Gas Station – 27%
4. When a proposed development includes more than one use, trip reduction factors consistent with the ITE Trip Generation Manual shall be applied separately to each use, and those separate estimates shall be added to calculate the total for the development.
5. The City shall keep a record of all Traffic Generation Reports and use them to calculate the total of new trips within the IAMP Overlay District for use in evaluating the conditions that may necessitate an IAMP update (see Section 2.5.170)

B. **Traffic Impact Study.** A Traffic Impact Study prepared in accordance with Chapter 4.10 is required for the following:
1. Proposals that include a zone change or a comprehensive plan amendment that results in an increase of 10% or greater in PM peak hour traffic than the current zoning.
2. Proposals submitted when ramp terminals are operating above 0.75 volume to capacity, as measured in the most recent traffic counts performed by ODOT or the City, or the proposal would generate traffic exceeding this threshold.
3. Proposals submitted to the city during a legislative update of the Boardman Main Street Interchange Area Management Plan pursuant to Section 2.5.170.

For Discussion: Currently, the city requires a TIS for "any proposed development or land use action that ODOT states may have operational or safety concerns along a state highway," regardless of where the property is located within the city (Chapter 4.10 – Traffic Impact Study). The existing requirements of a TIS are well documented in Chapter 4.10.

A proposed amendment to Chapter 4.10 clarifies that the City has the discretion to determine the required elements of the TIS and the level of analysis expected. In this way, the complexity of the analysis can match the expected impact of a proposal, thereby minimizing the expense for smaller development proposals. The parameters of a required TIS would be discussed during a meeting with City staff prior to the submittal of an application.

As proposed here, only a traffic generation report would be required for those properties expected to develop pursuant to Figure 4.1 in the draft IAMP. The trip reduction factors in Subsection A.3. are from the IAMP; code language specifies that these reductions are only allowed if proposed uses are the same as those assumed in Figure 4.1. In addition, subsection A.4 allows trip reduction factors for multiple uses as part of a single development, as calculated using the ITE Trip Generation Manual, but not necessarily anticipated by the IAMP.

The draft IAMP states that development "that is not consistent with the current zoning (and generates over 10% PM peak hour traffic than the current zoning) will need to complete a traffic study and amend this IAMP." The proposed code language in B.1 is consistent with the IAMP. Subsection B.2 is proposed in order to require more information from the applicant during a time period in which the ramp terminals are approaching failure. The v/c standard for the Main Street I-84 ramps is 0.85; the Steering Committee members advised using a more conservative threshold in the City's code order to better manage the transportation conditions in the district and to begin to prepare for an IAMP update, as required in proposed Section 2.5.170.

C. Land Use Review Coordination.

1. The City shall not deem the land use application complete unless it includes a Traffic Generation Report or, if required by Section 2.5.150.B, a Transportation Impact Study prepared in accordance with Chapter 4.10 and the requirements of this Chapter.
2. The City shall provide written notification to ODOT when the application is deemed complete pursuant to 4.1.700. This notice shall include an invitation to ODOT to participate in the City's site team review meeting.
3. ODOT shall have at least 20 days, measured from the date completion notice was mailed, to provide written comments to the City. If ODOT does not provide written comments during this 20-day period, the City staff report will be issued without consideration of ODOT comments.

For Discussion: Pursuant to the procedures section of the code (Chapter 4.1), the City currently notices ODOT of all Type II, III, and IV applications and requires coordinated review between the city, ODOT and other applicable County, State and federal review agencies. The proposed section above refines required coordination with ODOT for the benefit of applicants within the IAMP Overlay District.

2.5.160 Comprehensive Plan and Zoning Map Amendments

This section applies to all Comprehensive Plan Map and Zoning Map amendments to parcels wholly or partially within the IAMP Overlay District.

A. IAMP Amendment. The Boardman Main Street Interchange IAMP must be amended if the following applies:

1. If a proposed land use is inconsistent with the current land use zoning and is anticipated to increase PM peak hour traffic by more than 10%, the applicant will be required to undertake a legislative amendment to amend and update the Boardman Main Street Interchange Area Management Plan in order to demonstrate that the proposed amendment will be consistent with the planned improvements in the Overlay District. In such cases, the applicant will supply information to amend the IAMP that includes:
   a. Documentation of additional trips generated by the subject site that are not anticipated in the IAMP.
   b. Findings of consistency with the IAMP that either show how the planned improvements in the IAMP are sufficient to support the proposal, or identify additional necessary transportation improvements to bring the proposed land use action into conformance with the IAMP.

B. Transportation Planning Rule Requirements.

Applications for Comprehensive Plan amendments, Zoning Map amendments, or development regulation amendments shall determine whether the proposed change will significantly affect a collector or arterial transportation facility and must meet the requirements of Oregon Administrative Rule (OAR) 660-012-0060 and Section 4.7.600 of this Development Code.

For Discussion: Subsection "A.1" above mirrors language in the draft IAMP; "a." and "b." clarify what would be required as part of an applicant-initiated update, with the implication that a comprehensive update of the entire IAMP document would not be necessary. Subsection "B' is a cross reference to Chapter 4.7 and the requirements for map and text amendments.

2.5.170 Updating the Interchange Area Management Plan

The city shall initiate an update of the IAMP when the total of new peak hour trips from development within the IAMP Overlay District (as estimated by Trip Generation Reports required under 2.5. 150) exceeds Peak Hour Trip Generation of 530 trips (which is approximately 85% of the trips assumed within the IAMP boundaries). Development proposals that are submitted during the period in which the IAMP is being updated, or that are expected to generate traffic that exceeds the identified threshold, are required to include a Traffic Impact Study, pursuant to 2.5.150.B.

For Discussion: This section addresses the need to have a trigger in the code and the draft IAMP that initiates a comprehensive review of the impacts of cumulative traffic and the timing of the improvements that are currently listed as needed in the "long term." The revised draft IAMP includes the procedures by which ODOT and the city would follow for updates initiated either by an applicant (Section 2.5.160) or the city (Section 2.5.170).

Attachment "C"

Chapter 3.1 - Access and Circulation

Sections:

3.1.100 - Purpose
3.1.200 - Vehicular Access and Circulation
3.1.300 - Pedestrian Access and Circulation

3.1.100 Purpose

The purpose of this chapter is to help insure that developments provide safe and efficient access and circulation, for pedestrians and vehicles. Section 3.1.200 provides standards for vehicular access and circulation. Section 3.1.300 provides standards for pedestrian access and circulation. Standards for transportation improvements are provided in Chapter 3.4.100.

3.1.200 Vehicular Access and Circulation

A. **Intent and Purpose.** The intent of this Section is to manage vehicle access to development through a connected street system, while preserving the flow of traffic in terms of safety, roadway capacity, and efficiency. Access shall be managed to maintain adequate performance standards and to maintain the "functional classification" of roadways as required by the City's Comprehensive Plan. Major roadways, including highways, arterials, and collectors, serve as the primary system for moving people and goods. "Access management" is a primary concern on these roads. Local streets and alleys provide access to individual properties. If vehicular access and circulation are not properly designed, these roadways will be unable to accommodate the needs of development and serve their transportation function. This Section attempts to balance the right of reasonable access to private property with the right of the citizens of the City and the State of Oregon to safe and efficient travel. It also requires developments to construct planned streets (arterials and collectors) and to extend local streets.

   To achieve this policy intent, state and local roadways have been categorized in the Comprehensive Plan by function and classified for access purposes based upon their level of importance and function. (See Chapter 3.4.100.) Regulations have been applied to these roadways for the purpose of reducing traffic accidents, personal injury, and property damage attributable to access systems, and to thereby improve the safety and operation of the roadway network. This will protect the substantial public investment in the existing transportation system and reduce the need for expensive remedial measures. These regulations also further the orderly layout and use of land, protect community character, and conserve natural resources by promoting well-designed road and access systems and discouraging the unplanned subdivision of land.

B. **Applicability.** This ordinance shall apply to all public streets within the City and to all properties that abut these streets.

3.1.200 - Vehicular Access and Circulation *(continued)*

C. Access Permit Required. Access to a public street requires an Access Permit in accordance with the following procedures:

1. City Street Permits. Permits for access to City streets shall be subject to review and approval by the City Manager or his/her designee based on the standards contained in this Chapter, and the provisions of Chapter 3.4.100 - Transportation Standards. An access permit may be in the form of a letter to the applicant, or it may be attached to a land use decision notice as a condition of approval.

2. State Highway Permits. Permits for access to State highways shall be subject to review and approval by the Oregon Department of Transportation (ODOT), except when ODOT has delegated this responsibility to the City or Morrow County. In that case, the City or County shall determine whether access is granted based on its adopted standards.

3. County Highway Permits. Permits for access to County highways shall be subject to review and approval by Morrow County, except where the County has delegated this responsibility to the City, in which case the City shall determine whether access is granted based on adopted County standards.

D. Traffic Study Requirements. The City or other agency with access jurisdiction may require a traffic study prepared by a qualified professional to determine access, circulation and other transportation requirements. (See also, Section 3.4.100 - Transportation Standards, and Chapter 4.10.)

E. Conditions of Approval. The City or other agency with access permit jurisdiction may require the closing or consolidation of existing curb cuts or other vehicle access points, recording of reciprocal access easements (i.e., for shared driveways), development of a frontage street, installation of traffic control devices, and/or other mitigation as a condition of granting an access permit, to ensure the safe and efficient operation of the street and highway system. To obtain access to and from off-street parking areas shall not require the driver to back-out onto a public street (except for single-family, two-family, and three-family dwellings).

F. Access Options. When vehicle access is required for development (i.e., for off-street parking, delivery, service, drive-through facilities, etc.), access shall be provided by one of the following methods. These methods are "options" to the developer/subdivider, unless one method is specifically required by Chapter 2 (i.e., under "Special Standards for Certain Uses"). A minimum of 10 feet per lane is required.

1. Option 1. Access is from an existing or proposed alley or mid-block lane. If a property has access to an alley or lane, direct access to a public street is not permitted.

3.1.200 - Vehicular Access and Circulation *(continued)*

2. Option 2. Access is from a private street or driveway connected to an adjoining property that has direct access to a public street (i.e., "shared driveway"). A public access easement covering the driveway shall be recorded in this case to assure access to the closest public street for all users of the private street/drive.

3. Option 3. Access is from a public street adjacent to the development parcel. If practicable, the owner/developer may be required to close or consolidate an existing access point as a condition of approving a new access. Street accesses shall comply with the access spacing standards in Section G, below.

4. Subdivisions Fronting On an Arterial Street. New residential land divisions fronting on an arterial street shall be required to provide alleys or secondary (local or collector) streets for access to individual lots. When alleys or secondary streets cannot be constructed due to topographic or other physical constraints or existing development patterns access may be provided by consolidating front-access driveways for clusters of two or more lots (e.g., includes flag lots and mid-block lanes).

5. Double-Frontage Lots. When a lot has frontage onto two or more streets, access shall be provided first from the street with the lowest classification. For example, access shall be provided from a local street before a collector or arterial street. Except for corner lots, the creation of new double-frontage lots shall be prohibited in the Residential District, unless topographic or physical constraints or existing development patterns require the formation of such lots. When double-frontage lots are permitted in the Residential District, a landscape buffer with trees and/or shrubs and ground cover not less than 15 feet wide shall be provided between the back yard fence/wall and the sidewalk or street; maintenance shall be assured by the owner (i.e., through homeowner's association, etc.).

Important cross-references to other code sections: Chapters 2 and 3 may require buildings placed at or near the front property line and driveways and parking areas oriented to the side or rear yard. The City may require the dedication of public right-of-way and construction of a street (e.g., frontage road, alley or other street) when the development impact is proportionate to the need for such a street, and the street is identified by the Comprehensive Plan or an adopted Local Streets Plan. (Please refer to Section 3.4.100 - Transportation Standards.)

G. Access Spacing. Driveway accesses shall be separated from other driveways and street intersections in accordance with the following standards and procedures:

1. Local Streets. The minimum feet of separation on local streets (as measured from the sides of the driveway/street) shall be determined based on the policies and standards contained in Table 3.1.200 G except as provided in subsection 3, below.

2. Arterial and Collector Streets. Access spacing on collector and arterial streets and at controlled intersections (i.e., with four-way stop sign or traffic signal) shall be determined by the policies and standards in Table 3.1.200 G.

3.1.200 - Vehicular Access and Circulation *(continued)*

3. Access to State Highways and Interchanges. Access to a transportation facility under the jurisdiction of the Oregon Department of Transportation (ODOT) shall be subject to the applicable ~~standards and~~ policies contained in the Oregon Highway Plan and the requirements of OAR 734-051. ~~Interstate Highway 84 Corridor Plan.~~ See Table 9A and Table 9 in the Transportation System Plan (TSP).

For Discussion: Proposed modifications clarify that access to the interchanges in Boardman is also under the jurisdiction of ODOT.

4. Special Provisions for All Streets. Direct street access may be restricted for some land uses, in conformance with the provisions of Chapter 2 - Land Use Districts. For example, access consolidation, shared access, and/or access separation greater than that specified by subsections 1-2, may be required by the permitting agency for the purpose of protecting the function, safety and operation of the street for all users. (See Section 'I', below.) Where no other alternatives exist, the permitting agency may allow construction of an access connection along the property line farthest from an intersection. In such cases, directional connections (i.e., right in/out, right in only, or right out only) may be required.

5. Corner Clearance. The distance from a street intersection to a driveway or other street access shall meet or exceed the minimum spacing requirements for the street classification in the City's Transportation System Plan.

6. Variance. A variance to vehicle access and circulation standards shall follow procedures in Chapter 5.1.300.A.

Table 3.1.200 G
Minimum Intersection Spacing Standards

Street Type	Public Street	Private Drive
Arterial	600 feet	300 feet
Collector	300 feet	75 feet
Neighborhood Collector	200 feet	50 feet
Local	150 feet	15 feet

This table identifies the minimum public street intersection and private access spacing standards for the City of Boardman roadway network as they relate to new development and redevelopment. Source: City of Boardman, Transportation System Plan, 2001.

H. Number of Access Points. For single-family (detached and attached), two-family, and three-family housing types, one street access point is permitted per lot; except that two access points may be permitted for two-family and three-family housing on corner lots (i.e., no more than one access per street), subject to the access spacing standards in Section 'G', above. The number of street access points for multiple family, commercial, industrial, and public/institutional developments shall be minimized to protect the function, safety and operation of the street(s) and sidewalk(s) for all users. Shared access may be required, in conformance with Section I, below, in order to maintain the required access spacing, and minimize the number of access points.

3.1.200 - Vehicular Access and Circulation *(continued)*

I. Shared Driveways. Where feasible, the number of driveway and private street accesses to public streets shall be minimized for commercial and industrial uses by the sharing of driveways between adjoining parcels. The City shall require shared driveways as a condition of land division or site design review for commercial and industrial uses, as applicable, for traffic safety and access management purposes in accordance with the following standards:

1. Shared driveways and frontage streets may be required to consolidate access onto a collector or arterial street. When shared driveways or frontage streets are required, they shall be stubbed to adjacent developable parcels to indicate future extension. "Stub" means that a driveway or street temporarily ends at the property line, but may be extended in the future as the adjacent parcel develops. "Developable" means that a parcel is either vacant or it is likely to receive additional development (i.e., due to infill or redevelopment potential).

2. Access easements for the benefit of affected properties shall be recorded for all shared driveways, including pathways, at the time of final plat approval (Chapter 4.3) or as a condition of site development approval (Chapter 4.2).

3. Exception. Shared driveways are not required when existing development patterns or physical constraints (e.g., topography, parcel configuration, existing development or similar conditions) prevent extending the street/driveway in the future.

4. Cross Access. Cross access is encouraged, and may be required as a condition of approval between contiguous sites in the Commercial and Industrial Districts and for multi-family housing in the Residential Multi-family Sub District of the Residential District, in order to provide for more direct circulation between sites and uses for pedestrians, bicycles and drivers. Cross access agreements may also be a requirement of land use or development approval for parcels within the Interchange Area Management Plan Overlay District, pursuant to Section 2.5.140.

For Discussion: This proposed cross reference clarifies that cross access agreements may be required if the proposal is within the IAMP Overlay District.

J. Street Connectivity. In order to promote efficient vehicular and pedestrian circulation throughout the City, land divisions and large site developments shall produce complete blocks bounded by a connecting network of public and/or private streets, in accordance with the following standards:

1. Block Length and Perimeter. The maximum block length and perimeter shall not exceed:

   a. 600 feet length and 1,600 feet perimeter in the Residential District and Sub Districts;

   b. 600 feet length and 1,600 feet perimeter in the Commercial District;

   c. Not applicable to the General Industrial District;

   d. 800 feet length and 2,000 feet perimeter in the Tourist Commercial Sub District, Service Center Sub District and Light Industrial District, except as required for commercial developments subject to Chapter 2.2, Section 140;

2. Street Standards. Public and private streets shall also conform to Chapter 3.4.100 - Transportation Standards, Section 3.1.300 - Pedestrian Circulation, and applicable Americans With Disabilities Act (ADA) design standards.

3.1.200 - Vehicular Access and Circulation *(continued)*

3. Exception. Exceptions to the above standards may be granted when blocks are divided by one or more pathway(s), in conformance with the provisions of Section 3.1.300.A. Pathways shall be located to minimize out-of-direction travel by pedestrians and may be designed to accommodate bicycles. An exception may also be granted for topography, natural resources, existing development or other permanent features such as Interstates and railroad track right-of-ways.

K. Driveway Openings. Driveway openings [or curb cuts] shall be the minimum width necessary to provide the required number of vehicle travel lanes (10 feet for each travel lane). The following standards (i.e., as measured where the front property line meets the sidewalk or right-of-way) are required to provide adequate site access, minimize surface water runoff, and avoid conflicts between vehicles and pedestrians:

1. Single family, two-family, and three-family uses shall have a minimum driveway width of 10 feet, and a maximum width of 24 feet, (except that one recreational vehicle pad driveway may be provided in addition to the standard driveway for each lot.

2. Multiple family uses with 4 to 7 dwelling units shall have a minimum driveway width of 20 feet, and a maximum width of 24 feet.

3. Multiple family uses with more than 8 dwelling units, and off-street parking areas with 16 or more parking spaces, shall have a minimum driveway width of 24 feet, and a maximum width of 30 feet. These dimensions may be increased if the City Manager or his/her designee determines that more than two lanes are required based on the number of trips generated or the need for turning lanes.

4. Access widths for all other uses shall be based on 10 feet of width for every travel lane, except that driveways providing direct access to parking spaces shall conform to the parking area standards in Chapter 3.3.

5. Driveway Aprons. Driveway aprons (when required) shall be constructed of concrete and shall be installed between the street right-of-way and the private drive, as shown in Figure 3.1.200K. Driveway aprons shall conform to Americans with Disabilities Act (ADA) standards for sidewalks and pathways, which require a continuous route of travel that is a minimum of 3 feet in width, with a cross slope not exceeding 2 percent.

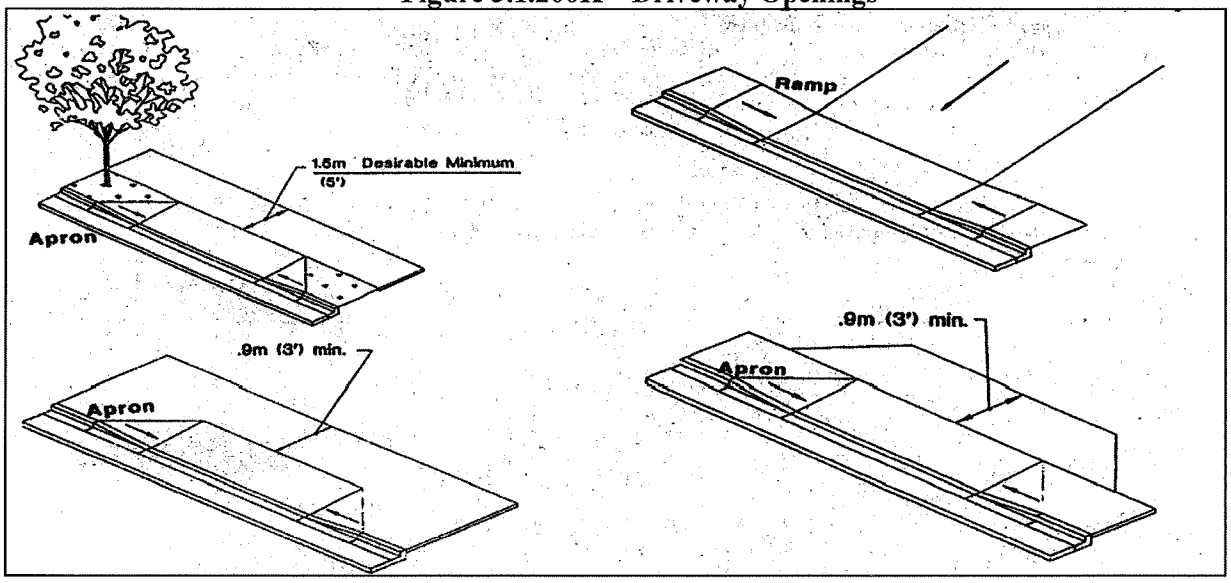
6. Driveway approaches. Driveway approaches shall be designed and located to provide an existing vehicle with an unobstructed view. Construction of driveways along acceleration or deceleration lanes or tapers should be avoided due to the potential for vehicle conflicts.

7. Loading area design. The design of driveways and on-site maneuvering and loading areas for commercial and industrial developments shall consider the anticipated storage length

for entering and exiting vehicles to prevent vehicles from backing into the flow of traffic on the public street or causing unsafe conflicts with on-site circulation.

3.1.200 - Vehicular Access and Circulation *(continued)*

Figure 3.1.200K – Driveway Openings



L. **Fire Access and Parking Area Turn-around.** A fire equipment access drive shall be provided for any portion of an exterior wall of the first story of a building that is located more than 150 feet from an existing public street or approved fire equipment access drive. Parking areas shall provide adequate aisles or turn-around areas for service and delivery vehicles so that all vehicles may enter the street in a forward manner. For requirements related to cul-de-sacs or dead-end streets, please refer to Section 3.4.100.M.

M. **Vertical Clearances.** Driveways, private streets, aisles, turn-around areas and ramps shall have a minimum vertical clearance of 13' 6 " for their entire length and width.

N. **Vision Clearance.** No signs, structures or vegetation in excess of three feet in height shall be placed in "vision clearance areas", as shown in Figure 3.1.200N. This standard applies to the following types of roadways: streets, driveways, alleyways and railways. The minimum vision clearance area may be increased by the City Manager or his/her designee upon finding that more sight distance is required (i.e., due to traffic speeds, roadway alignment, etc.). An exception to this standard may be granted by the City Manager or his/her designee to allow utility structures (such as electrical transformers) for necessary services. This exception does not include the installation of utility poles.

O. **Construction.** The following development and maintenance standards shall apply to all driveways and private streets.

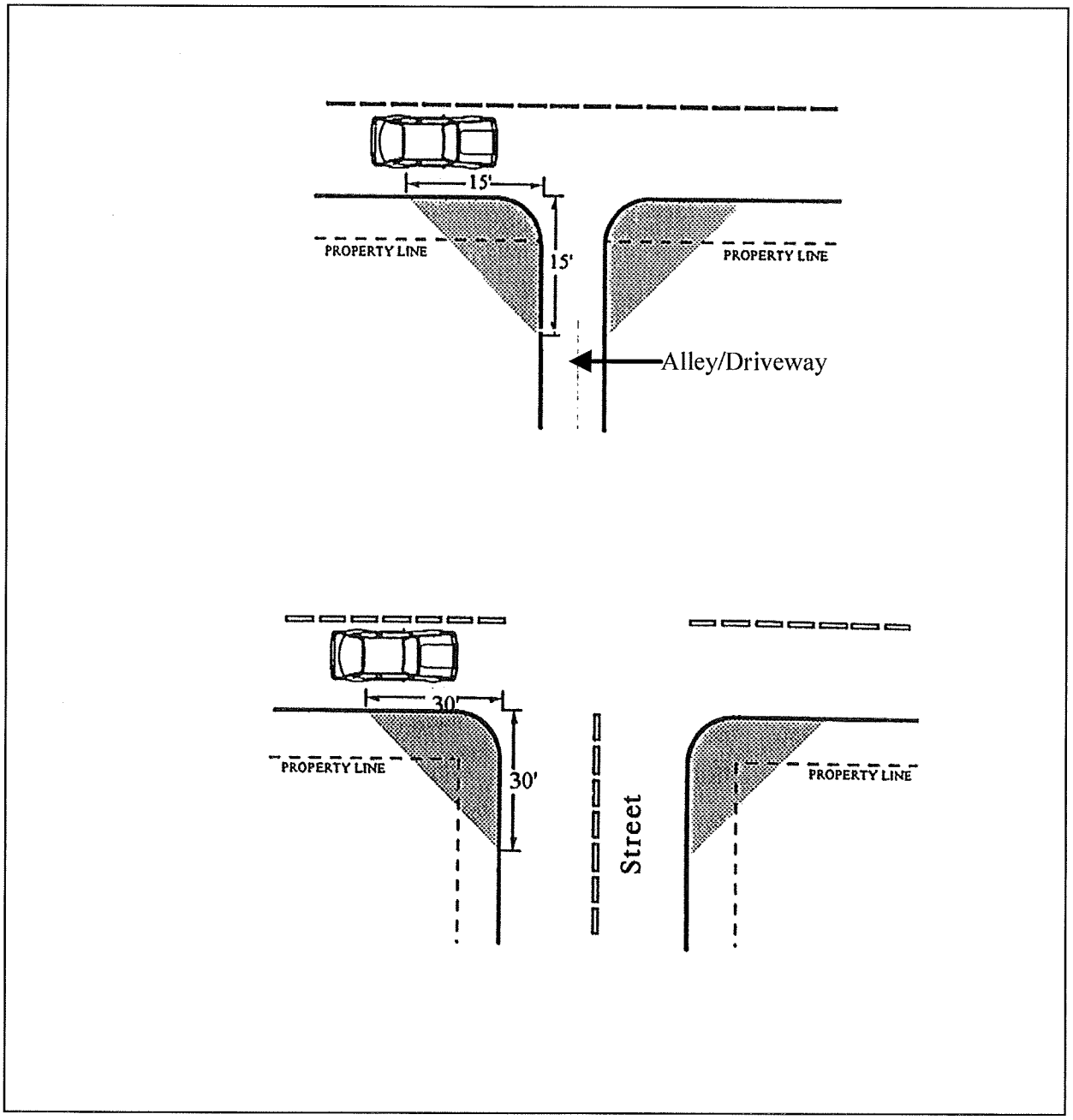
1. Surface Options. Driveways, parking areas, aisles, and turn-arounds may be paved with asphalt, concrete or comparable surfacing, or a durable non-paving material may be used to reduce surface water runoff and protect water quality. Paving surfaces shall be subject to review and approval by the City Manager or his/her designee.

3.1.200 - Vehicular Access and Circulation *(continued)*

3. Surface Water Management. Surface water facilities shall be constructed in conformance with City standards. See Section 3.2 for Landscaping standards or the City's Stormwater Management Standards in Section 3.5.

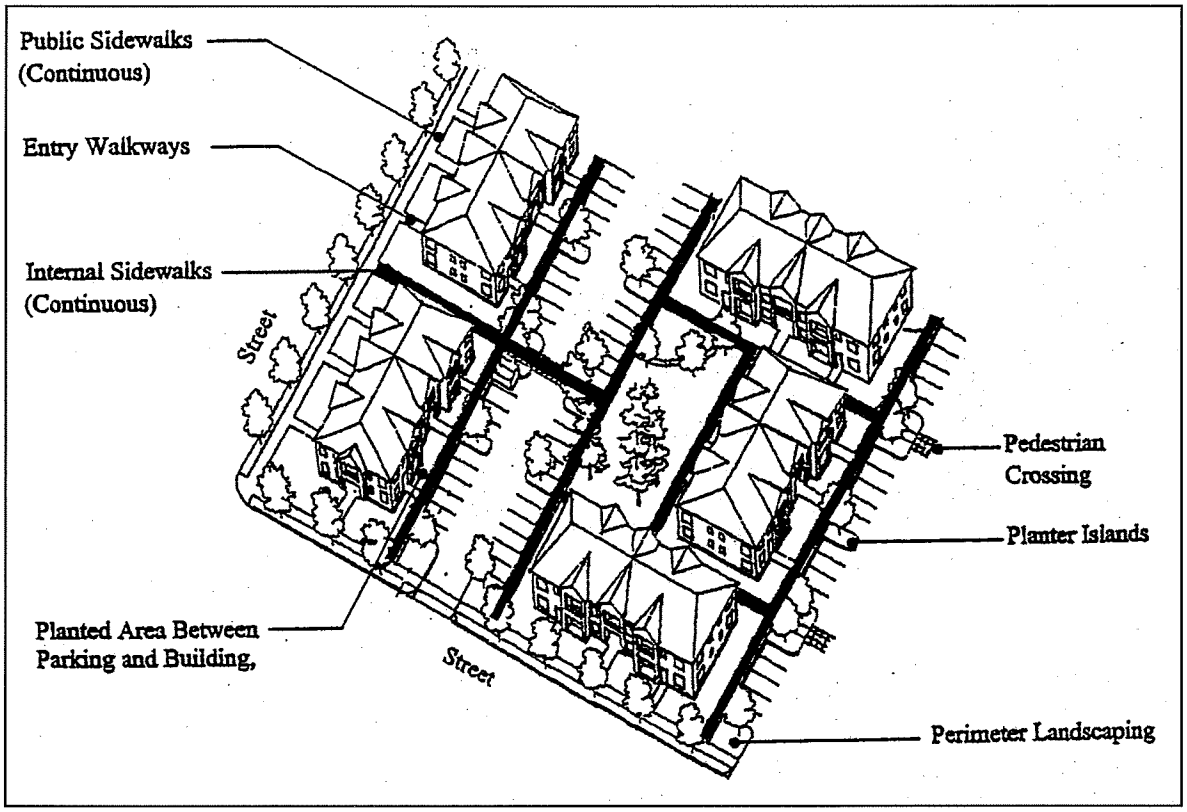
4. Driveway Aprons. When driveway approaches or "aprons" are required to connect driveways to the public right-of-way, they shall be paved with concrete surfacing. (See Section K above.)

Figure 3.1.200N – Vision Clearance Area



3.1.300 – Pedestrian Access and Circulation

Pedestrian System for Multi-Family Development
Figure 3.1.300A



A. **Pedestrian Access and Circulation.** To ensure safe, direct and convenient pedestrian circulation, all developments, except single family detached housing (i.e., on individual lots), shall provide a continuous pedestrian and/or multi-use pathway system. (Pathways only provide for pedestrian circulation. Multi-use pathways accommodate pedestrians and bicycles.) The system of pathways shall be designed based on the standards in subsections 1-3, below:

1. Continuous Pathways. The pathway system shall extend throughout the development site, and connect to all future phases of development, adjacent trails, public parks and open space areas whenever possible. The developer may also be required to connect or stub pathway(s) to adjacent streets and private property, in accordance with the provisions of Section 3.1.200 - Vehicular Access and Circulation, and Chapter 3.4. 100 - Transportation Standards.

3.1.300 – Pedestrian Access and Circulation *(continued)*

2. Safe, Direct, and Convenient Pathways. Pathways within developments shall provide safe, reasonably direct and convenient connections between primary building entrances and all adjacent streets, based on the following definitions:

   a. Reasonably direct. A route that does not deviate unnecessarily from a straight line or a route that does not involve a significant amount of out-of-direction travel for likely users.

   b. Safe and convenient. Bicycle and pedestrian routes that are reasonably free from hazards and provide a reasonably direct route of travel between destinations.

   c. Commercial and Industrial Primary Entrance. For commercial, industrial, mixed use, public, and institutional buildings, the "primary entrance" is the main public entrance to the building. In the case where no public entrance exists, street connections shall be provided to the main employee entrance.

   d. Residential Entrance. For residential buildings the "primary entrance" is the front door (i.e., facing the street). For multifamily buildings in which each unit does not have its own exterior entrance, the "primary entrance" may be a lobby, courtyard or breezeway which serves as a common entrance for more than one dwelling.

3. Connections Within Development. For all developments subject to Site Design Review, pathways shall connect all building entrances to one another. In addition, pathways shall connect all parking areas, storage areas, recreational facilities and common areas (as applicable), and adjacent developments to the site, as applicable.

4. Street Connectivity. Pathways (for pedestrians and bicycles) shall be provided at or near mid-block where the block length exceeds the length required by Section 3.1.200 J. Pathways shall also be provided where cul-de-sacs or dead-end streets are planned, to connect the ends of the streets together, to other streets, and/or to other developments. Pathways used to comply with these standards shall conform to all of the following criteria:

   a. Multi-use pathways (i.e., for pedestrians and bicyclists) are no less than 10 feet wide and located within a 20-foot-wide right-of-way or easement that allows access for emergency vehicles;

   b. If the streets within the subdivision or neighborhood are lighted, the pathways shall also be lighted;

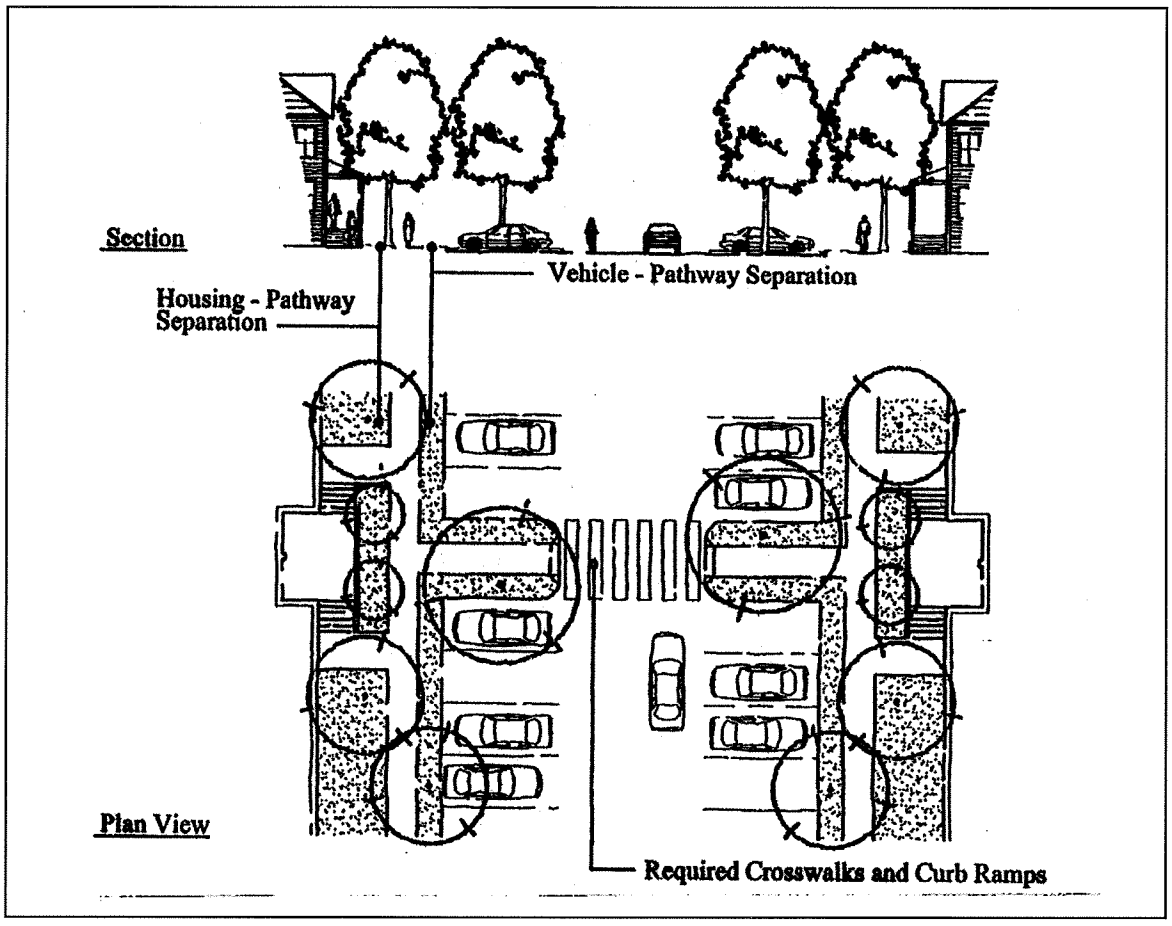
   c. Stairs or switchback paths using a narrower right-of-way/easement may be required in lieu of a multi-use pathway where grades are steep;

   d. The City may require landscaping within the pathway easement/right-of-way for screening and the privacy of adjoining properties;

3.1.300 – Pedestrian Access and Circulation *(continued)*

e. The City Manager or his/her designee may determine, based upon facts in the record, that a pathway is impracticable due to: physical or topographic conditions (e.g., freeways, railroads, extremely steep slopes, sensitive lands, and similar physical constraints); buildings or other existing development on adjacent properties that physically prevent a connection now or in the future, considering the potential for redevelopment; and sites where the provisions of recorded leases, easements, covenants, restrictions, or other agreements recorded as of the effective date of this Code prohibit the pathway connection.

Figure 3.1.300 B. Pathway Separations



3.1.300 – Pedestrian Access and Circulation *(continued)*

B. Design and Construction. Pathways shall conform to all of the standards in 1-5:

1. Vehicle/Pathway Separation. Where pathways are parallel and adjacent to a driveway or street (public or private), they shall be raised 6 inches and curbed, or separated from the driveway/street by a 5-foot minimum strip with bollards, a landscape berm, or other physical barrier. If a raised path is used, the ends of the raised portions must be equipped with curb ramps.

2. Housing/Pathway Separation. Pedestrian pathways shall be separated a minimum of 5 feet from all residential living areas on the ground floor, except at building entrances. Separation is measured from the pathway edge to the closest dwelling unit. The separation area shall be landscaped in conformance with the provisions of Chapter 3.3. No pathway/building separation is required for commercial, industrial, public, or institutional uses.

3. Crosswalks. Where pathways cross a parking area, driveway, or street ("crosswalk"), they shall be clearly marked with contrasting paving materials, humps/raised crossings, or painted striping. An example of contrasting paving material is the use of a concrete crosswalk through an asphalt driveway. If painted striping is used, it shall consist of thermo-plastic striping or similar type of durable application.

4. Pathway Surface. Pathway surfaces shall be concrete, asphalt, brick/masonry pavers, or other durable surface, at least 5 feet wide, and shall conform to ADA requirements. Multi-use paths (i.e., for bicycles and pedestrians) shall be the same materials, at least 10 feet wide. (See also, Section 3.4.100 - Transportation Standards for public, multi-use pathway standard.)

5. Accessible routes. Pathways shall comply with the Americans With Disabilities Act (ADA), which requires accessible routes of travel.

Attachment "D"

Chapter 4.10 - Traffic Impact Study

Sections:

4.10.100 - Purpose
4.10.200 - When Required
4.10.300 - Traffic Impact Study Requirements
4.10.400 - Approval Criteria

4.10.100 Purpose

A. **Purpose.** The purpose of this section of the code is to implement Section 660-012-0045 (2) (e) of the State Transportation Planning Rule, which requires the City to adopt a process to apply conditions to development proposals in order to minimize impacts and protect transportation facilities. This Chapter establishes the standards for when a proposal must be reviewed for potential traffic impacts; when a Traffic Impact Study must be submitted with a development application in order to determine whether conditions are needed to minimize impacts to and protect transportation facilities; what must be in a Traffic Impact Study; and who is qualified to prepare the Study.

B. **Typical Average Daily Trips.** ~~Standards by which to gauge average daily vehicle trips include: 10 trips per day per single family household, 5 trips per day per apartment; and 30 trips per day per 1,000 square feet of gross floor area such a new supermarket or other retail development.~~ The latest edition of the Trip Generation manual, published by the Institute of Transportation Engineers (ITE) shall be used as standards by which to gauge average daily vehicle trips.

For Discussion: Tying Boardman's trip generation standard to the nationally accepted Trip Generation manual will ensure that transportation analyses will be based on objective information. The proposed modification clarifies that the ITE manual will be the basis to determine trip generation standards for all types of development, not just what is currently listed in "B" above.

4.10.200 When Required

A. **When a Traffic Impact Study is Required.** A Traffic Impact Study shall be prepared and submitted to the City with the application, for review by the City and the Oregon Department of Transportation, when the following apply:
   1. The development application involves one or more of the following actions:
      a. A change in zoning or a plan amendment designation; or
      b. Any proposed development or land use action that ODOT states may have operational or safety concerns along a state highway; and
   2. The development shall cause one or more of the following effects, which can be determined by field counts, site observation, traffic impact analysis or study, field measurements, crash history, Institute of Transportation Engineers Trip Generation manual; and/or information and studies provided by the local reviewing jurisdiction and/or ODOT:
      a. An increase in site traffic volume generation by 500 Average Daily Trips (ADT) or more; or

b. An increase in ADT volume of a particular movement to and from the State highway by 20% or more; or
c. An increase in use of adjacent streets by vehicles exceeding the 20,000 pound gross vehicle weights by 20 vehicles or more per day; or

4.10.200 When Required

d. The location of the access driveway does not meet minimum site distance requirements, or is located where vehicles entering or leaving the property are restricted, or such vehicles queue or hesitate on the State highway, city arterial or city collector, creating a safety hazard; or
e. A change in internal traffic patterns that may cause safety problems, such as back up onto the highway, city arterial or city collector, or traffic crashes in the approach area.

4.10.300 Traffic Impact Study Requirements

A. Preparation. A Traffic Impact Study shall be prepared by a professional engineer ~~in accordance with OAR 734-051-180~~.

B. Transportation Planning Rule Compliance. See Chapter 4.7. 600.

C. Pre-application Conference. The applicant will meet with the Boardman Public Works and Community Development Director prior to submitting an application that requires a Traffic Impact Analysis. For proposals that may impact a state transportation facility, the Oregon Department of Transportation shall be invited to participate in this pre-application conference. The City has the discretion to determine the required elements of the Traffic Impact Analysis and the level of analysis expected.

For Discussion: The addition of "C" above clarifies that the City has the discretion to determine the required elements of the TIA and the level of analysis expected. The parameters of a required TIA would be discussed during a meeting with City staff prior to the submittal of an application. In this way, the complexity of the analysis can match the expected impact of a proposal, thereby minimizing the expense for smaller development proposals.

The necessity of having both the Community Development Director and the Public Works Director at this conference, and of codifying ODOT's involvement, should be a topic of discussion for the Steering Committee.

4.10.400 Approval Criteria

A. Criteria. When a Traffic Impact Study is required, approval of the development proposal requires satisfaction of the following criteria:
1. The Traffic Impact Study was prepared by a professional engineer ~~in accordance with OAR 734-051-180~~; and

2. If the proposed development shall cause one or more of the effects in Section 4.10.200A.5. above, or other traffic hazard or negative impact to a transportation facility, the Traffic Impact Study includes mitigation measures satisfactory to the City Engineer, and ODOT when applicable; and
3. The proposed site design and traffic and circulation design and facilities, for all transportation modes, including any mitigation measures, are designed to:
   a. Have the least negative impact on all applicable transportation facilities; and
   b. Accommodate and encourage non-motor vehicular modes of transportation to the extent practicable; and
   c. Make the most efficient use of land and public facilities as practicable; and
   d. Provide the most direct, safe and convenient routes practicable between on-site destinations, and between on-site and off-site destinations; and
   e. Otherwise comply with applicable requirements of the City of Boardman Development Code, including Chapters 3.1 Access and Circulation, 3.2. Landscaping, 3.3 Vehicle and Bicycle Parking, 3.4 Public Facilities Standards, 3.5 Stormwater Management, and 3.8 Loading Standards.

B. Conditions of Approval. The City may deny, approve, or approve the proposal with appropriate conditions.

Attachment "E"

Draft Boardman Main Street Interchange Area Management Plan
Revised Chapter 5. Interchange Area Management Plan

Policies, Rules and Ordinances

As land develops, redevelops or changes use within the interchange area, compliance will be required with the access management and circulation plans conceived through this study. As part of the adoption of the IAMP, the City of Boardman development codes are being amended to reflect standards and plans. In brief, code amendments implement:

Access Spacing Requirements
Local Street Connectivity
Access Management Plan
Cross-easement accesses

In addition, the Transportation System Plan will be amended to adopt the Local Street Network and the Access Management Plan and specific roadway and interchange improvements including street standards for South Main Street.

To implement the IAMP, the City will amend the Zoning Map to include an overlay district and amend the Development Code to include land use, development and redevelopment requirements within the district.

The IAMP Overlay District refines and clarifies existing city requirements as they pertain to development within the overlay. For example, the city currently has a traffic impact study (TIS) requirement for proposals that involve a change in zoning or a plan amendment designation, or that "may have operational and safety concerns along a state highway". Within the IAMP Overlay District, a TIS would only be required if such land use amendment was expected to generate 10% or greater PM peak hour traffic than the current zoning. Proposals that do not include a land use change, or those that do, but are shown to have an impact less than 10% in the PM peak hour traffic, will only be required to submit a traffic generation report.

In addition, the City currently requires an access permit as a part of their Site Design Review. As part of the permit approval process, the applicant will have to demonstrate that the proposed development project within the Overlay District will not preclude any necessary cross access to adjacent parcels and that, if the proposed development relies on cross access, a signed agreement is included as part of the development proposal. A cross access easement would be required if the subject site is being subdivided.

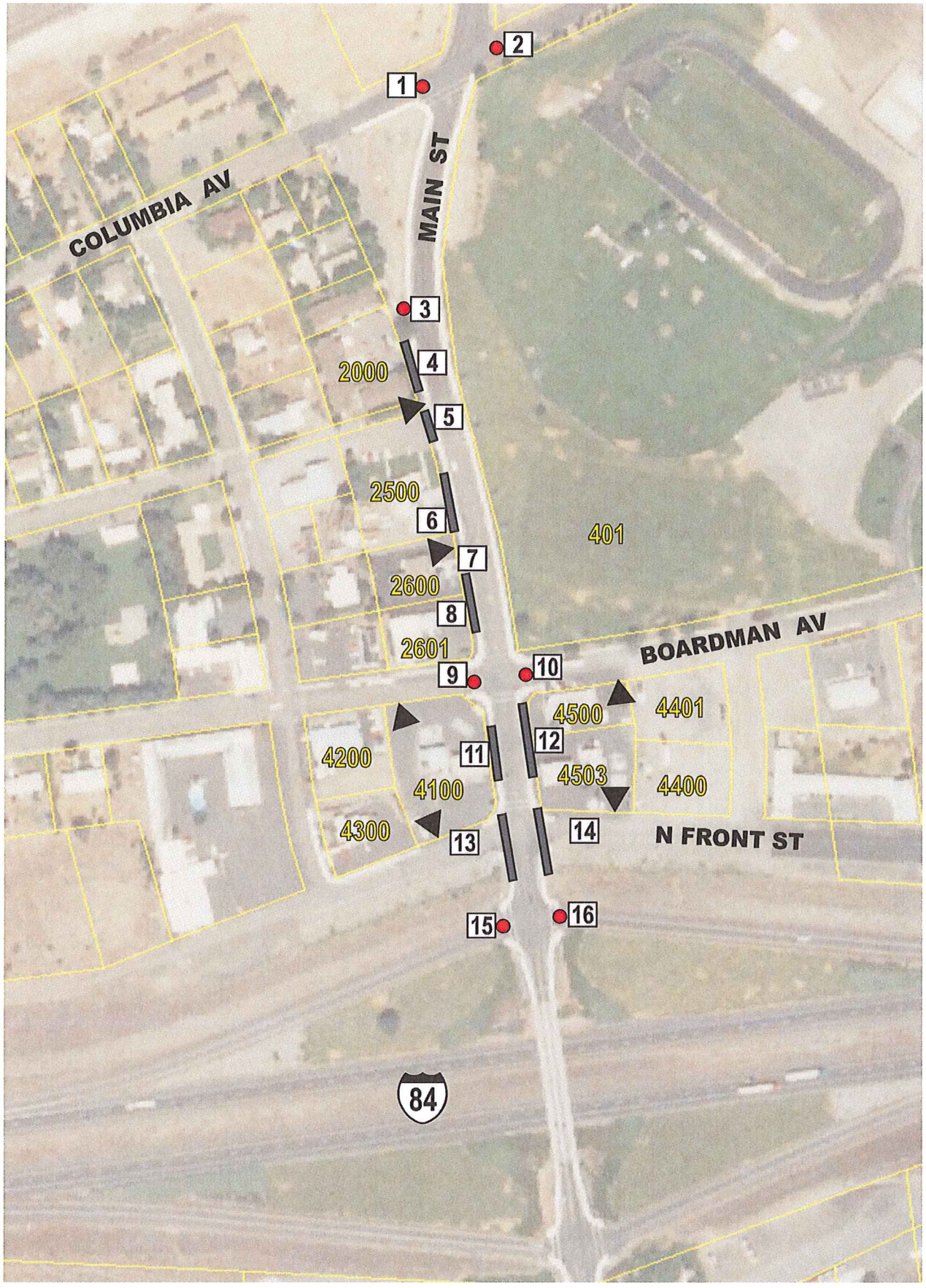
Updating the IAMP

The City will keep a record of all traffic generation reports and will use them to track how close the interchange is to operating at capacity. When the total new trips generated from development within the Overlay District exceeds approximately 85% of the trips

assumed in the IAMP, the City will initiate an update of the IAMP. Once notified of the need to update the IAMP, ODOT will work with the City of Boardman to create a planning project similar in scope to the original IAMP process. It is expected that an update triggered by traffic volumes will include a 20-year future forecast and needs analysis, a review of recent development patterns and the adequacy of the local street network, and a safety and operations analysis of the interchange. Once completed, the updated IAMP will be adopted by the City of Boardman through a legislative adoption process.

The Boardman Main Street Interchange IAMP also must be amended when a proposed land use is inconsistent with the current land use zoning and is anticipated to increase PM peak hour traffic by more than 10%. This applicant-initiated legislative amendment is not expected to entail the level of analysis that the city-initiated review will require. However, applicants will be required to demonstrate that the proposed amendment will be consistent with the planned improvements in the Overlay District. In such cases, the applicant will supply information to amend the IAMP, including a documentation of the additional trips generated by the subject site that are not anticipated in the IAMP and findings that either show how the planned improvements in the IAMP are sufficient to support the proposal, or that identify additional necessary transportation improvements to bring the proposed land use action into conformance with the IAMP.

Attachment "E-1"



LEGEND

0 - Access Location & Number

000 - Tax Lot ID#

- Long Range Future Access

- Long Range Future Curb *

*Approach will not be closed until reasonable access becomes available

City of Boardman Main Street IAMP
April 2009

NO SCALE

Figure 5.5

MAIN STREET LONG RANGE ACCESS MANAGEMENT PLAN NORTH

Attachment "E-2"



LEGEND

0 - Access Location & Number

000 - Tax Lot ID#

- Long Range Future Access

- Long Range Future Curb*

- Future Roadway Network

*Approach will not be closed until reasonable access becomes available

NO SCALE

City of Boardman Main Street IAMP
April 2009

Figure 5.6

MAIN STREET LONG RANGE ACCESS MANAGEMENT PLAN SOUTH

Boardman Main Street IAMP Findings of Compliance: State Policies and Requirements

Statewide Land Use Goals

The City is proposing to adopt the Boardman Main Street Interchange Area Management Plan (IAMP) as an element of the City of Boardman Transportation System Plan, thereby amending the state-acknowledged City of Boardman Comprehensive Plan. The following findings demonstrate that the adoption of the Boardman Main Street IAMP is consistent with LCDC's Goals.

Goal 1: Citizen Involvement

Goal 1 requires the development of a citizen involvement program that is widespread, allows two-way communication, provides for citizen involvement through all planning phases, and is understandable, responsive, and funded.

Response: In 2006, at the start of the planning process, the City distributed a public survey to gather information about the issues and challenges surrounding both Boardman I-84 interchanges and a project newsletter informing citizens of the planning process and how people could participate. In January 2007, a series of stakeholder interviews were conducted to get input specifically from Boardman citizens who rely on the interchange(s) regarding existing problems and possible solutions pertaining to function and safety (See Appendix 2 of the IAMP). Questions included how best to accommodate non-motorized transportation (bicycle, pedestrians) and how to fund the needed improvements.

Public hearings to adopt an IAMP for both interchanges in 2007 did not result in plan approval. In June of 2007 a Steering Committee was appointed by the city to guide the development and implementation of an IAMP for the Main Street Interchange only. The Steering Committee consisted of elected and appointed officials, property and business owners, and real estate professionals. Work continued on the IAMP throughout 2008, resulting in updated IAMP plan documents ("Final Reports") that were subject to City review and revisions. The Steering Committee then met several times during 2009 to review proposed revisions to the IAMP and to give input on proposed implementation measures.

In addition, the City held two Focus Group meetings and a city-wide Open House on June 22, 2009 to help ensure that interested Boardman residents, business owners, and property owners were aware of the proposed IAMP and regulatory provisions associated with implementing the plan. Property and business owners were invited to the Focus Group meetings, the first of which was for those with interests to the north of the interchange and the second for those primarily interested in planning south of the interchange. The Open House, which was advertised city-wide and open to the public, provided an overview of the IAMP planning process and the proposed future

improvements necessary to manage traffic and access in the vicinity of the interchange.

Notice of public hearings on the proposed changes to the City of Boardman's Comprehensive Plan and implementing ordinances was sent 20 days in advance of the hearings to property owners, interested parties, and governmental agencies, pursuant to City code requirements. The scheduled hearings will provide opportunities for public comment on the proposed changes.

Goal 2: Land Use Planning

This goal requires that a land use planning process and policy framework be established as a basis for all decisions and actions relating to the use of land. All local governments and state agencies involved in the land use action must coordinate with each other. City, county, state and federal agency and special districts plans and actions related to land use must be consistent with the comprehensive plans of cities and counties and regional plans adopted under Oregon Revised Statues (ORS) Chapter 268.

Response: Preliminary tasks in the development of the Boardman Main Street IAMP included a thorough review and analysis of all relevant state, regional and local planning documents in order to establish a planning process and policy framework. The following documents were reviewed:

- Oregon Transportation Plan
- Oregon Highway Plan
- Oregon Bicycle and Pedestrian Plan
- Statewide Planning Goals
- Oregon Access Management Rule OAR 734-051
- State Transportation Improvement Program (STIP)
- Morrow County Transportation System Plan
- City of Boardman Comprehensive Plan
- City of Boardman Transportation System Plan
- City of Boardman Development Code
- Main Street "Downtown" Development Plan

This review identified how the documents influence planning for the Main Street interchange project. Detailed review of plans and policies can be found in Appendix 1Background Plan Review.

The Boardman Main Street IAMP was prepared jointly by the City of Boardman and ODOT and coordination between the two agencies took place routinely throughout the process. A Project Management Team (PMT) was established to guide the IAMP process. The PMT consisted of representatives from the City and ODOT. The implementation of the IAMP, including the development of the new IAMP Overlay District development code chapter, was funded by a State Transportation Growth

Management (TGM) grant. Both the TGM grant manager and the City's Department of Land Conservation and Development representative participated in Steering Committee and public meetings associated with the completion and implementation of the IAMP. ODOT staff will help facilitate and support the adoption of the IAMP by the City of Boardman and, once locally adopted, by the Oregon Transportation Commission (OTC). ODOT and the City will continue to coordinate on development activity and land use actions within the interchange area.

Adopting the IAMP will ensure that the transportation element of the Comprehensive Plan (the TSP) is consistent with the proposed Main Street Interchange improvements.

Goal 9: Economic Development
This goal requires that local comprehensive plans and policies contribute to a stable and healthy economy in all regions of the state.

Response: The Main Street Interchange provides a vital function in supporting local economic development goals and plans. The City's civic center, including City Hall and the library, the High School, and the City's businesses and available commercial land are served by the interchange. Local traffic, including commercial vehicles, must have safe and efficient access to the interstate. The intent of the IAMP is to protect the safe and efficient operation of the interchange (see Chapter 2, Plan Goals, Objectives, and Evaluation Criteria). Adopting the IAMP will ensure that transportation improvements will ultimately be available to support the planned uses in this area of Boardman, consistent with this economic development goal.

Goal 10: Housing
This goal requires the City plans provide for the appropriate type, location and phasing of public facilities and services sufficient to support housing development in areas presently developed or undergoing development or redevelopment.

Response: The IAMP Overlay District includes some limited areas zoned for single-family, a small area zoned for multi-family residential, and an approximately 27 acres zoned parcel zoned for manufactured homes. The single-family zoning lies along North Main Street and, south of the interchange, partially within the BPA easement at the eastern boundary of the District. The Multifamily Sub-district lies at the southwestern boundary of the district, partially within the BPA easement, which limits its development. The parcel zoned Residential Manufactured Home Sub-district was the subject of a proposed land use amendment to commercial use that initiated the IAMP planning process in 2006. The proposed plan and zoning amendment was not approved by the City, but the IAMP assumes commercial uses on this parcel in anticipation of this land use change (See Figure 4.1 in the draft IAMP).

The Main Street Interchange serves all of western Boardman, including existing and planned residential areas both within and outside of the Overlay District. Residential trips were a part of the future (2026) traffic conditions analyzed at the Main Street interchange. The IAMP includes physical improvements associated with this interchange that will ensure that the facility will continue to operate safely and efficiently for all users. Preserving the function and capacity of the interchange facility through the adoption of the IAMP will benefit travelers to and from residential areas in the western part of the city.

Goal 11: Public Facilities and Services

Goal 11 requires cities and counties to plan and develop a timely, orderly and efficient arrangement of public facilities and services to serve as a framework for urban and rural development. The goal requires that urban and rural development be "guided and supported by types and levels of urban and rural public facilities and services appropriate for, but limited to, the needs and requirements of the urban, urbanizable and rural areas to be served."

Response: Transportation facilities are considered a primary type of public facility. The IAMP documents the current and future transportation needs in the vicinity of the Main Street Interchange. The analysis of possible alternatives resulted in recommended intersection improvements, a proposed local circulation plan, a new street standard for South Main Street, and an access management plan that are intended to meet future transportation demand. With the adoption of the IAMP, the City is adopting the recommended implementation measures related to the protection of the function and operation of the Main Street Interchange.

Goal 12: Transportation

Goal 12 requires cities, counties, metropolitan planning organizations, and ODOT to provide and encourage a "safe, convenient and economic transportation system." This is accomplished through development of Transportation System Plans based on inventories of local, regional and state transportation needs. Goal 12 is implemented through OAR 660, Division 12, also known as the Transportation Planning Rule ("TPR"). The TPR contains numerous requirements governing transportation planning and project development. (See the "OAR 660, Division 12" section of this document for findings of compliance with the TPR.)

Response: The purpose of the Boardman Main Street IAMP is to protect the function of the interchange and its ability to serve future transportation demands, thereby preserving the state's investment in the facility. The IAMP contains a discussion of the transportation analysis that was conducted in order to determine future demand, available capacity, deficiencies, and necessary transportation improvements for this interchange area. The analysis demonstrates that the planned transportation facilities will be adequate to safely and efficiently serve trips generated by future land uses for a period of at least 20 years.

To implement the IAMP, it must be adopted into the City of Boardman's Transportation Plan. Policy and zoning ordinance language, as summarized in IAMP Chapter 5 under the *Policies, Rules and Ordinances* section, is added to the City's Comprehensive Plan and Development Code in order to maintain interchange function and ensure that development inconsistent with the objectives of the IAMP does not cause unexpected traffic volumes or create non-conforming access points. The IAMP and the supporting city code amendments (new Chapter 2.5 Interchange Area Management Overlay District) provide for coordination between the City and ODOT for any land use actions proposed within the IAMP study area.

Local plans must be consistent with state plans. Subsequent to local action, adoption of the IAMP by the Oregon Transportation Commission will amend the Oregon Highway Plan to establish the preferred interchange project alternative.

See additional findings under OAR 660, Division 12 Transportation Planning Rule.

Oregon Transportation Plan (2006)

The Oregon Transportation Plan (OTP) is the state's long-range multimodal transportation plan. The OTP is the overarching policy document among a series of plans that together form the state transportation system plan (TSP). An IAMP must be consistent with applicable OTP goals and policies. Findings of compatibility will be part of the basis for IAMP approval. The most pertinent OTP goals and policies for interchange planning are as follows:

POLICY 1.2 – Equity, Efficiency and Travel Choices
It is the policy of the State of Oregon to promote a transportation system with multiple travel choices that are easy to use, reliable, cost-effective and accessible to all potential users, including the transportation disadvantaged.

Response: To address non-motorized modes of transportation, an inventory of sidewalks, designated bike lanes, shoulder bikeways, identified shared roadways and off- street trails along the city streets was conducted as part of the IAMP development. South Main Street currently has a multi-use path for pedestrians and bicycles and there are bike lanes along North Main Street and a multi-use path for bicycles along the north side of Wilson Road. The preferred pedestrian and bicycle network in the IAMP calls for curb and sidewalk similar to North Main Street to improve the safety of pedestrians along South Main Street (see Figure 5.3 South Main Street Improvements). Pedestrian access across Main Street is also detailed in the IAMP. Pedestrian crossings shall be accommodated at the major access points (I-84 ramps, Oregon Trail Boulevard, City Center Boulevard, Kinkade Road and Wilson Road). This would include sidewalk with ADA pedestrian ramps on the corners and possibly supplemental signing and/or painted crosswalks. A "mid-block" pedestrian

crossing could be accommodated on the north side of the BPA easement. The mid-block crossing could incorporate a center pedestrian refuge island, once South Main Street is reconstructed to the arterial standard. The City's recent award of an Economic Stimulus Funding grant for improvements on South Main Street will fund the first phase of these improvements.

The long-range phase of improvements include reconstruction and expansion of the Main Street overpass to accommodate a center left turn lane, bicycle lanes and wider sidewalks.

POLICY 1.3 – Relationship of Interurban and Urban Mobility
It is the policy of the State of Oregon to provide intercity mobility through and near urban areas in a manner which minimizes adverse effects on urban land use and travel patterns and provides for efficient long distance travel.

Response: The Boardman Main Street IAMP provides for improved safety and efficiency for travelers accessing Interstate 84 and land in the western part of Boardman. The IAMP documents how access management and planned improvements will ensure that the interchange facility will operate at levels consistent with the state's mobility standards over the 20-year planning horizon.

POLICY 2.1 - Capacity and Operational Efficiency
It is the policy of the State of Oregon to manage the transportation system to improve its capacity and operational efficiency for the long term benefit of people and goods movement.

Response: The Boardman Main Street IAMP project was developed in response to safety and operational efficiency issues affecting the existing interchange in west Boardman. The IAMP includes short-, medium- and long-range actions that accomplish state management objectives by identifying access management steps, necessary local street connections, improvements to South Main Street, and improvements to the interchange (traffic signals, widening Main Street Bridge). Through these actions, the IAMP protects long-term system capacity by ensuring that the interchange continues to function at a level that meets the mobility expectations of the state. The IAMP contains policies and recommendations that support the access management spacing standards and the new IAMP overlay district code chapter establishes that proposed land use actions that are inconsistent with the assumptions in the IAMP must include a review of potential impacts to interchange operations. Actions to minimize access locations will occur as part of future redevelopment, and only when reasonable alternate access becomes avalailable.

POLICY 2.2 – Management of Assets
It is the policy of the State of Oregon to manage transportation assets to extend their life and reduce maintenance costs.

Response: The stated purpose of the Boardman Main Street IAMP is to provide for safe and efficient travel around the interchange. This includes providing safe and efficient connections between local streets and the state highway, managing access in the vicinity of the interchange, and providing a logical and efficient local street network south of the interchange. Implementing the recommendations of the IAMP maximizes the interchange's operational life and the State's investment in the facility. In addition, through the provisions of Chapter 5 of the IAMP and the City's new Chapter 2.5 Interchange Area Management Plan (IAMP) Overlay District in the Development Code, the IAMP requires proposed changes to the planned land use system to demonstrate consistency with IAMP policies protecting the long-term function of the interchange facility.

POLICY 3.1 – An Integrated and Efficient Freight System
It is the policy of the State of Oregon to promote an integrated, efficient and reliable freight system involving air, barges, pipelines, rail, ships and trucks to provide Oregon a competitive advantage by moving goods faster and more reliably to regional, national and international markets.

POLICY 3.2 – Moving People to Support Economic Vitality
It is the policy of the State of Oregon to develop an integrated system of transportation facilities, services and information so that intrastate, interstate and international travelers can travel easily for business and recreation.

Response: I-84 is classified as an Interstate Highway and is part of the National Highway System. The primary function of the Interstate is to provide connections to major cities, regions of the State, and other states. I-84 is a major freight route and the primary objective of this facility is to provide mobility. A secondary function in urban areas is to provide connections for regional trips within the metropolitan area. There are existing safety issues at the interchange due to accesses on Main Street placed too close to the on and off ramps to the highway. Of a more immediate concern are the existing problems with vehicles stacking up at the west bound ramp – a situation that is made more difficult when truck traffic backs up. The IAMP documents a way to improve this situation over time, including the eventual warrant of a traffic signal at the west bound ramp terminal (see *Timing of Improvements*, IAMP Chapter 5). The Main Street Interchange provides a vital link between I-84 and the services provided in town to freight movers. The Boardman Main Street IAMP provides management tools to ensure continued mobility on I-84, while allowing safe and efficient vehicular movements onto, and in the vicinity of, the interchange.

POLICY 4.1 - Environmentally Responsible Transportation System
It is the policy of the State of Oregon to provide a transportation system that is environmentally responsible and encourages conservation and protection of natural resources.

Response: The Boardman Main Street IAMP was developed to identify necessary improvements to an existing interchange in anticipation of future growth in the City of Boardman. Land in the vicinity of the interchange is currently developed or is planned for urban-level development. Through the implementation and construction of improvements included in the preferred transportation system and interchange alternative natural resources will be avoided or mitigated.

POLICY 5.1 – Safety
It is the policy of the State of Oregon to continually improve the safety and security of all modes and transportation facilities for system users including operators, passengers, pedestrians, recipients of goods and services, and property owners.

Response: The Boardman Main Street IAMP states that a key element of the long-range preservation of operational efficiency and safety of the interchange is the management of access to Main Street. Because access points introduce a number of potential vehicular conflicts on a roadway and are frequently the causes of slowing or stopping vehicles, they can significantly degrade the flow of traffic and reduce the efficiency of the transportation system. The IAMP includes an Access Management Plan that includes short-, medium-, and long-range actions that, over time, will reduce the overall number of access points and providing greater separation between them in order to minimize the impacts of these conflicts. To reduce the conflicts and potential safety concerns, the full-access intersections at North and South Front Street will gradually need to be more restricted, which may include limiting to right-turn movements only or full closure (See *Transportation Alternatives*, IAMP Chapter 5).

Safety issues on the ramps are anticipated to need addressing in the medium- to long-range time frame and the IAMP calls for the construction of additional approach lanes on the ramp terminals and, as traffic conditions meet warrants, the installation of a traffic signal at the westbound ramp to improve the operation of the intersections and reduce queuing. The ultimate improvement alternative includes expanding the current freeway interchange by widening the bridge, which would improve safety by eliminating the existing sight distance issue for vehicles on the off-ramps looking across the bridge.

POLICY 7.1 – A Coordinated Transportation System
It is the policy of the State of Oregon to work collaboratively with other jurisdictions and agencies with the objective of removing barriers so the transportation system can function as one system.

Response: ODOT worked in collaboration with the City of Boardman to develop and adopt the IAMP. The IAMP describes a local transportation system, including access management and necessary local street connectivity that improves the safety and efficiency for motorized and non-motorized mode of travel. The Main Street interchange is a vital link in this system, providing access for travelers to services offered in the City of Boardman and for residents and business owners traveling to and from the northern and southern parts of town. The IAMP details how improvements to the local street system and, eventually, to the state's interchange facility, will continue to provide for the needs of residents and travelers on I-84. Proposed IAMP implementation language ensures future collaboration between the City and ODOT by requiring notification to ODOT of land use actions proposed within the IAMP Overlay Zone and including the system by which the IAMP will be updated (see *Policies, Rules and Ordinances* in Chapter 5 of the IAMP and proposed Chapter 2.5 Interchange Area Management Plan (IAMP) Overlay District in the City of Boardman Development Code.)

POLICY 7.3 – Public Involvement and Consultation
It is the policy of the State of Oregon to involve Oregonians to the fullest practical extent in transportation planning and implementation in order to deliver a transportation system that meets the diverse needs of the state.

POLICY 7.4 - Environmental Justice
It is the policy of the State of Oregon to provide all Oregonians, regardless of race, culture or income, equal access to transportation decision-making so all Oregonians may fairly share in benefits and burdens and enjoy the same degree of protection from disproportionate adverse impacts.

Response: Over the course of this three-year planning process, the City has engaged citizens in the development of the IAMP using various means, including project newsletters, stakeholder interviews, public surveys, focus group meetings, and open houses (also see the response under Goal 1 in this findings report). In addition, a Steering Committee consisting of elected and appointed officials, property and business owners, and real estate professionals was appointed by the City to guide the development and implementation an IAMP and represent the citizens' interests. During the implementation phase of the project, which commenced in 2009, the Steering Committee met several times to review proposed revisions to the IAMP and to give input on proposed implementation measures.

The interchange is an existing facility on the interstate highway system. The proposed transportation system and interchange facility recommendations provide improvements to address safety and operations issues and to manage traffic in the vicinity of the interchange consistent with adopted local and state policies. None of the proposed actions or analyzed alternatives affected land outside the immediate interchange area. While an approximately 27 acre parcel currently zoned for

manufacture home park use was analyzed for commercial uses for purposes of future transportation generation, no property is being proposed for rezoning as part of the local action to adopt the IAMP. In order to meet the City's Goal 10 obligations, if this property is proposed for a change in land use in the future, an alternate site suitable for manufactured homes must be located and zoned for that use within the city prior to the city approving the land use amendment. No target Environmental Justice Groups - which include minorities, people with disabilities, the elderly, people that speak English as a second language or non-English speaking people, and low income populations – are disproportionately affected by the IAMP.

Notice of public hearings on the proposed changes to the City of Boardman's Comprehensive Plan and implementing ordinances was sent 20 days in advance of the hearings to property owners, interested parties, and governmental agencies, pursuant to City code requirements. The scheduled hearings will provide opportunities for public comment on the proposed changes.

Oregon Highway Plan

The 1999 Oregon Highway Plan (OHP) establishes policies and investment strategies for Oregon's state highway system over a 20-year period and refines the goals and policies found in the OTP. Policies in the OHP emphasize the efficient management of the highway system to increase safety and to extend highway capacity, partnerships with other agencies and local governments, and the use of new techniques to improve road safety and capacity. These policies also link land use and transportation, set standards for highway performance and access management, and emphasize the relationship between state highways and local road, bicycle, pedestrian, transit, rail, and air systems. The policies applicable to planning for the Main Street interchange improvements are described below.

***Policy 1A** (Highway Classification) defines the function of state highways to serve different types of traffic that should be incorporated into and specified through IAMPs.*

***Policy 1C** (State Highway Freight System) states the need to balance the movement of goods and services with other uses.*

Response: I-84 is classified an Interstate Highway and is part of the National Highway System. The primary function of the Interstate is to provide connections to major cities, regions of the State, and other states. I-84 is a major freight route and the primary objective of this facility is to provide mobility. A secondary function in urban areas is to provide connections for regional trips within the metropolitan area.

Proposed interchange improvements and the access management plan, designed to minimize access points on Main Street in the vicinity of the interchange, were designed to ensure the safe and efficient high-speed, continuous-flow operation of I-

84, consistent with this state policy. In addition, the proposed preferred alternative improves freight mobility through the area by addressing safety, capacity, and efficiency issues.

Policy 1B *(Land Use and Transportation) recognizes the need for coordination between state and local jurisdictions.*

Response: Coordination between ODOT and the City occurred throughout the preparation of the IAMP. A Project Management Team (PMT) was formed to inform the IAMP process and included members representing the City of Boardman and DLCD. The PMT coordinated throughout the project, including participating in meetings with the Steering Committee that were devoted to implementation measures and reviewed draft documents in order to provide consensual revisions.

Policy 1F *(Highway Mobility Standards) sets mobility standards for ensuring a reliable and acceptable level of mobility on the highway system by identifying necessary improvements that would allow the interchange to function in a manner consistent with OHP mobility standards.*

Response: The analysis of future traffic conditions in the vicinity of the Main Street interchange shows that the existing interchange facility does not meet acceptable safety standards and that it will not be able to accommodate the expected traffic volumes over a 20-year planning horizon without the proposed improvements. The Main Street and I-84 westbound ramp is expected to exceed the performance standard of V/C < 0.85 in the PM peak hour. Three other intersections - Main Street and Boardman Avenue, Main Street and I-84 eastbound ramp, and Main Street and Front Street (South) – will operate with LOS E or F, which is within the City of Boardman's LOS performance standards for average intersection delay and LOS, but may result in increased delay for the side street approaches.

Mobility standards were used as a criterion for selecting a preferred set of interchange improvements and developing a local street network and an access management plan for the interchange area.

Policy 1G *(Major Improvements) requires maintaining performance and improving safety by improving efficiency and management before adding capacity. ODOT works with regional and local governments to address highway performance and safety.*

Response: The improvement alternatives in the IAMP have been prioritized into short, medium, and long-range actions, to provide guidance for future implementation and funding (see Table 1.2). The timing for implementing these actions assumes average growth over the next 20 years. The IAMP includes short- and medium-range actions, such as an access management and local street improvements, that do not add capacity. From a capacity standpoint, the bridge is able to accommodate the

forecasted vehicular traffic. However, the bridge is too narrow to incorporate northbound and southbound left turn lanes at the ramp intersections, an improvement that may be triggered within the planning horizon by either an increase in crashes or a decrease in LOS. An expansion of the Main Street overpass to accommodate a center left turn lane, bicycle lanes and wider sidewalks is only anticipated as a long-range project in response to accommodating the additional turn lanes.

***Policy 2B** (Off-System Improvements) helps local jurisdictions adopt land use and access management policies.*

Response: Adoption of the land use and access management policies and implementation measures in the IAMP protect the function of the interchange and other related transportation improvements. The IAMP's access management plan restricts direct access to the interchange and implementation of the proposed local street connectivity plan will provide a local street network that will safely and efficiently carry local trips and provide access to locations and properties in west Boardman.

***Policy 2F** (Traffic Safety) improves the safety of the highway system.*

Response: The main goal of the IAMP is to provide for safe and efficient travel around the interchange. A key outcome of the IAMP is the identification of potential vehicle queuing onto the mainline freeway. The IAMP protects the safe and efficient operation of the interchange by proposing transportation system and facility improvements to meet the year 2026 traffic demand, regulating access, and providing alternatives to highway use via a planned local street network.

***Policy 3A** (Classification and Spacing Standards) sets access spacing standards for driveways and approaches to the state highway system.*

Response: The IAMP moves in the direction of meeting the approach road spacing standards established by OAR 734-051. The IAMP contains short- and long-range access strategies that will be applied within the IAMP Overlay District in order to regulate existing and future driveway and other approaches in the vicinity of the interchange. As shown in Chapter 5 of the IAMP, the long range improvements on south side of the interchange could ultimately achieve the standards. The access management plan north of the interchange will result in consolidated private approaches in the long-term but, given the existing built environment and the vital east-west connection Boardman Avenue provides, the access management standards for approach roads will not be achievable. As required in the IAMP and the proposed Chapter 2.5 Interchange Area Management Plan (IAMP) Overlay District, modifications to the access management plan will need to be addressed in an amendment to the IAMP.

Policy 3C *(Interchange Access Management Areas) sets policy for managing interchange areas by developing an IAMP that identifies and addresses current interchange deficiencies and establishes short, medium and long term solutions.*

Response: The IAMP provides recommendations for short-, medium-, and long-range access management and implementation actions, as well as land use and transportation policies that are intended to protect the interchange over the 20-year planning horizon.

Policy 3D *(Deviations) establishes general policies and procedures for deviations from adopted access management standards and policies.*

Response: This policy is not applicable as the IAMP does not identify any necessary deviations from adopted State access management standards and policies.

OAR 660 Division 12 Transportation Planning Rule (TPR)

The purpose of the TPR is "to implement Statewide Planning Goal 12 (Transportation) and promote the development of safe, convenient and economic transportation systems that are designed to reduce reliance on the automobile so that the air pollution, traffic and other livability problems faced by urban areas in other parts of the country might be avoided." A major purpose of the Transportation Planning Rule (TPR) is to promote more careful coordination of land use and transportation planning, to ensure that planned land uses are supported by and consistent with planned transportation facilities and improvements. The TPR references OAR 731, Division 15 for ODOT coordination procedures for adopting facility plans and plans for Class 1 and 3 projects.

Section 660-012-0005 through 660-012-0050

Response: These sections of the TPR contain policies for preparing and implementing a transportation system plan. The Boardman Main Street IAMP will be adopted as part of the City's existing transportation system plan and most of these sections are not applicable. The TPR requires that local governments adopt land use regulations consistent with state and federal requirements "to protect transportation facilities, corridors, and sites for their identified functions (OAR 660-012-0045(2))." As part of IAMP adoption, the City will revise the City of Boardman Development Code to include a new Interchange Area Management Plan Overlay District section (proposed Chapter 2.5). The requirements of this new Development Code section will ensure that future local land use actions are consistent with the transportation facility planning within the IAMP.

Section 660-012-0055 – Timing of Adoption and Update of Transportation System Plans

Response: Part (5) in this Section requires cities and counties to update their TSPs and implementing measures when a refinement plan has been completed. The Boardman Main Street IAMP is considered a refinement plan and therefore is subject to this requirement. Consistent with this TPR requirement, the City of Boardman will amend the TSP to adopt the IAMP by reference. The *Policies, Rules and Ordinances* section of Chapter 5 in the IAMP outlines the policies and implementation measures that will be adopted by the City.

Section 660-012-0060 – Plan and Land Use Regulation Amendments

Response: Part (1) in this section requires that where an amendment to a functional plan, an acknowledged comprehensive plan, or a land use regulation would significantly affect an existing or planned transportation facility, the local government shall put in place measures to assure that allowed land uses are consistent with the identified function, capacity, and performance standards of the facility. Current and future planned land uses were considered in development of the IAMP's preferred interchange improvements in order to ensure the facility's ability to support future traffic demands.

Existing City code requires -0060 findings for comprehensive plan, zoning map or development regulation amendments. Proposed implementation measures within the City's proposed Chapter 2.5 Interchange Area Management Plan (IAMP) Overlay District extend this requirement to the interchange area, requiring that plan amendment and zone change requests within the IAMP area demonstrate that they will not have a significant affect on the interchange facility. Related to this policy, the new code chapter contains proposed development standards that codify traffic impact analysis requirement for development within the Overlay District. Proposed implementation measures also require that any proposed land use actions within the Overlay Zone be noticed to ODOT.

OAR 731-015-0065 Coordination Procedures for Adopting Final Facility Plans

OAR 731-015-0065 regulates ODOT procedure for adopting facility plans. An IAMP is a facility plan. The procedure outlined in OAR 731-015-0065 requires that ODOT coordinate with DLCD and local government agencies during development of the plan and provide a draft of the facility plan to affected cities, counties, and other agencies for comment. The facility plan must be consistent with statewide planning goals and local comprehensive plan policies, and findings of compatibility must be presented to the Oregon Transportation Commission for facility plan adoption.

Response: The Boardman Main Street IAMP is the result of a collaborative planning effort between ODOT and the City. Coordination with DLCD during IAMP development occurred primarily through notification of project management team meetings and distribution of materials for these meetings. Financial support for the

implementation phase of the project came from the Transportation Growth Management Program, a joint ODOT and DLCD program. Findings addressing statewide goals and requirements in support of IAMP adoption are included in this report. A final draft of the IAMP will be provided to all affected government and other agencies, and any potential conflicts with state or local plans will be jointly resolved through the local public adoption process. Findings of compliance with statewide planning goals and local comprehensive plans also will be included in materials for presentation to the Oregon Transportation Commission. Adoption of the IAMP will take place in conformance with this provision.

OAR 734, Division 51. Highway Approaches, Access Control, Spacing Standards and Medians

OAR 734-051 governs the permitting, management, and standards of approaches to state highways to ensure safe and efficient operation of the state highways. OAR 734-051 policies address the following:

- How to bring existing and future approaches into compliance with access spacing standards, and ensure the safe and efficient operation of the highway;
- The purpose and components of an access management plan; and
- Requirements regarding mitigation, modification and closure of existing approaches as part of project development.

Section 734-051-0125, Access Management Spacing Standards for Approaches in an Interchange Area, establishes interchange management area access spacing standards. It also specifies elements that are to be included in IAMPs, such as short-, medium-, and long-range actions to improve and maintain safe and efficient roadway operations within the interchange area.

Response: The access management plan component of the Boardman Main Street IAMP includes development standards that regulate access spacing for new development and redevelopment near the interchange. The access management standards adopted by ODOT state that the distance between an interchange ramp intersection and the first right in/right out access shall be no less than 750 feet. The distance between an interchange ramp intersection and the first full access intersection shall be no less than 1,320 feet. These standards apply to a "fully developed urban interchange" which occurs when 85% or more of the parcels along the frontage are developed at urban densities and have driveways accessing the crossroad.

Implementation of the access management plan is intended to occur over a long period of time because some affected properties maintain infrastructure (e.g. buildings and internal roadways) that was established based on prior approvals of access locations to the subject roadways and some elements of the plan depend on the

presence of new public streets that cannot be constructed until funds are made available. Therefore, the improvements in the IAMP have been prioritized and categorized into short-range, medium-range, and long-range actions, where the short-range actions are to be executed at this time and the medium and long-range actions are to be executed as needed funds become available or as opportunities arise during property redevelopment (see *Access Management Plan* in Chapter 5 of the IAMP).

Section 734-051-0125, 734-051-0155, Access Management Plans and Interchange Area Management Plans, states that the intent of developing an IAMP is to protect the function of the interchange by maximizing its capacity for safe movement from the mainline facility, to provide safe and efficient operations between connecting roadways, and to minimize the need for major improvements to an existing facility. This section also details IAMP requirements, including the requirement that the IAMP includes the local policies and standards that are relied upon for implementation.

Response: As detailed in the response under OHP Policy 1G in this report, the recommended improvements in the IAMP have been prioritized into short, medium, and long-range actions and that implementation of short- and medium-range improvements will postpone the need for the reconstruction and expansion of the Main Street overpass, which is not anticipated to be necessary until late in the 20-year planning horizon.

Implementation of the IAMP is reliant upon the City of Boardman amending the local Transportation System Plan to incorporate the local connectivity, access management, and transportation improvements associated with the preferred interchange improvement. In addition, implementation of the IAMP will occur through the City of Boardman amending the Development Ordinance to include an IAMP overlay district. The proposed Chapter 2.5 Interchange Area Management Plan (IAMP) Overlay District contains the submittal requirements and review standards for land use amendment and development proposals within the district; access management standards and local street connectivity requirements will be based on the IAMP.

The locally amended TSP and the amendments to the City of Boardman Development Code (new Chapter 2.5 Interchange Area Management Plan (IAMP) and associated amendments to Chapter 3.1 Access and Circulation and Chapter 4.10Traffic Impact Study), are the documents that will be relied upon to implement the IAMP.

Appendix C – Transportation Inventory

Air

There is no public or private airport located in the City of Boardman.

Bicycle

- Identification of bicycle lanes, bicycle routes, accessways, paths, and other types of bicycle facilities
- Identification of bicycle facilities of all types within one-quarter mile of all primary and secondary schools
- Identification of the width, type, and condition of bicycle facilities
- Location of all reported injuries and deaths of people on bicycles from the most recent 5 years of available data
- Identification of street crossings for all areas within the planning area
- Identification of a critical/priority bicycle network
- Identification of key bicycle destinations
- Identification of intermodal connections, such as bicycle hubs and parking at transit facilities

Marine

Per the project scope of work, the Port of Morrow Master Plan will be referenced for relevant components.

Pedestrian

- Identification of sidewalks, crosswalks, shared-use paths, trails, and other types of pedestrian facilities along all arterials and collectors within the planning area
- Identification of pedestrian facilities of all types within within one-quarter mile of all primary and secondary schools
- Identification of the width, type, and condition of pedestrian facilities
- Identification of crossing distances, type of crossing, closed crossings, curb ramps, and distance between crossings

Roadway

- Location of all publicly owned, operated, or supported streets
- Identification of roadway ownership by jurisdiction
- Identification of roadway classifications by jurisdiction, including federal, state, regional, and local classifications, as applicable
- Identification of primary uses, and whether they serve local, regional, pass-through, or freight traffic
- Identification of primary users of a facility, including whether users are primarily on foot, bicycle, transit, freight, or personal vehicle
- Identification of land use context for each segment of a facility, including types of planned land uses surrounding the facility
- Identification of the location of key destinations
- Identification of roadway characteristics:
    - For local streets include location
    - For collector streets include location, condition, and number of general-purpose travel lanes and turn lanes
    - For arterial streets include location, condition, and number of general-purpose travel lanes, turn lanes, and lane width
    - For expressways and other limited-access highways include location, condition, and number of general-purpose travel lanes, turn lanes, and lane width, as well as the locations and types of interchanges
- Identification of lane configurations and traffic control devices at study intersections
- Collection of weekday evening peak-period traffic counts at the identified study intersections
- Identification of bridge location, condition (bridge sufficiency rating), and ownership responsibility
- Identification of pavement type and conditions through a windshield survey
- Location of all reported serious injuries and deaths of people related to vehicular crashes from the most recent 5 years of available data
- Quantify average annual daily traffic volumes on all paved public roads
- Safety analysis (e.g., crash data, Safety Priority Index System locations, off-ramp queuing)

Public Transportation

- Identification of local and intercity transit service providers

- Identification of fixed-route and dial-a-ride service areas and the location of fixed routes, and transit stops
- Identification of service characteristics, such as days and hours of operation and service frequency
- Identification of intercity bus and passenger rail terminals and park-and-ride stations
- Identification of the location of transportation-disadvantaged and disabled populations, including areas with disproportionate concentrations of these populations
- Identification of special service characteristics

Truck Freight

- Identification of Oregon Highway Plan Freight Routes and Reduction Review Routes
- Identification of National Highway System (NHS) freight intermodal connectors and facilities (e.g., truck-rail intermodal yards, truck-rail reload facilities, marine terminals, pipeline terminals, air-cargo facilities, park-and-ride lots, highway-to-rail transfer facilities), including service levels and other characteristics
- Identification of the National Highway Freight Network Critical Urban and/or Rural Freight Corridors
- Identification of local and regional truck freight routes
- Freight bottlenecks identified in other state, regional, or local plans
- Identification of truck freight average daily traffic volumes on roadways and intersections that experience significant truck traffic
- Identification of truck freight routes with weight, height, or other freight-related restrictions
- Identify major truck freight generators and receivers that support local industry and economy

Appendix F: Existing Conditions Inventory and Analysis

Technical Memorandum #4

Date:	July 24, 2025	Kittelson Project No: 30287
To:	Project Management Team (PMT)	
From:	Matt Hughart, AICP; Krista Purser, PE; Eza Gaigalas; and Sutapa Banerjee	
Subject:	Existing Conditions Inventory and Analysis	

Introduction

The existing conditions inventory and analysis is an assessment of Boardman's current transportation network. This memorandum presents the findings from that assessment and provides a baseline understanding of the 20-year transportation needs and deficiencies. This memorandum is organized into two overarching sections:

1. **Existing Transportation System Inventory**: An inventory of the existing transportation system, including the land uses and populations it serves, its multimodal characteristics, and the historic funding sources that have invested in it.

2. **Existing System Conditions Analysis**: A summary of how the current transportation system performs in terms of traffic operations, crash history, and multimodal conditions.

The analysis assumes that the transportation system will serve the urban area's continued economic growth that is consistent with its Comprehensive Plan land use designations as well as regional needs. The TSP addresses transportation needs for people walking, rolling, taking transit, biking, and driving within the Urban Growth Boundary (UGB), namely, the study area, illustrated in Figure 1.

Information summarized in this memorandum was obtained and assembled using available Geographic Information System (GIS) data, traffic counts, and crash data provided or produced by the City of Boardman, Morrow County, the Oregon Department of Transportation (ODOT), and Port of Morrow (POM).

Figure 1

Study Area

Boardman STRATEGIC PLAN
CONNECTING COMMUNITIES
Making big dreams a reality.

- Study Intersection
- City Boundary
- Urban Growth Boundary
- Park
- Water

0 0.25 0.5 Mile

Columbia River
Marine Dr
Eldrige Dr
Columbia Ave
Ullman Blvd
Industrial Wy
Boardman Ave
Front St
84
1st St
Oregon Trail Blvd
Kinkade Rd
Willow Fork Dr
Mt Adams Ave
Faler Rd
River Ridge Dr
Anderson Rd
Olson Rd
Laurel Ln
Rippee Rd
Garrison Ln
Wilson Rd
Skoubo Rd
Main St
Miller Rd
Downey Rd
Kunze Ln
Paul Smith Rd
Hilltop Rd
Parkside Rd
Canal Ln

Executive Summary

The following summarizes the key findings identified through the existing transportation conditions assessment.

Intersection Operations Analysis Findings

- Under existing weekday AM peak hour traffic conditions, N Main Street/Boardman Avenue, N Main Street/ N Front Street, and S Main Street/S Front Street exceed the City's mobility target of LOS standard "C" under existing weekday AM peak hour traffic conditions, see Table 9.
- Under weekday PM peak hour traffic conditions, N Main Street/N Front Street, N Main Street/I-84 WB Ramp Terminal, and S Main Street/S Front Street exceed their mobility target, see Table 9. The mobility target for N Main Street/I-84 WB Ramp Terminal is a v/c ratio of 0.85 on the Main Street approach and 0.80 on the ramp approach. The other two intersections are owned by the City so they use the mobility target of LOS standard "C".
- No intersections experience 95th-percentile queue lengths exceeding available storage during weekday AM and PM peak hour traffic conditions, see Table 11.
- The number of pedestrian movements at intersections during the weekday AM and PM peak hours is less than 10, and the number of bicycle movements is less than 5 .

Crash Analysis Findings

- No fatal crashes were identified in the study area.
- The observed crash rate at the S Main Street / Wilson Lane intersection exceeds the 90th percentile crash rate. The urban four-leg stop controlled crash rate was used in the comparison. It is noted that if the rural four-leg stop controlled rate was used then the observed crash rate would not exceed the 90th percentile crash rate. Angle and turning-movement crashes were predominantly observed at this intersection.
- No study intersections were identified within the 2023, 2022, or 2021 ODOT Region 5 top 15% Safety Priority Index System (SPIS) lists for on-state and off-state highways.

Multimodal Analysis Findings

- Most arterial and collector streets are rated PLTS 2 or 4.
- PLTS 4 segments lack pedestrian facilities.
- PLTS 2 or 3 segments often have narrow sidewalks, minimal buffers, or auto-oriented land uses.
- Achieving PLTS 2 requires full-length sidewalks with proper widths and buffers.

- Most segments rated PLTS 1 are multi-use path.
- Several arterial and collector streets are rated BLTS 3 or 4 due to high traffic stress.
- BLTS 3 or 4 segments often have narrow bike lanes, mixed traffic, or lack bike facilities.
- Achieving BLTS 2 requires widening bike lanes to at least 7 feet or restriping shoulders as bike lanes.
- Speed reductions (e.g., to 35 mph) may be needed for segments with low traffic volumes (<750 vehicles/day).

Existing Transportation System Inventory

The existing transportation system inventory evaluates current land uses and population estimates within the study area to understand the types of lands, natural resources, and environmental barriers that the transportation system interacts with as well as the demographic cross section of community members relying on it. The inventory also assesses the current characteristics of the arterial and collector roadway network to understand how it is serving its users today.

Lands and Population

Land use is a key factor in developing a functional transportation system; the amount of land planned for development, the types of land uses, and how they relate to each other have a direct relationship to the anticipated demands for the transportation system. This section identifies the zoning designations that help define land use within the study area; it also provides information on undevelopable lands within the study area.

Land Use

The City of Boardman's UGB is largely bordered by agricultural and industrial lands. Boardman's UGB is positioned along the Columbia River, which defines its northern edge, providing access to important water resources. Boardman's development is primarily focused north and south of the I-84/Main Street interchange with the I-84/Laurel Lane interchange continuing to be the primary access to the Port of Morrow, with significant levels of residential land use occurring south of the I-84 corridor. The majority of Boardman's residential growth potential is focused south of the I-84 corridor.

ZONING

The zoning designations for the study area inform land uses by reflecting existing development patterns and guiding where and how future development will occur. The City zoning districts are summarized in Table 1 and illustrated by category in Figure 2. The Morrow County zoning districts

categorize areas located outside city limits but within Boardman's UGB. The zoning provides an indication of the type and intensity of land uses that can be expected within the 2045 planning horizon.

Figure 2

Zoning

Boardman STRATEGIC PLAN
CONNECTING COMMUNITIES
Making big dreams a reality.

- Residential
- Commercial
- Industrial
- Special
- Park
- Central Urban Renewal District
- West Urban Renewal District
- City Boundary
- Urban Growth Boundary
- Water

0 0.25 0.5 Mile

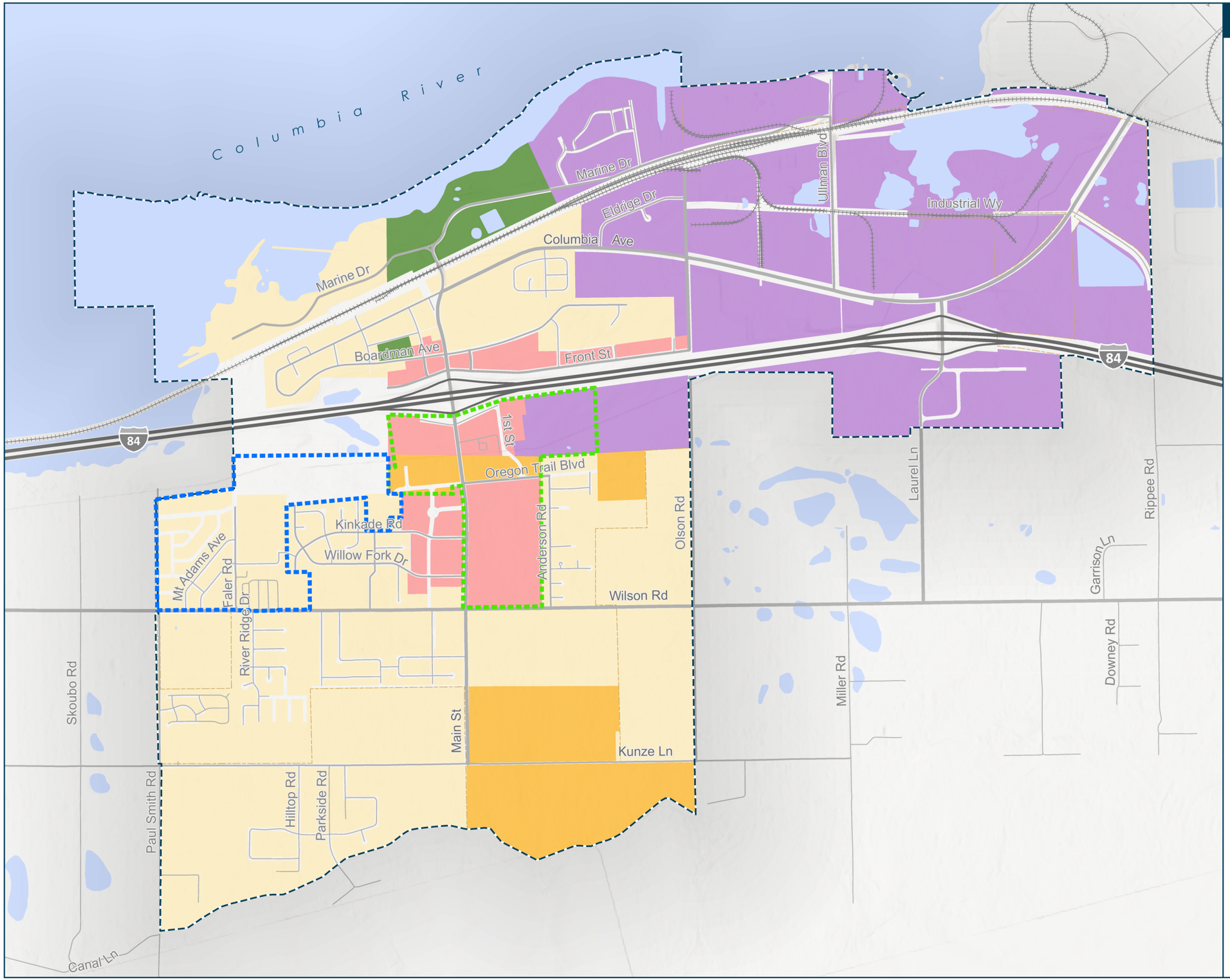


Table 1. City Zoning Designations

Category	City Designations	Morrow County Designations
Residential	• Residential • Residential (Sunrise Terrace Sub District) • Residential (Multifamily Sub District) • Residential (Manufactured Home Sub District)	• Suburban Residential (1 Acre) • Farm Residential (2 Acres)
Commercial	• Commercial • Commercial – Highway Sub District • Service Center	
Industrial	• Light Industrial • General Industrial	• General Industrial • Port Industrial
Special	• BPA Transmission Line Easement Sub District • Future Urban	• Small Farm (40 Acres) • Exclusive Farm Use

The zoning within the study area includes a mix of commercial, industrial, residential, farm and special purpose districts. Industrial areas are generally situated around the rail line and the I-84 interchange at Laurel Lane, while commercial zones are concentrated along Main Street. The City of Boardman is planning a City Center within a commercial district along Kinkade Road or City Center Drive, within a quarter mile of Main Street.

Most residential development is concentrated in the southwest part of the urban area, where much of the vacant land is zoned for suburban residential and multi-family use to support future growth. There are also some residential areas north of the I-84 and Main Street interchange. Ensuring strong north-south and east-west connections to nearby collector roads will be essential as the city grows.

KEY DESTINATIONS/LOCAL ACTIVITY CENTERS

Key destinations or local activity centers that generate multimodal traffic within the UGB are shown in Figure 3. These activity centers will be integrated into considerations to improve multimodal access to these destinations for people living, working, and visiting in Boardman. Additional activity centers, such as concentrations of commercial and employment uses, will also be considered when making recommendations for enhancing access for multiple transportation modes.

Destinations that generate consistent local multimodal trips include Riverside High School/Junior High School, Sam Boardman Elementary School, Windy River Elementary School, and the Boardman Pool & Recreation Center. The South Main Street area is a notable destination that offers a variety of essential local businesses, such as a grocery store, bank, pharmacy, and other retail stores. There are also recreational destinations spread throughout the UGB including Kinkade Park, Marina Park, Boardman Park, Front Street Park, and the Boardman Pool and Recreation Center located on Olson Road. The Port of Morrow is an important employment hub for residents in Boardman and in the larger region.. Ensuring access to these and similar land uses is important for maintaining a high quality of life for all residents of Boardman.

Figure 3

Key Destinations/ Local Activity Centers

Boardman STRATEGIC PLAN
CONNECTING COMMUNITIES
Making big dreams a reality.

- School
- Health Services
- Community Services
- Fire Station
- Police Station
- College
- Park
- City Boundary
- Urban Growth Boundary
- Water

0 0.25 0.5 Mile

Columbia River
Marine Dr
Eldrige Dr
Columbia Ave
Marine Dr
Ullman Blvd
Industrial Wy
Boardman Ave
Front St
84
1st St
Oregon Trail Blvd
Laurel Ln
Rippee Rd
Kinkade Rd
Willow Fork Dr
Mt Adams Ave
Faler Rd
River Ridge Dr
Anderson Rd
Olson Rd
Garrison Ln
Wilson Rd
Skoubo Rd
Main St
Miller Rd
Downey Rd
Kunze Ln
Paul Smith Rd
Hilltop Rd
Parkside Rd
Canal Ln

Population Demographics

The Boardman UGB has a population of approximately 4,000 people, with most living within the city limits. The Portland State University Population Research Center (PRC) anticipates that Boardman will continue to grow steadily, increasing by more than 1,200 residents by the year 2045. The community is made up of people of all ages, abilities, and incomes with various transportation needs.

Certain populations are statistically more likely to be "transportation disadvantaged" with limited ability to provide their own transportation or requiring use of public transportation.

These populations generally include people who are disabled, youth (under 18), seniors (65 or older), with Limited English Proficiency (LEP), living under the federal poverty level, who are non-white, and households without access to a vehicle. ODOT uses a Transportation Disadvantaged Index (TDI) to calculate a score for each Census block group in Oregon, illustrated in Figure 4. The ODOT TDI data shows that potential transportation-disadvantaged populations are concentrated in specific areas within the UGB, particularly south of I-84, both west and east of S Main Street. It is noted however that the accuracy of this data is limited due to the large census tracts. Future transportation planning should specifically consider how to enhance services for these areas and populations.

Figure 4

Potential Transportation Disadvantaged Populations

Boardman STRATEGIC PLAN
CONNECTING COMMUNITIES
Making big dreams a reality.

Transportation Disadvantaged Population by Block Groups

- 1.82 - 1.85
- 1.86 - 2.15
- 2.16 - 2.53
- City Boundary
- Urban Growth Boundary
- Park
- Water

0 0.25 0.5 Mile

Columbia River
Marine Dr
Eldrige Dr
Columbia Ave
Marine Dr
Boardman Ave
Front St
Ullman Blvd
Industrial Wy
84
1st St
Oregon Trail Blvd
Kinkade Rd
Willow Fork Dr
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Wilson Rd
Laurel Ln
Rippee Rd
Garrison Ln
Skoubo Rd
Main St
Kunze Ln
Miller Rd
Downey Rd
Paul Smith Rd
Hilltop Rd
Parkside Rd
Canal Ln

Roadway System

Roadways provide infrastructure for motor vehicle, freight, bicycle, pedestrian, and transit facilities. The roadway network establishes links both within the urban area and outside of its boundaries, connecting surrounding regions and neighboring states. The following sections describe an inventory of the existing roadway system within the Boardman urban area, including street jurisdictions and functional classifications, roadway improvement standards, freight routes, key roadway characteristics, and bridges.

Street Jurisdiction

Public streets within the Boardman urban area are operated and maintained by four primary jurisdictions: the City of Boardman, ODOT, Port of Morrow, and Morrow County. These four jurisdictions coordinate planning, operations, maintenance, and improvements of roadway facilities within the urban area and ensure the continued performance and functionality of the transportation system to meet public needs. These jurisdictions are responsible for the following:

- Determining the road's functional classification.
- Defining the roadway's design and multimodal features.
- Approving construction and access permits; and,
- Maintenance and operations.

The City of Boardman has jurisdiction over most streets within city limits while Morrow County and The Port of Morrow have jurisdiction over some streets within the city limits. Streets outside of the city limit but within the UGB are owned by both Morrow Couty and the Port of Morrow. ODOT has jurisdiction over I-84 and the on- and off-ramps at the Main Street and Laurel Lane interchanges. Figure 5 maps roadway facilities by jurisdiction in the Boardman urban area.

Figure 5

Street Jurisdiction

Boardman STRATEGIC PLAN
CONNECTING COMMUNITIES
Making big dreams a reality.

- City of Boardman
- Morrow County
- Oregon Department of Transportation
- Port of Morrow
- Public
- Private
- City Boundary
- Urban Growth Boundary
- Park
- Water

0 0.25 0.5 Mile

Columbia River
Marine Dr
Eldrige Dr
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Ullman Blvd
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Miller Rd
Skoubo Rd
Main St
Kunze Ln
Paul Smith Rd
Hilltop Rd
Parkside Rd
Canal Ln

Functional Classification

Roadway functional classifications organize streets based on their role in the transportation system. The classifications define a street by their intended mobility and access control as they relate to land use. They designate desired street characteristics such as operational and design characteristics, pavement width, driveway (access) spacing requirements, and context-appropriate pedestrian and bicycle facilities.

Figure 6 maps roadway facilities by functional classification in the Boardman urban area. In the urban area, streets are locally, state, and federally classified, which corresponds to the roadway design standards for relevant entities that maintain and operate the roadways.

Figure 6

Local Functional Classifications

Boardman STRATEGIC PLAN
CONNECTING COMMUNITIES
Making big dreams a reality.

- Freeway
- Arterial
- Minor Collector
- Neighborhood Collector
- Local
- No Designation
- City Boundary
- Urban Growth Boundary
- Park
- Water

0 0.25 0.5 Mile

Columbia River
Marine Dr
Eldrige Dr
Columbia Ave
Ullman Blvd
Industrial Wy
Boardman Ave
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84
1st St
Oregon Trail Blvd
Laurel Ln
Rippee Rd
Kinkade Rd
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Wilson Rd
Garrison Ln
Skoubo Rd
Main St
Miller Rd
Downey Rd
Kunze Ln
Paul Smith Rd
Hilltop Rd
Parkside Rd
Canal Ln

LOCAL CLASSIFICATIONS

The hierarchy of local roadway functional classification for the Boardman urban area include:

- **Freeways** are limited-access roads designed mainly for motorized vehicles traveling across regions or states. They provide the highest level of mobility and are typically high-speed routes with widely spaced access points in the form of interchanges. Freeways are separated by medians and generally have little or no access for pedestrians and bicyclists.

- **Arterials** are major roadways designed primarily to facilitate traffic flow into and out of urban areas. They typically support significant intra-urban travel, connecting downtown areas to outlying residential neighborhoods. While arterials may provide access to adjacent properties, their primary function is to accommodate major traffic movements. As the longest and highest-volume roads within the UGB, arterials are key for longer-distance trips. They often feature pedestrian and bicycle activity as part of their streetscape.

- **Minor Collectors** connect arterials with the local street network. Collectors gather traffic from local streets and sometimes provide direct land access, channeling it toward arterial roads. They are generally shorter than arterials and operate at moderate speeds.

- **Neighborhood Collectors** extend into local neighborhoods, providing direct land access and supporting traffic circulation within the area. They typically carry lower traffic volumes at slower speeds compared to typical collectors. On-street parking is more common, and bike facilities may consist of dedicated lanes or shared roadways.

- **Local Streets** are primarily intended to provide access to abutting land uses. Local street facilities offer the lowest level of mobility and consequently tend to be short, low-speed facilities. As such, local streets should primarily serve passenger cars, pedestrians, and bicyclists; heavy truck traffic is discouraged. On-street parking is common, and sidewalks are typically present.

STATE HIGHWAY CLASSIFICATIONS

The state highway classification system established in the Oregon Highway Plan (OHP) divides state highways into five categories based on their function in the State Highway network – Interstate, Statewide, Regional, District, and Local Interest Roads. These categories are used to guide planning and management of State highway facilities and are assigned based on desired land uses, access, movement of freight, or significance as a lifeline or emergency response route. The State does not provide classifications for non-state facilities.

In Boardman, the only Oregon Highway Plan (OHP) classification is Interstate, which applies to I-84. Interstate Highways (NHP) typically provide connections to major cities, regions of the state, and other states. A secondary function in urban areas is to provide connections for regional trips within the metropolitan area. The Interstate Highways are major freight routes, and their objective is to provide mobility. The management objective is to provide safe and efficient high-speed continuous-flow operation in urban and rural areas.

FEDERAL CLASSIFICATIONS

The FHWA classifies key urban and rural roadways as Interstates, Other Freeways and Expressways, Other Principal Arterials, Minor Arterials, Major and Minor Collectors, or Local Roads. All public roadways within the urban area are federally designated as urban roadways.

The federal classifications relevant to the Boardman urban area are described below.

- **Major Collectors** serve land access and traffic circulation in higher density residential, commercial, and industrial areas. They provide throughways for residential neighborhoods for significant distances, distribute and channel trips between Local Roads and Arterials, and are characterized by higher speeds and more signalized intersections.

- **Local Roads** provide direct access to adjacent land, access to higher classified roadway connections, and do not encourage through traffic. They are not intended for long distance travel, except at the origin or destination of the trip, due to their provision of direct access to abutting land.

The FHWA provides financial assistance for roadways through the Federal-aid Highway Program. The FHWA uses the Federal functional classification system to determine eligibility for funding under the Federal-aid Highway Program, which provides financial assistance for construction, maintenance, and operations of local and state roadways. The functional classifications eligible for the Program include urban minor collectors, major collectors, minor arterials, principal arterials, and interstates.

Most of the Federal, State, and City classifications align, except for the roadway segments identified in Table 2.

Table 2. Streets with Conflicting Functional Classification Designations

Street	Extents	FHWA Classification	City/County Classification
Main Street	Columbia Avenue to Kunze Lane	Rural Major Collector	Arterial
Wilson Road	Main Street to UGB	Rural Major Collector	Arterial
Columbia Avenue	Main Street to Olson Road	Rural Major Collector	Arterial
Columbia Avenue	Ullman Boulevard to UGB	Rural Local	Arterial
Marine Drive	Marker 40 Drive to Ullman Boulevard	Rural Local	Minor Collector

Roadway Improvement Standards

Roadway improvement standards refer to specifications and guidelines established by transportation agencies to govern the design, construction, and operation of roadways. These

standards are tied to the roadway functional classification hierarchy to ensure the transportation system is consistent across road classes and jurisdiction.

CITY

The City currently identifies its local roadway improvement standards in the Public Works Standards under the March 2021 Trench Excavation and Backfill Streets and Curbs. Exhibit 1 through Exhibit 4 show the required facility width for each classification[1].

COUNTY

Morrow County currently identifies its local roadway improvement standards in their 2012 Transportation System Plan. The required facility widths for each roadway classification are depicted in Exhibit 5 through Exhibit 9[2].

[1] Reference: March 2021 Trench Excavation and Backfill Streets and Curbs Standards. Accessed March 2025.

[2] Reference: Morrow County 2012 TSP, Appendix A. Accessed March 2025.

Exhibit 1. Boardman Major Arterial Cross Section Standards

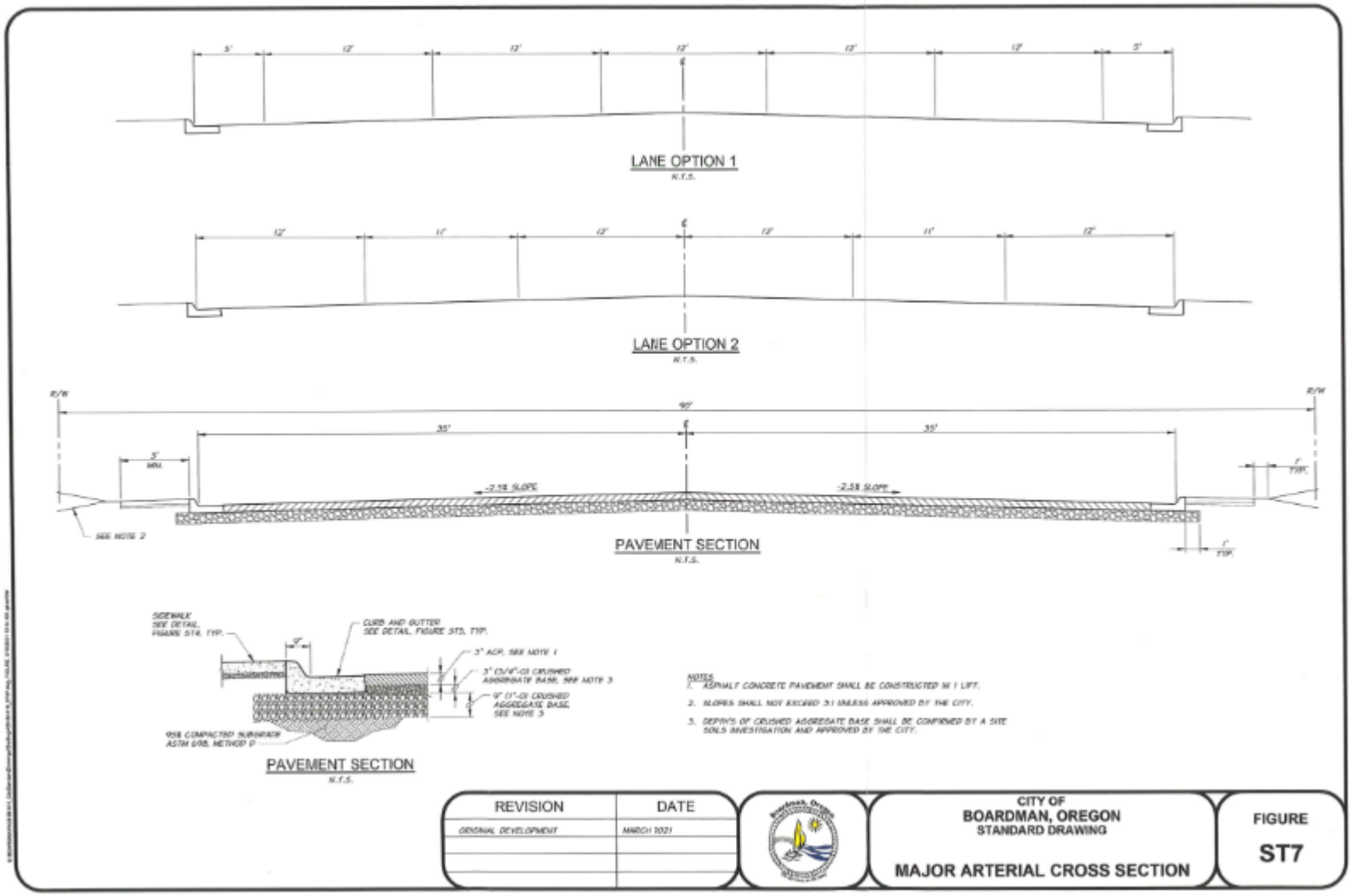


Exhibit 2. Boardman Minor Arterial Cross Section Standards

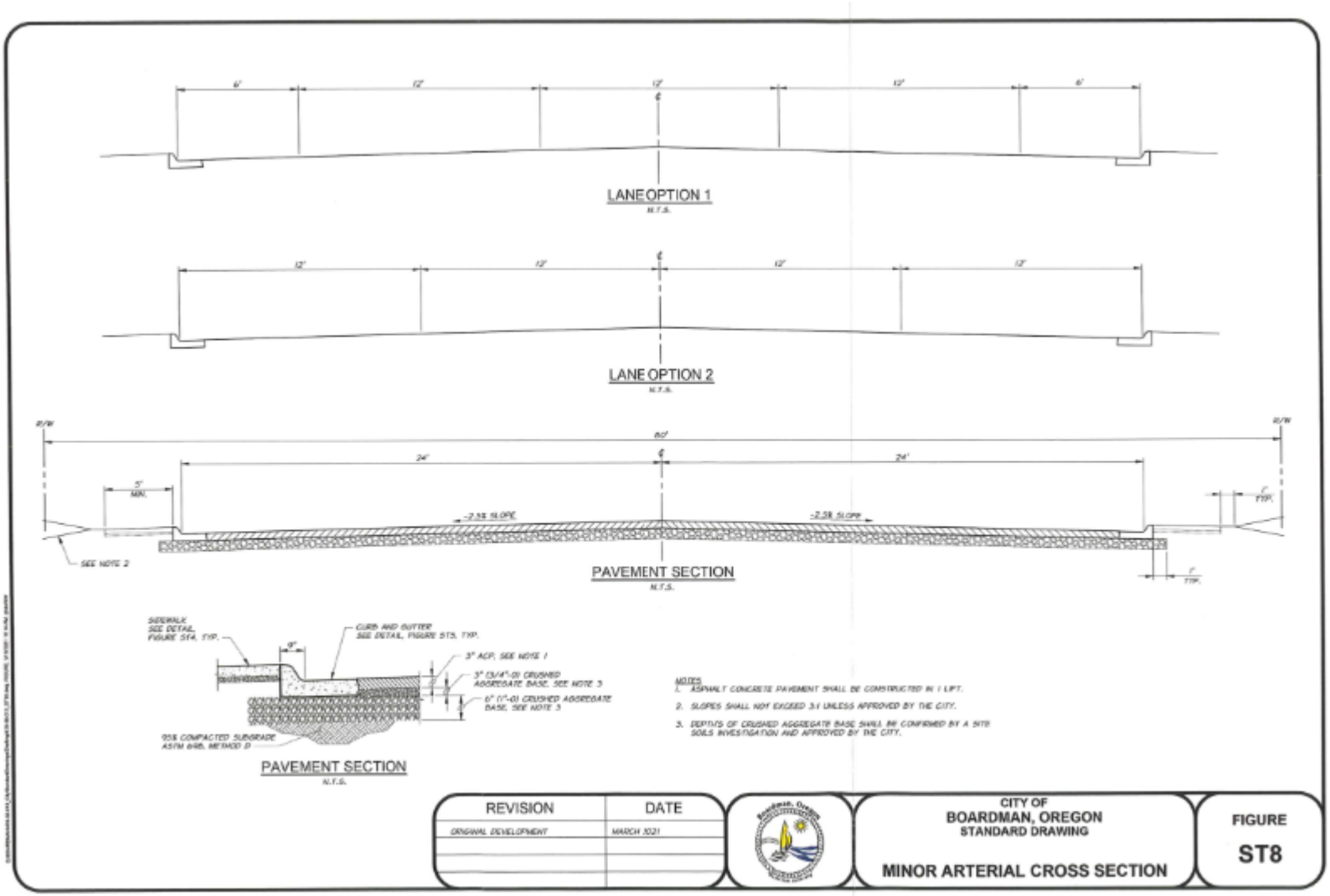


Exhibit 3. Boardman Collector Cross Section Standards

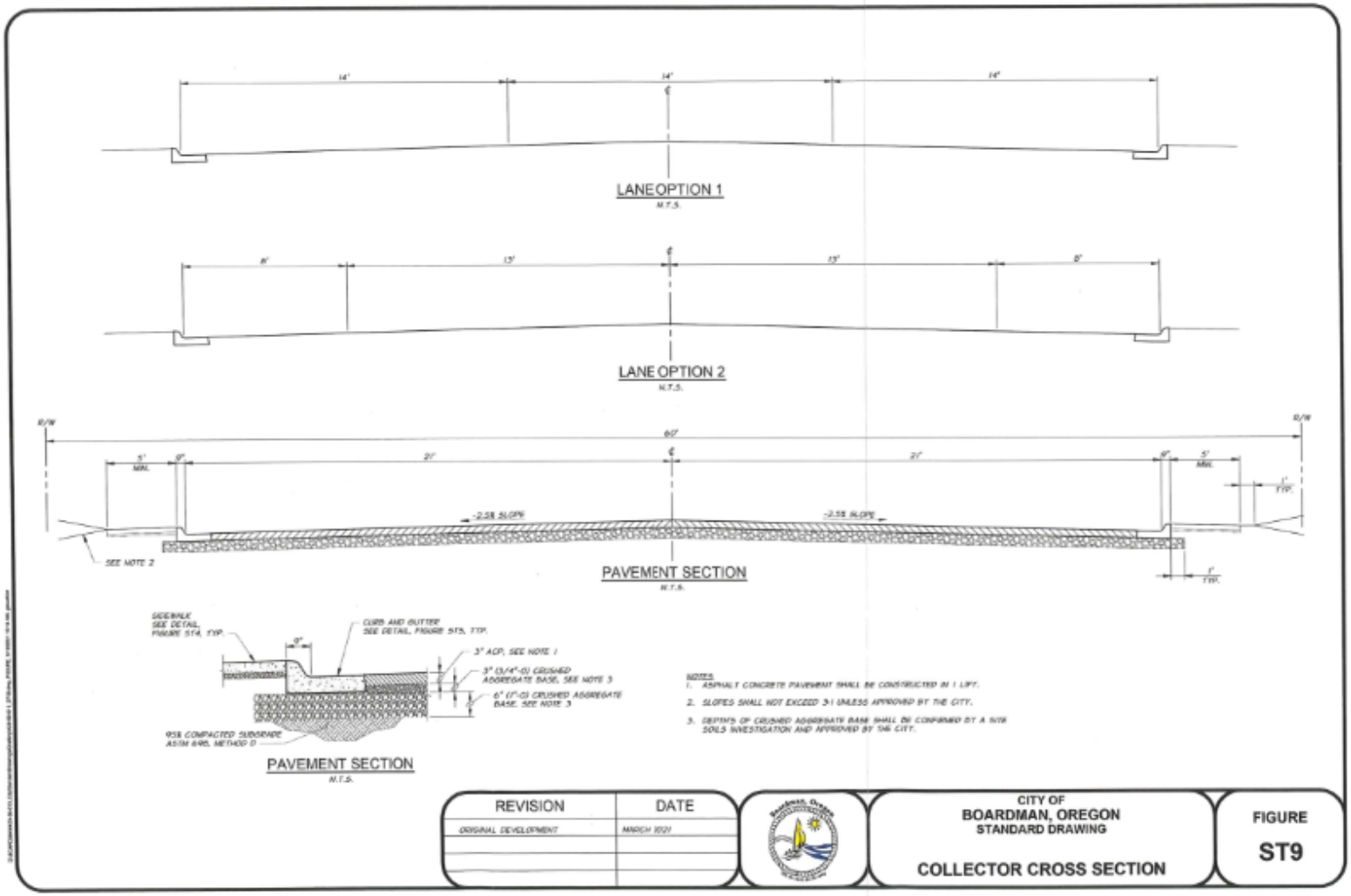


Exhibit 4. Boardman Local Cross Section Standards

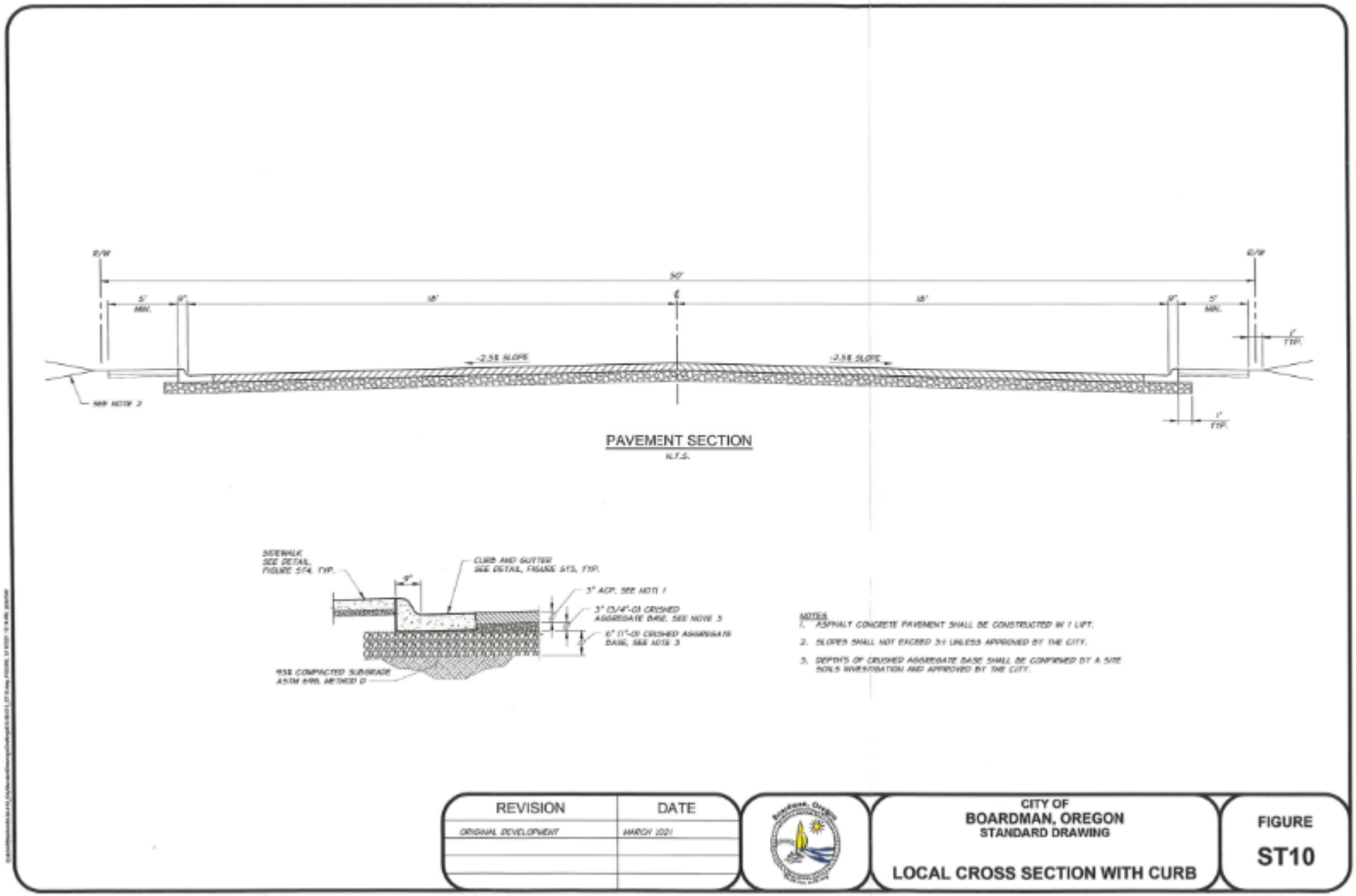


Exhibit 5. Morrow County Rural Arterial I and II Cross Section Standards

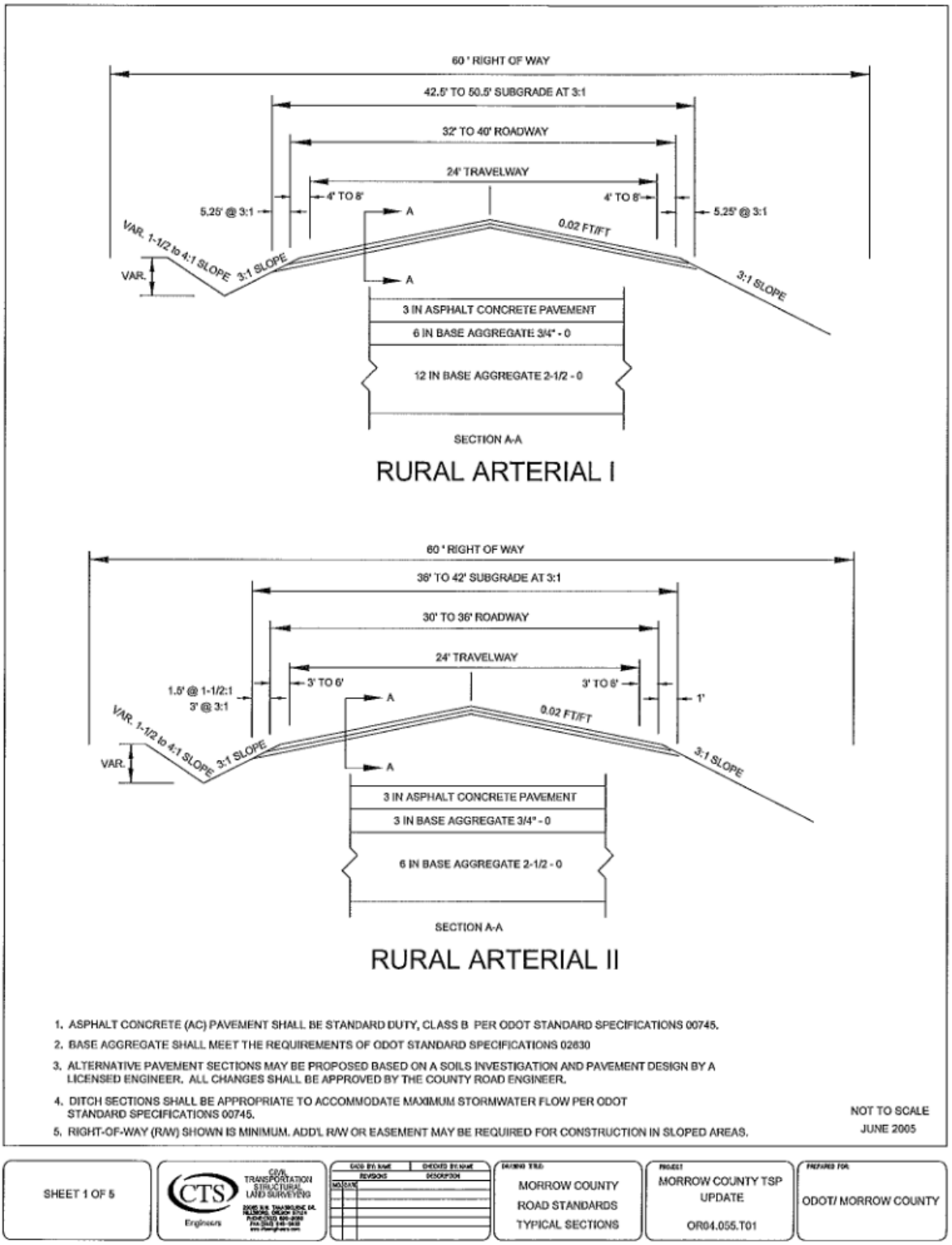


Exhibit 6. Morrow County Rural Collector I and II Cross Section Standards

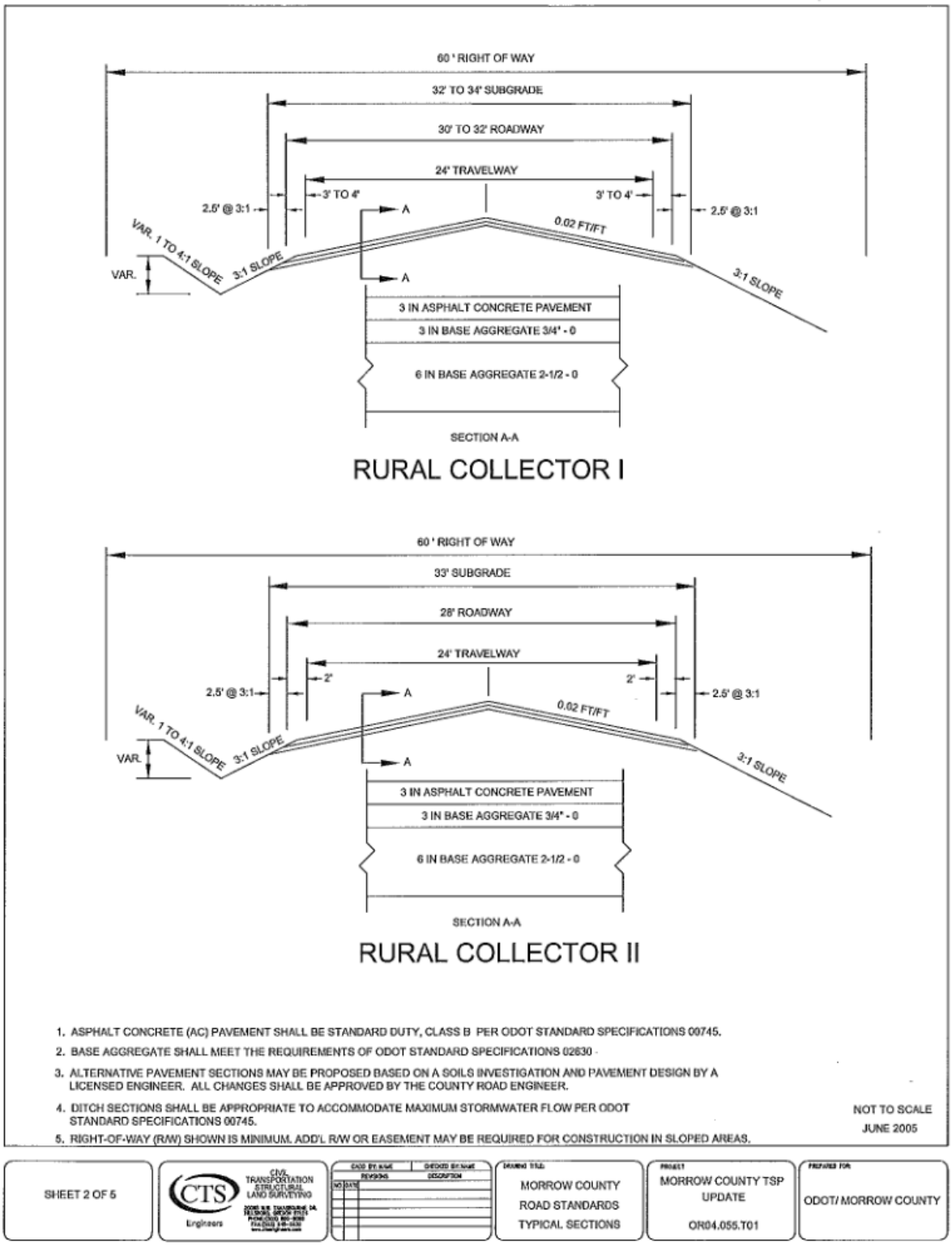


Exhibit 7. Morrow County Rural Collector III Cross Section Standards

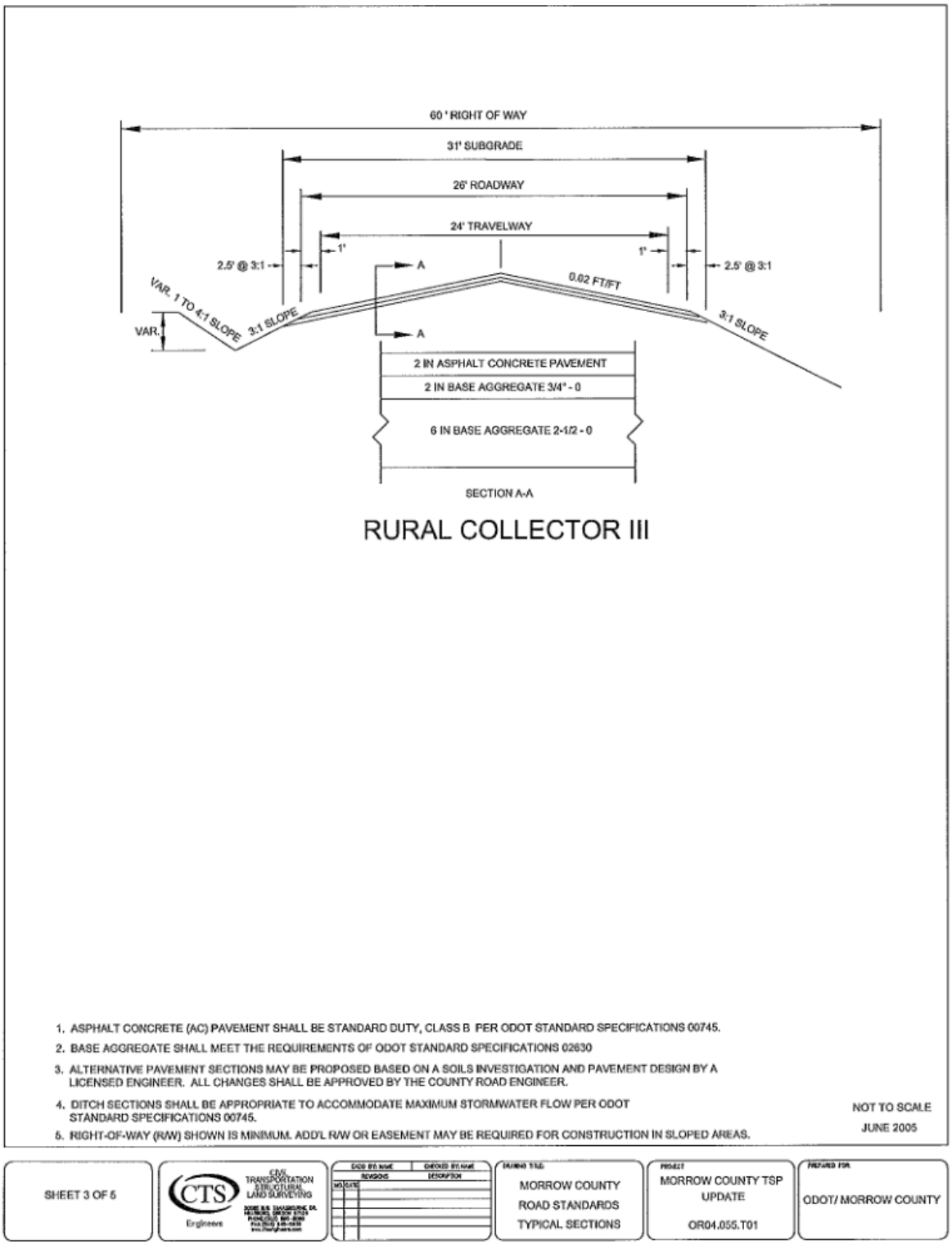


Exhibit 8. Morrow County Rural Access I and II Cross Section Standards

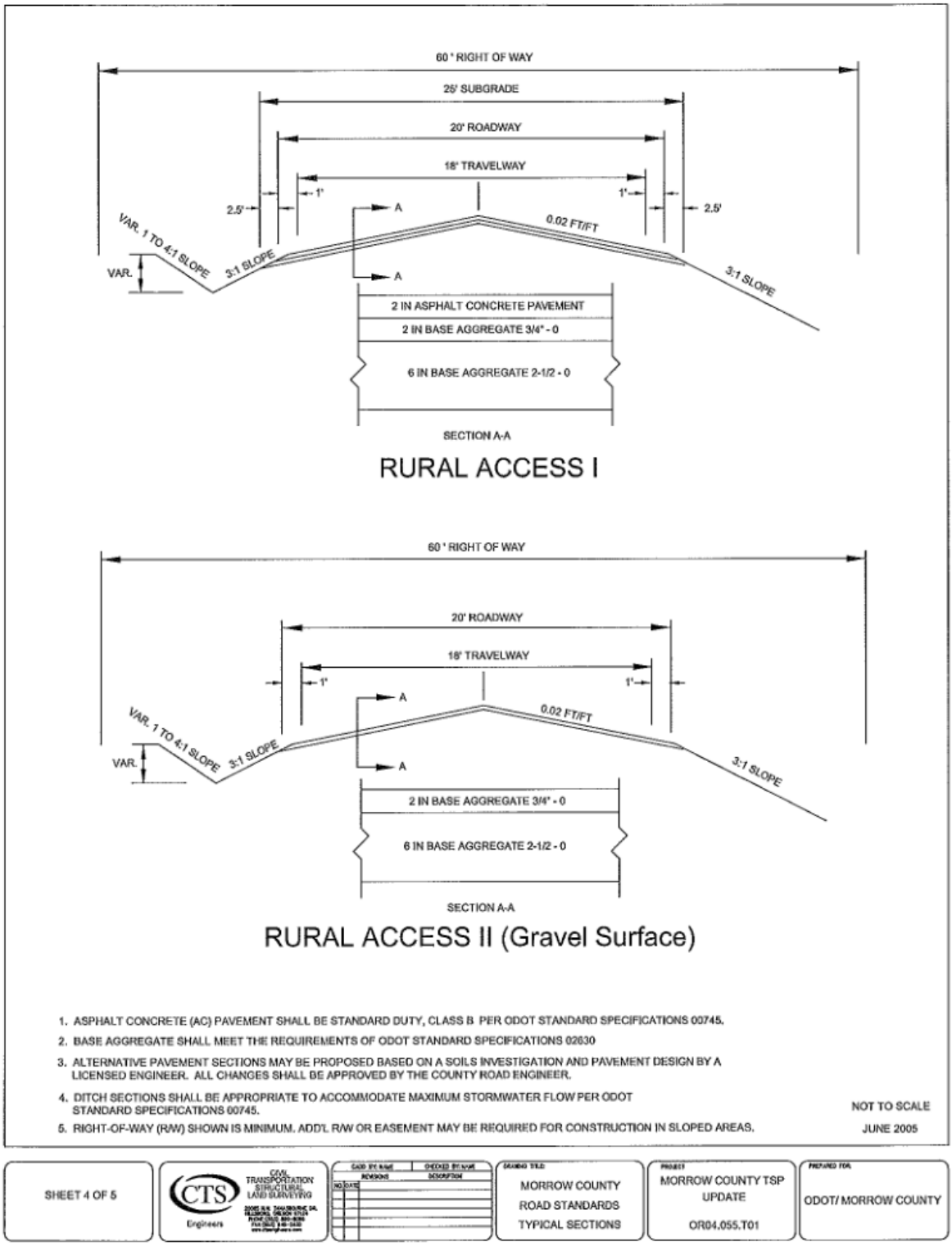
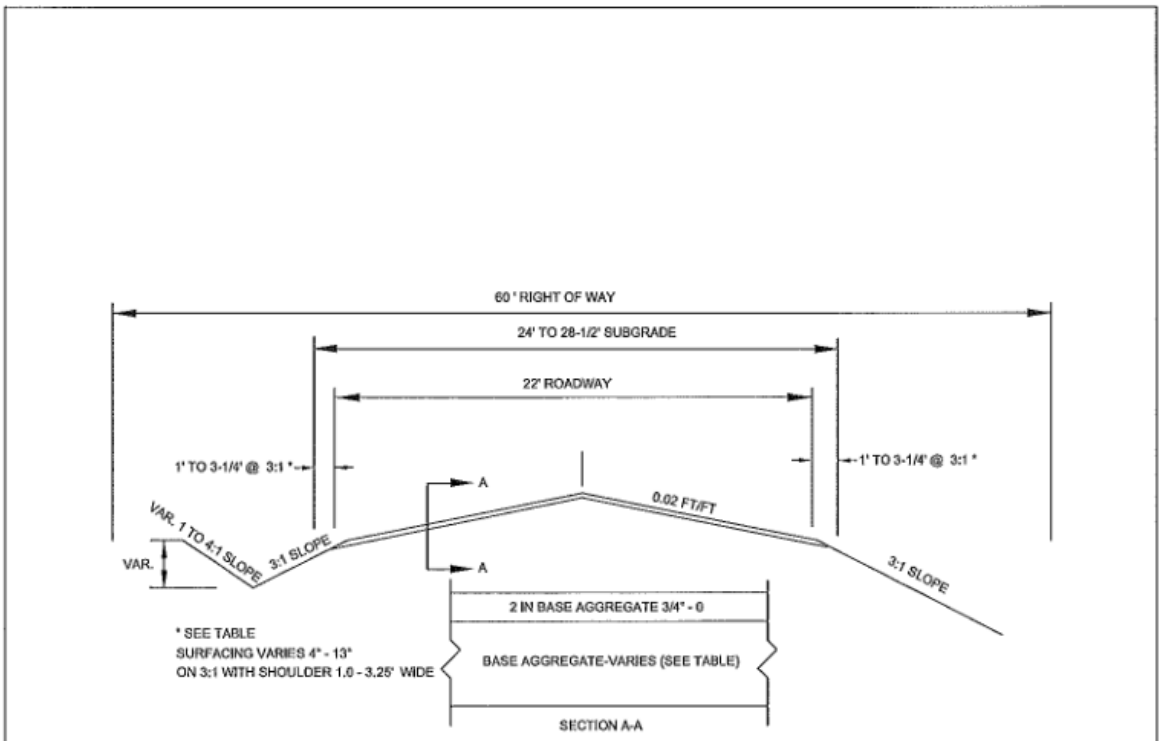


Exhibit 9. Morrow County Rural Gravel Cross Section Standards



RURAL GRAVEL

(GRAVEL ROAD FOR MULTIPLE FUNCTIONAL CLASSIFICATIONS)

ROADBED SOIL	TRAFFIC LEVEL	AGGREGATE BASE
VERY GOOD	HIGH (ADT > 100)	9 IN
	MEDIUM (ADT 50 - 100)	7 IN
	LOW (ADT < 50)	4 IN
GOOD	HIGH (ADT > 100)	11 IN
	MEDIUM (ADT 50 - 100)	9 IN
	LOW (ADT < 50)	5 IN
FAIR	HIGH (ADT > 100)	13 IN
	MEDIUM (ADT 50 - 100)	10 IN
	LOW (ADT < 50)	5 IN
POOR	HIGH (ADT > 100)	NOT RECOMMENDED
	MEDIUM (ADT 50 - 100)	15 IN
	LOW (ADT < 50)	9 IN
VERY POOR	HIGH (ADT > 100)	NOT RECOMMENDED
	MEDIUM (ADT 50 - 100)	NOT RECOMMENDED
	LOW (ADT < 50)	8 IN

1. ASPHALT CONCRETE (AC) PAVEMENT SHALL BE STANDARD DUTY, CLASS B PER ODOT STANDARD SPECIFICATIONS 00745.
2. BASE AGGREGATE SHALL MEET THE REQUIREMENTS OF ODOT STANDARD SPECIFICATIONS 02630
3. ALTERNATIVE PAVEMENT SECTIONS MAY BE PROPOSED BASED ON A SOILS INVESTIGATION AND PAVEMENT DESIGN BY A LICENSED ENGINEER. ALL CHANGES SHALL BE APPROVED BY THE COUNTY ROAD ENGINEER.
4. DITCH SECTIONS SHALL BE APPROPRIATE TO ACCOMMODATE MAXIMUM STORMWATER FLOW PER ODOT STANDARD SPECIFICATIONS 00745.
5. RIGHT-OF-WAY (R/W) SHOWN IS MINIMUM. ADD'L R/W OR EASEMENT MAY BE REQUIRED FOR CONSTRUCTION IN SLOPED AREAS.

NOT TO SCALE
JUNE 2005

SHEET 5 OF 5

CTS Engineers — CIVIL TRANSPORTATION STRUCTURAL LAND SURVEYING

MORROW COUNTY ROAD STANDARDS TYPICAL SECTIONS

MORROW COUNTY TSP UPDATE
OR04.055.T01

ODOT/ MORROW COUNTY

STATE HIGHWAYS

The ODOT Highway Design Manual (HDM)[3] establishes improvement standards for all state highways. The HDM provides typical sections based on project type, including new construction and major reconstruction (4R); resurfacing, restoration, and rehabilitation (3R), and resurfacing (1R) projects. The most recent HDM update incorporates ODOT's 2020 Blueprint for Urban Design (BUD), which provides further flexibility for context-sensitive design to ensure the needs of the specific land use, roadway connectivity, and modal mix are served. The HDM establishes six Urban Contexts that help planners and designers best serve the social, economic, and environmental characteristics for a specific project:

- Traditional Downtown/ Central Business District (CBD)
- Urban Mix
- Commercial Corridor
- Residential Corridor
- Suburban Fringe
- Rural Community

HDM design standards for each urban context are included in the document. Specific applications of these standards to highway facilities within Boardman are typically established during facility planning efforts, such as corridor refinement plans.

Access Management

Providing adequate and appropriate access to roadways, land uses, and key destinations is a critical element of operating and planning an effective transportation system for all users. To proactively control the locations, spacing, design, and operations of driveways and street connections, transportation agencies implement systemic access management strategies that balance the needs of through traffic with local access for residents, employers, and major destinations. Access standards, mobility, and the hierarchy of functional classifications are directly related. In general, as functional classification increases, access spacing also increases, providing greater mobility but reduced service to land use activities. These strategies align the distribution of arterials, collectors, and local streets with appropriate access needs to balance the safe and efficient movement of multimodal traffic.

CITY

Table 3 provides the spacing standards established for City owned roadways. These standards are for intersection-to-intersection.

[3] Oregon Department of Transportation. (2023). *Highway Design Manual*. <https://www.oregon.gov/odot/engineering/pages/hwy-design-manual.aspx>

Table 3. City Intersection Spacing Standards[1]

Street Functional Classification	Public Street (feet)	Private Street (feet)
Arterial	600[2]	300
Collector	300	75
Neighborhood Collector	200	50
Local Street	150	15

[1]Intersection spacing is measured from centerline to centerline.
[2]Public streets can be spaced at 200 feet intervals to promote circulation in the downtown.

MORROW COUNTY

Table 4 provides the spacing standards established for Morrow County owned roadways. These standards are for intersection-to-intersection and intersection-to driveway.

Table 4. Morrow County Access Spacing Standards

Street Functional Classification	Public Street[1] (feet)	Private Street[1] (feet)	Private Driveway[2] (feet)
Arterial	600	600	300
Collector	300	300	100
Local	200	200	Access to each lot

[1]Intersection spacing is measured from centerline to centerline.
[2] Driveway spacing is measured from edge to edge.

STATE HIGHWAYS

Roadways under ODOT's jurisdiction are subject to the access management standards established in the OHP and Oregon Administrative Rule (OAR) 734-051-4020(8). ODOT has clearly defined access spacing standards for all state facilities within the urban area. The applicable spacing standards for new development in the Boardman urban area are shown in Table 5. The spacing between the Main Street interchange and Laurel Lane interchange does not meet this standard.

Table 5. ODOT Interchange Spacing Standards[1]

Access Management Classification	Area	Interchange Spacing
Interstate	Urban	3 miles

[1]Interchange spacing is measured from centerline to centerline.

Table 6 and Exhibit 10 show the access spacing standards for interchanges as discussed in the 1999 Oregon Highway Plan Goal 3, Policy 3C: Interchange Access Management Areas. The spacing between the Main Street interchange and Laurel Lane interchange also does not meet these standards as shown in Exhibit 11.

Table 6. Minimum Spacing Standards Applicable to Freeway Interchanges with Two-Lane Crossroads

Category of Mainline	Type of Area	Spacing Dimension			
		A	X	Y	Z
Freeway	Urban	1 mi (1.6 km)	1320 feet (400 m)	1320 feet (400 m)	990 feet (300 m)

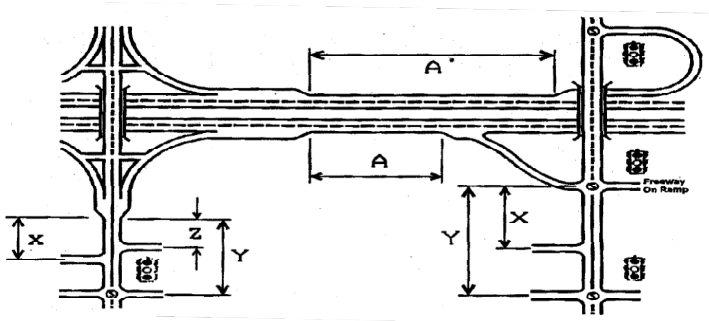
A = Distance between the start and end of tapers of adjacent interchanges

X = Distance to the first approach on the right; fight in/right out only

Y = Distance to first major intersection; no left turns allowed in this roadway section

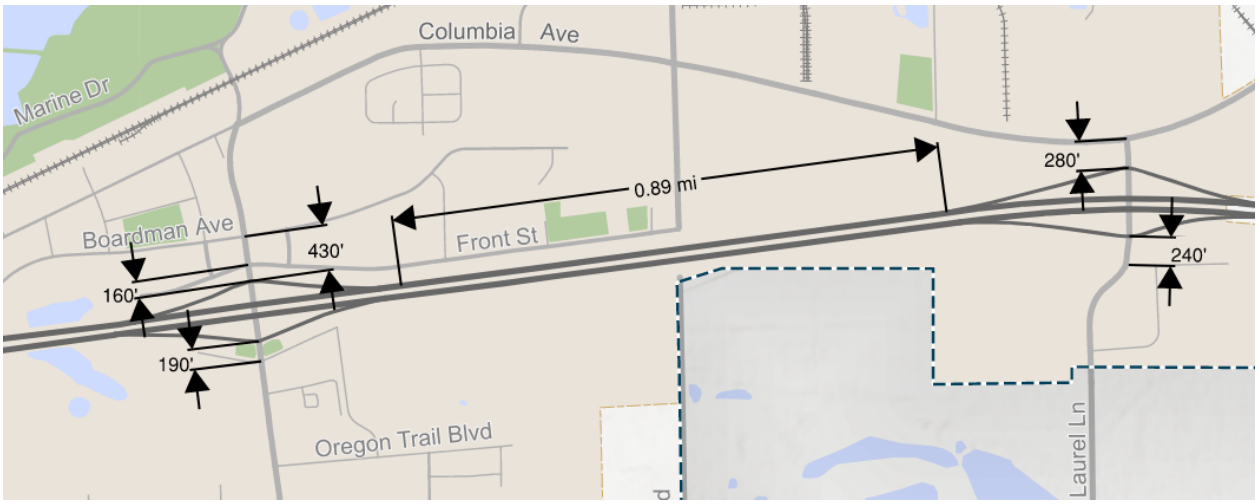
Z = Distance between the last right in/right out approach road and the start of the taper for the on-ramp

Exhibit 10. Measurement of Spacing Standards for Table 6[4]



[4] Reference: 1999 Oregon Highway Plan, Appendix C, Figure 19. Exhibit extracted March 2025.

Exhibit 11. Boardman Interchange Spacing



Roadway Characteristics

The following sections provide an overview of roadway characteristics for existing arterial and collector streets in the Boardman urban area, including speed limits, pavement conditions, travel lanes, and other key characteristics.

PAVEMENT CONDITION

Roadway facilities by pavement conditions are mapped in Figure 7.

City and Morrow County Pavement Conditions

Pavement conditions for the City and Morrow County were visually observed and given a pavement condition rating in one of four categories: “Very Good,” “Good,” “Fair,” or “Poor.”

Pavement conditions for City collectors and arterials generally rate in the Fair category. There are also several smaller segments of local city and county roadways that are classified as Good, Very Good, and Poor.

State Pavement Conditions

ODOT provides pavement conditions data for State highway facilities. I-84 is rated to have Fair pavement conditions.

TRAVEL LANES

Roadway facilities by travel lanes are mapped in Figure 8.

Roadways under City and Morrow County jurisdiction generally have two travel lanes and some include center left turn lanes. There is a segment of Columbia Avenue near the Port of Morrow that has 4 lanes. I-84 includes two lanes in each direction and the entrance and exit ramps have one lane.

Figure 7

Pavement Conditions

Boardman STRATEGIC PLAN
CONNECTING COMMUNITIES
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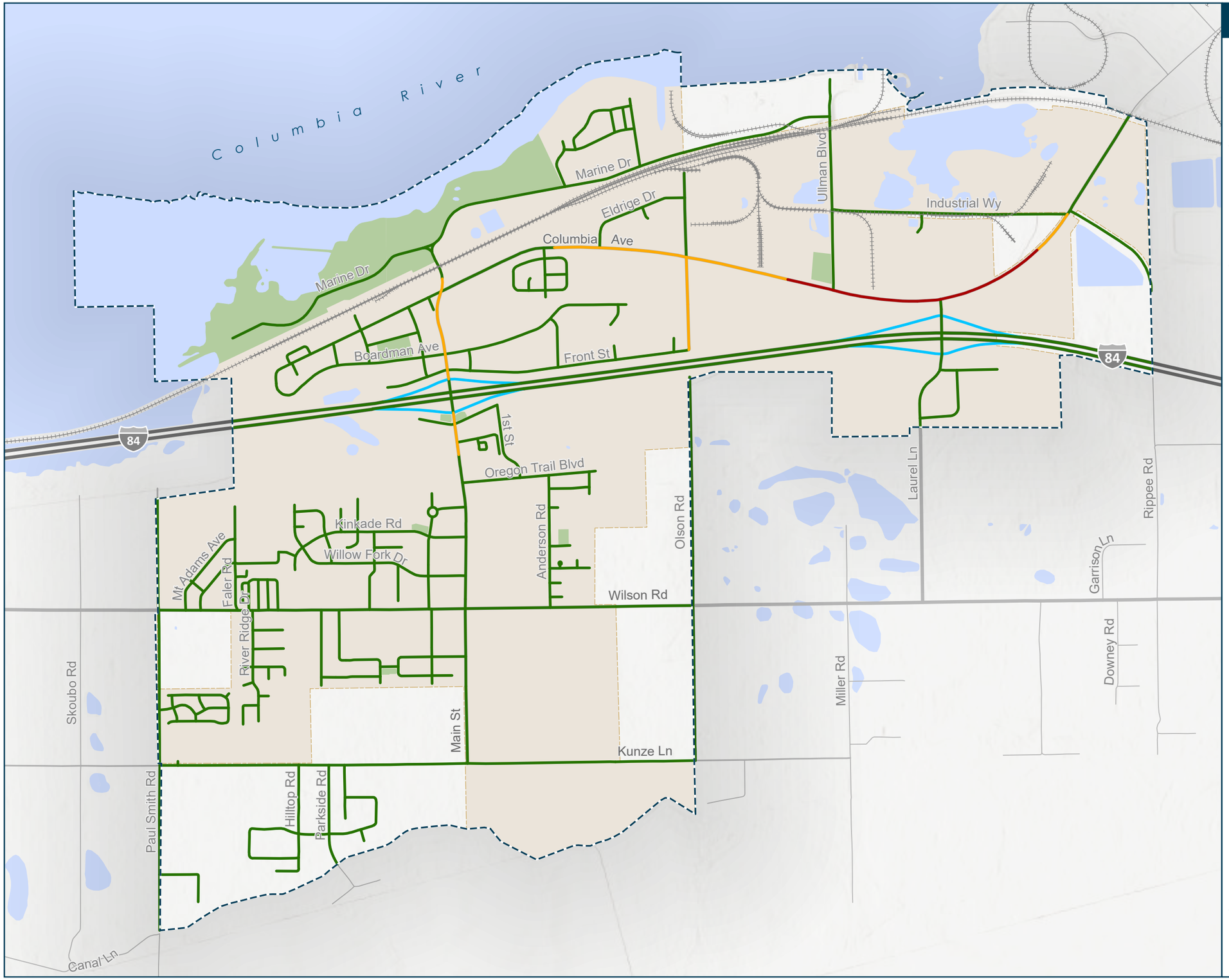
- Very Good
- Good
- Fair
- Poor
- No Data
- City Boundary
- Urban Growth Boundary
- Park
- Water

0 0.25 0.5 Mile

Figure 8

Number of Travel Lanes

Boardman STRATEGIC PLAN
CONNECTING COMMUNITIES
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- 1 Lane
- 2 Lanes
- 3 Lanes
- 4 Lanes
- City Boundary
- Urban Growth Boundary
- Park
- Water

0 0.25 0.5 Mile

POSTED SPEEDS

Roadway facilities by posted speeds are mapped in Figure 9. Roadways without posted speed limits are subject to statutory speed limits established by the state (ORS 811.11 and ORS 811.105), except for school zones that are posted at 20 MPH.

Posted speeds on City facilities are generally 25 to 30 MPH. Most posted speeds on Morrow County facilities range from 30 MPH to 45 MPH. State highway facilities have posted speeds of 70 MPH.

STUDY INTERSECTION CHARACTERISTICS

The study intersections include 14 intersections, all unsignalized, under either City of Boardman, or ODOT jurisdiction. The four ramp terminal intersections are under ODOT jurisdiction, and the remaining ten intersections are under City jurisdiction. Lane configurations and traffic control devices for the study intersections are shown in Figure 10.

Figure 9

Posted Speeds

Boardman STRATEGIC PLAN
CONNECTING COMMUNITIES
Making big dreams a reality.

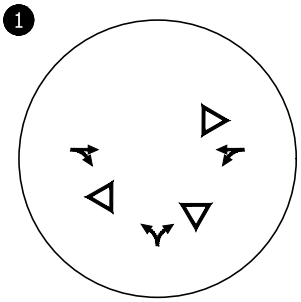
- 20 MPH
- 25 MPH
- 30 MPH
- 35 MPH
- 40 MPH
- 45 MPH
- 70 MPH
- City Boundary
- Urban Growth Boundary
- Park
- Water

0 0.25 0.5 Mile

Columbia River
Marine Dr
Eldrige Dr
Columbia Ave
Ullman Blvd
Industrial Wy
Boardman Ave
Front St
84
1st St
Oregon Trail Blvd
Kinkade Rd
Willow Fork Dr
Anderson Rd
Olson Rd
Laurel Ln
Rippee Rd
Garrison Ln
Mt Adams Ave
Faler Rd
River Ridge Dr
Wilson Rd
Skoubo Rd
Main St
Miller Rd
Downey Rd
Kunze Ln
Paul Smith Rd
Hilltop Rd
Parkside Rd
Canal Ln

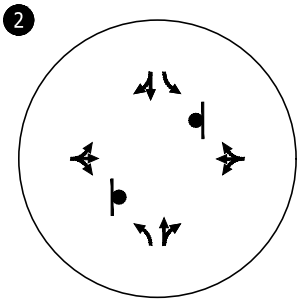
N Main Street / Marine Drive

1



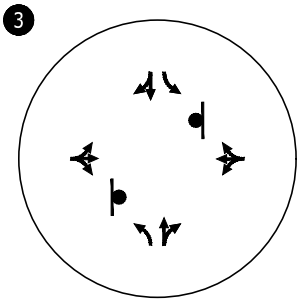
N Main Street / Columbia Avenue

2



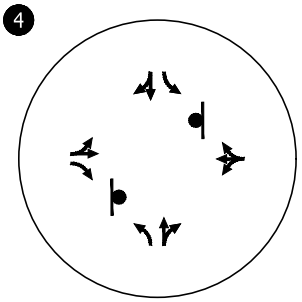
N Main Street / Boardman Avenue

3



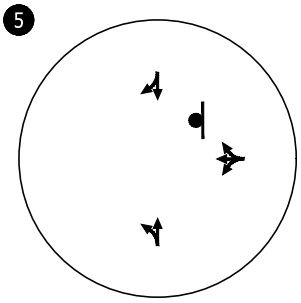
N Main Street / N Front Street

4



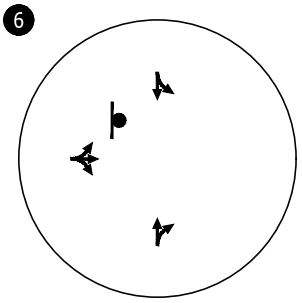
N Main Street / I-84 Westbound Ramp Terminal

5



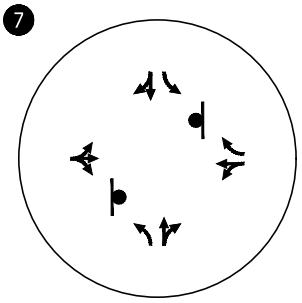
S Main Street / I-84 Eastbound Ramp Terminal

6



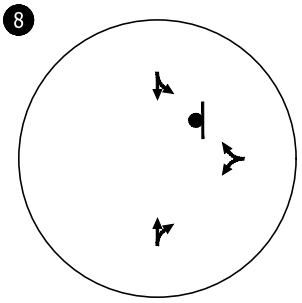
S Main Street / S Front Street

7



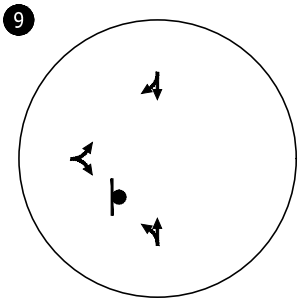
S Main Street / Oregon Trail Boulevard

8



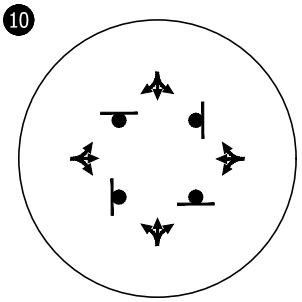
S Main Street / Kinkade Road

9



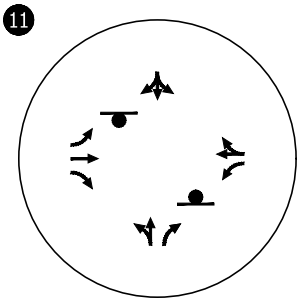
S Main Street / Wilson Lane

10



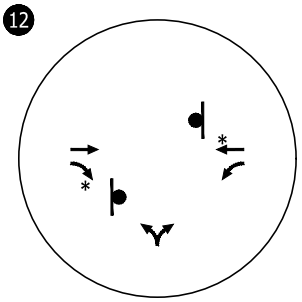
Olson Street / Columbia Avenue

11



Laurel Lane / Columbia Avenue

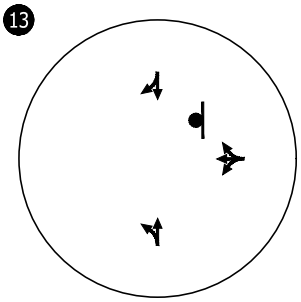
12



*Movement permitted without stopping

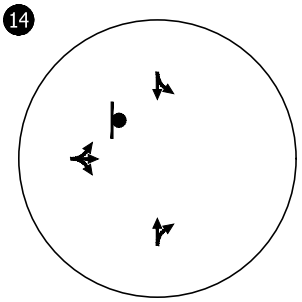
Laurel Lane / I-84 Westbound Ramp Terminal

13



Laurel Lane / I-84 Eastbound Ramp Terminal

14



- Stop Sign
- Yield Sign

Existing Lane Configurations & Traffic Control Devices Boardman, Oregon

Figure 10

H:\30\30287 - Boardman TSP\CAD figs\30287_Figures.dwg Jan 13, 2025 - 8:42am - agalgalas Layout Tab: ELC & TCD

BRIDGES

Bridges are critical structures for the transportation system, providing the means to build roadway infrastructure where physical barriers like railroads or roadways exist. ODOT, the Port of Morrow, and the City of Boardman own and operate bridges within the urban area.

Bridge conditions are evaluated with a sufficiency rating which indicates bridge sufficiency to remain in service, where values range from 0-100, with higher values indicating higher sufficiency ratings. A bridge with a sufficiency rating below 50 indicates that the bridge is in poor condition and is eligible for replacement. Bridges rated between 50 and 80 indicate that the bridge is in fair condition, and that rehabilitation, if cost-effective, will bring the bridge up to current standards. Bridges with sufficiency ratings above 8 may have specific elements that do not meet current minimum standards, but overall are in good or adequate condition and are not eligible for federal funding. Figure 11maps bridges within the urban area by ownership and sufficiency rating.

There are 7 bridges supporting the Boardman urban area transportation system, and of these, 3 are maintained by ODOT, 1 is maintained by the City of Boardman, and 3 are maintained by the Port of Morrow. The bridge structures include concrete and steel; concrete slab and tee beam bridges; and stringer/girder bridges.

Table 7 summarizes bridges by ownership and sufficiency ratings. A bridge with a sufficiency rating < 50 is classified with "Poor" bridge condition.

Table 7. Bridge Sufficiency Rating

Name	ID	Owner	Carries	Crosses	MP	Local Functional Classification	Sufficiency Rating
Main St over UPRR	20053	City	MAIN ST	UPRR	0.33	Minor Collector	91.5
Main St. over I-84	08946	ODOT	MAIN ST	I-84 (HWY 2)	164.16	Arterial	76.7
I-84 WB over Laurel Lane Intchg	16612	ODOT	I-84 (HWY 2) WB	LAUREL LANE	165.76	Arterial	92.8
I-84 EB over Laurel Lane Intchg	16611	ODOT	I-84 (HWY 2) EB	LAUREL LANE	165.76	Arterial	94.2
Ullman Blvd over UPRR (Port of Morrow)	49012	Port of Morrow	ULLMAN BOULEVARD	UPRR	0	Minor Collector	79.2
East Columbia Ave. over UPRR (Port of Morrow)	49C18	Port of Morrow	E. COLUMBIA AVE	UPRR	0	Arterial	73.6
Marine Drive Bridge	No Data	Port of Morrow	MARINE DR	UPRR	No Data	Minor Collector	>80

Figure 11

Bridges by Owner and Sufficiency Rating

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Sufficiency Rating
- >80
- 50 to 80

Bridge Ownership
- City of Boardman
- State of Oregon
- Port of Morrow
- City Boundary
- Urban Growth Boundary
- Park
- Water

0 0.25 0.5 Mile

Pedestrian and Bicycle Facilities

Pedestrian and bicycle facilities provide infrastructure for people to walk, bike, roll, or use mobility devices on facilities designated for that mode. In the Boardman urban area, the network of bicycle and pedestrian facilities consists of on-street facilities and a network of multi-use trails. These facilities serve a variety of needs, including relatively short trips between major attractions like schools and parks, recreational trips, access to transit, and commute trips.

Pedestrian Facilities

Pedestrian facilities refer to infrastructure designed for people walking or using mobility devices and typically include sidewalks, trails, crossings, ramps, and technology such as push buttons or pedestrian activated flashing beacons (e.g., Rectangular Rapid Flashing Beacon). A well-connected pedestrian network provides safe and efficient links between pedestrian trip generators like schools, employment areas, parks and community centers, residential neighborhoods, and other pedestrian attractors.

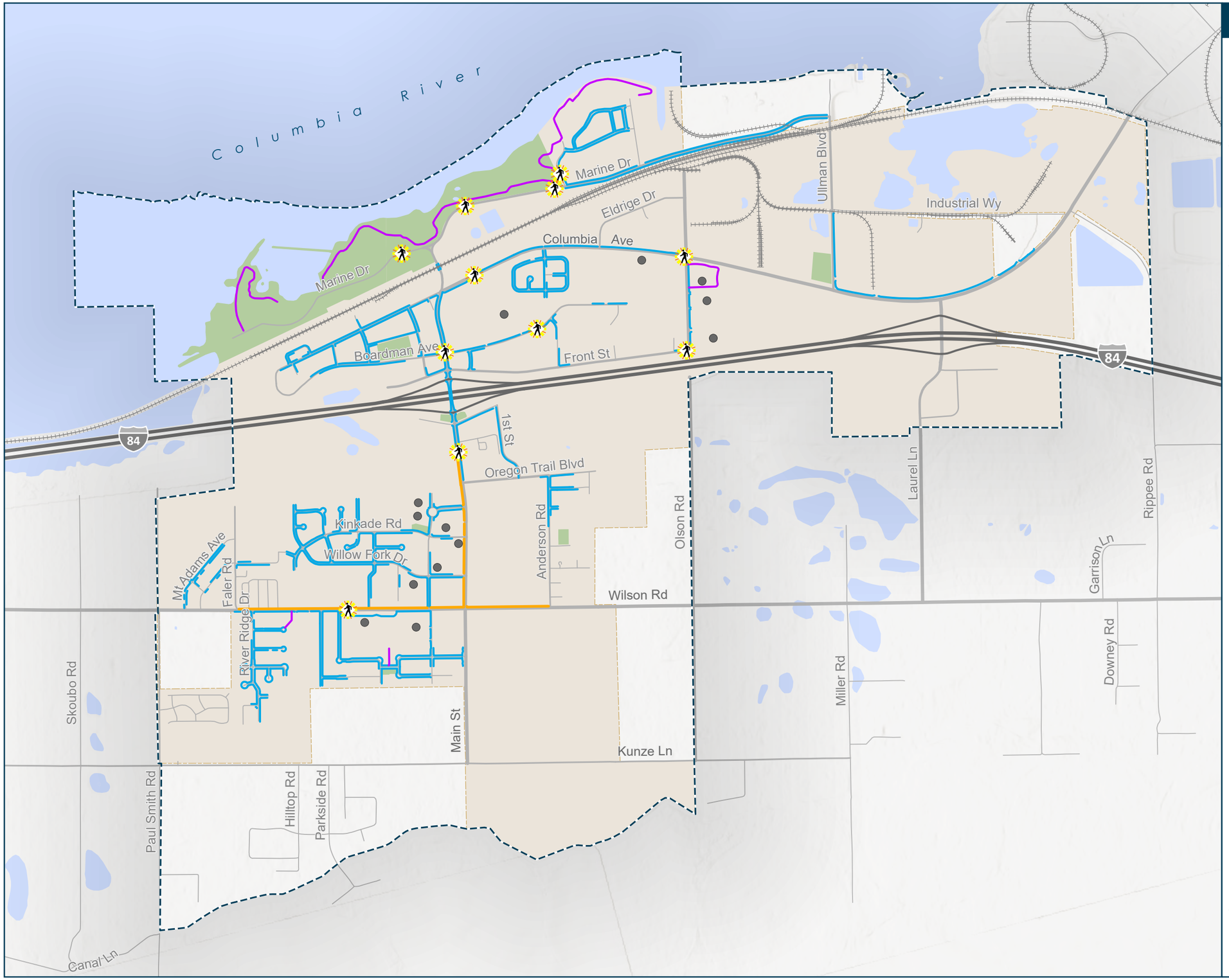
Figure 12 maps pedestrian facilities on arterial and collector roadways. As shown, the pedestrian network consists of sidewalks on one or both sides of the roadway and a small network of on-street ped/bike paths and multi-use pathways. The primary gaps on collector and arterial roadways will be discussed later under the Multimodal Analysis section of the Existing System Conditions Analysis.

The Columbia River Heritage Trail (the Heritage Trail) runs through the Boardman area and is a multi-use pathway designed to support both transportation and recreation. The trail connects key cities in the region and provides access to the Columbia River shoreline. The trail utilizes sections of Columbia Boulevard in Boardman and trail design includes 2-foot shoulders on paved roads and 10-foot dedicated paths in urban areas. This trail is a vital part of Morrow County's non-motorized transportation system. Originally detailed in the Columbia River Heritage Trail Concept Plan adopted in 2000, the trail's progress will continue with the adoption of the Trail Master Plan, which began development in 2024. This new planning document will guide improvements over the next 5 to 20 years.

Figure 12

Pedestrian Facilities

Boardman STRATEGIC PLAN
CONNECTING COMMUNITIES
Making big dreams a reality.



- Key Destination
- Midblock Crossing
- Sidewalk
- On-Street Ped/Bike Path
- Multi-Use Path
- City Boundary
- Urban Growth Boundary
- Park
- Water

0 0.25 0.5 Mile

Bicycle Facilities

Bicycle facilities refer to infrastructure designed for people biking, including bike lanes, shared use paths, paved shoulders, and the crossing infrastructure that supports a well-connected bicycle network, such as ramps and RRFBs. Figure 13 maps existing bicycle facilities in the City of Boardman.

Like pedestrian facilities, bicycle facilities serve a variety of trips, including trips to major attractions such as schools, parks, retail centers, and public facilities; commuter trips; recreational trips; and access to transit. The existing bicycle network in the City of Boardman is limited to small segments of striped bike lanes, on-street ped/bike paths, multi-use pathways, and paved shoulders.

The Columbia River Heritage Trail stretches along Marine Drive from the city's western boundary to the east, though it doesn't connect directly to Main Street. As mentioned in the Pedestrian Facilities section, the trail includes 2-foot shoulders on paved roads and 10-foot dedicated paths in urban areas. The trail connects key cities in the region and provides access to the Columbia River shoreline. South of Marine Drive, Main Street features approximately 5-foot shoulders extending to Columbia Avenue. From Columbia Avenue, dedicated bike lanes continue on Main Street until about 50 feet south of the I-84 eastbound off-ramp. Beyond that, a shared-use path extends to Wilson Lane, following Wilson Road up to Faler Road. Additionally, Boardman Avenue NW has an isolated segment with dedicated bike lanes.

Other bicycle travel is accommodated on paved shoulders where there is enough width (i.e., shoulders greater than 4 feet). By law, bicyclists have the right to bike on the road as a vehicle (ORS 814.400).

Figure 13

Bicycle Facilities

Boardman STRATEGIC PLAN
CONNECTING COMMUNITIES
Making big dreams a reality.

- Key Destination
- Bike Lane
- Wide Shoulders
- On-Street Ped/Bike Path
- Multi-Use Path
- City Boundary
- Urban Growth Boundary
- Park
- Water

0 0.25 0.5 Mile

Columbia River
Marine Dr
Eldrige Dr
Columbia Ave
Ullman Blvd
Industrial Wy
Boardman Ave
Front St
84
1st St
Oregon Trail Blvd
Kinkade Rd
Willow Fork Dr
Mt Adams Ave
Faler Rd
River Ridge Dr
Anderson Rd
Olson Rd
Laurel Ln
Rippee Rd
Garrison Ln
Wilson Rd
Skoubo Rd
Main St
Miller Rd
Downey Rd
Kunze Ln
Paul Smith Rd
Hilltop Rd
Parkside Rd
Canal Ln

Transit System

Morrow County Public Transit is the primary provider of public transportation in the city, offering free, fixed-route bus service to residents of Boardman, Ione, Lexington, and Heppner. Known as the Loop, this service operates Monday through Saturday and provides reliable transportation for the community. In Boardman, buses run from 6:00 AM to 7:30 PM.

As shown in Figure 14, Morrow County operates one fixed route in the Boardman urban area. The Loop operates fixed Northbound and Southbound routes connecting Boardman, Ione, Lexington, and Heppner. Additionally, there is a Boardman-only route, which follows the same path as the Northbound and Southbound buses within Boardman.

Bus arrival times in Boardman range from approximately 15 minutes to 5 hours and 45 minutes. Stops in Boardman are conveniently located near key destinations, including the Port of Morrow, Riverside High School, Sam Boardman Elementary School, Murry's Pharmacy, and several residential areas. However, there are currently no transit supportive facilities within the Boardman urban area including stations, shelters, signs, or benches. The busses are compliant with the American Disabilities Act (ADA). Some bus stops are not accessible by the disabled.

In addition to the Loop, CareVan Medical Transportation offers Boardman residents free transportation to any Good Shepherd Health Care System-affiliated medical or service provider in Hermiston. The vans are ADA compliant. This service runs Monday through Friday, from 8:00 AM to 6:00 PM, and requires a reservation.

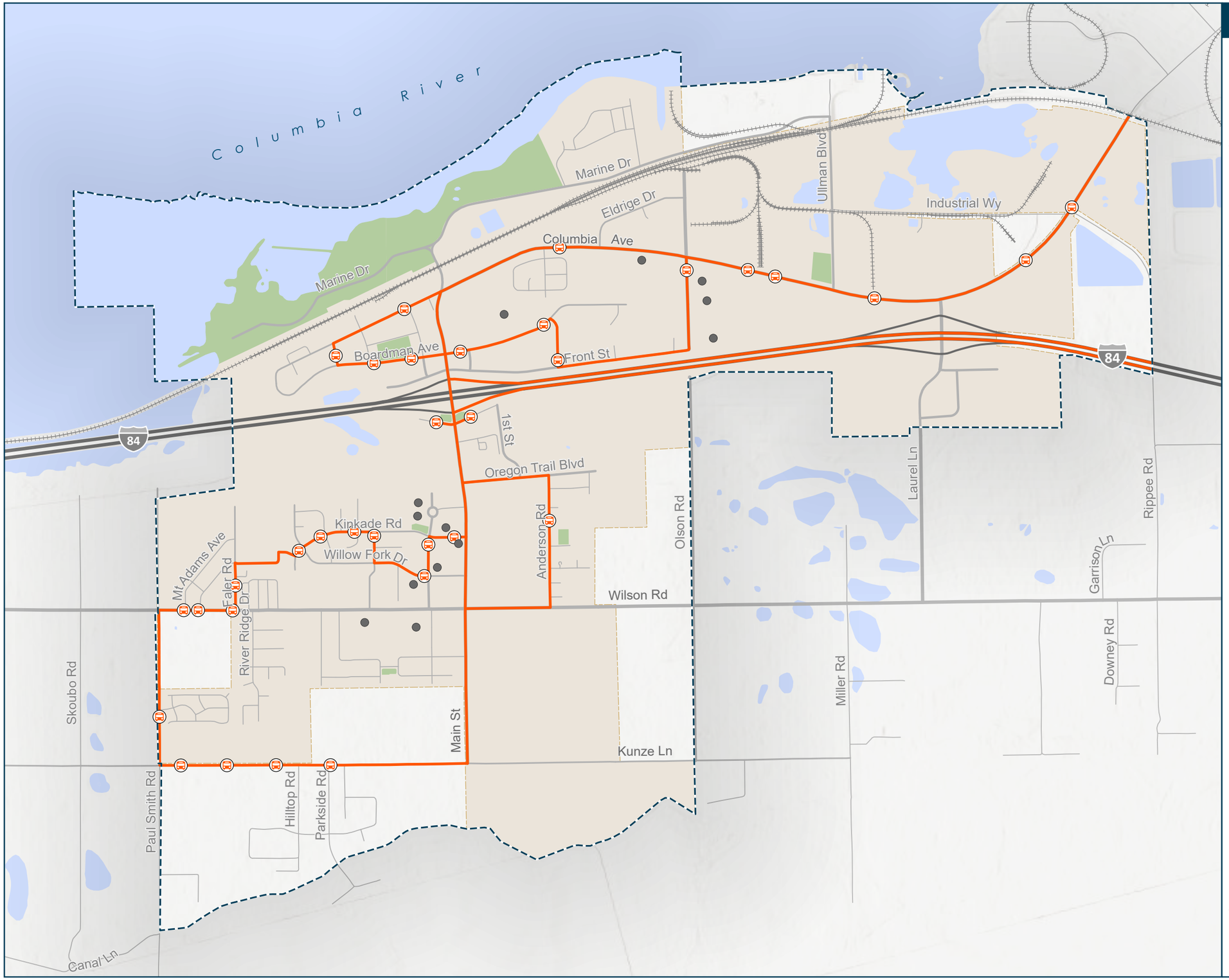


Figure 14

Public Transit

Boardman STRATEGIC PLAN
CONNECTING COMMUNITIES
Making big dreams a reality.

- Bus Stop
- Bus Route
- Key Destination
- City Boundary
- Urban Growth Boundary
- Park
- Water

0 0.25 0.5 Mile

Freight System

Freight route classifications are provided at the State and Federal levels. In Oregon, the OHP documents State freight designations. These freight routes are shown in Figure 15.

ODOT has established I-84 through the urban area as a High Clearance Route[5] and Reduction Review Route[6]. The OHP recognizes I-84, and segments of Columbia Avenue, Ullman Boulevard, and Marine Lane as freight routes also shown in Figure 15.

Additionally, the National Highway System (NHS), a federal designation for interstates and key roadways like principal arterials, recognizes I-84 as part of this network which are critical to state and national economy. I-84 is part of the National Highway System and is intended to serve national and regional trucking movements, providing east-west connectivity to Portland to the west and Boise to the east.

In the Oregon Freight Plan[7], the Columbia River Corridor (I-84) is identified as a strategic corridor that is critical to freight-dependent industries and the Oregon economy. The OFP identifies I-84 as locally and regionally important for moving goods between Portland and the Midwest.

The major freight generators and receivers in the Boardman urban area are the Port of Morrow and local agriculture. The Port of Morrow facilitates the shipping and processing of regional agricultural products, while other companies create high volumes of truck traffic for food processing. Local farms contribute significantly by supplying raw crops, and industrial projects, including renewable energy developments, add to the demand for freight services.

Many trucks transporting wind turbine blades travel eastbound along I-84. Some of these trucks cannot clear the Main Street overpass, so they exit, pass through town, then rejoin I-84 at the Laurel Lane interchange. Because these trucks ride low to the ground, they risk scraping if they make the turn too fast at the S Main Street and I-84 EB exit ramp intersection. When trucks move through this intersection slowly, they often create backups on Main Street.

The High, Wide, and Heavy Corridor is designated for transporting oversized cargo, including items that exceed standard weight, height, and length limits. The routes encompass Main Street, Columbia Avenue, Marine Drive, and various dirt roads circulating the Port of Morrow.

[5] Reduction Review Routes are subject to ORS 366.215 prohibiting a reduction in vehicle carrying capacity unless permitted by the Oregon Transportation Commission for safety purposes.

[6] High Clearance Routes are established by ODOT as routes that are critical for movement of oversize freight loads, especially tall loads.

[7] Oregon Department of Transportation. (2023). *Oregon Freight Plan*, 2023.

Figure 15

Freight Routes and Railroad Crossings

Boardman STRATEGIC PLAN
CONNECTING COMMUNITIES
Making big dreams a reality.

- At-Grade Rail Crossing
- Above Grade Rail Crossing
- National Highway Freight Route
- OHP Freight Route
- Port of Morrow Oversized Load Route
- Railroad
- City Boundary
- Urban Growth Boundary
- Park
- Water

0 0.25 0.5 Mile

Rail System

Rail is a critical element of transportation facilities with freight rail services operating within the Boardman urban area. Boardman is located on the east-west transcontinental route between Portland and Hinkle, which has intra- and inter-state economic significance facilitating major freight movement within and through the state to Idaho, Wyoming, and Utah which connects to Union Pacific Railroad's (UPRR) Overland Route. UPRR is a Class I Railroad Corridor which owns and operates all rail in the urban area, facilitating freight mobility for Oregon's industries and linking them to the national rail network. The track is maintained to Federal Railroad Administration (FRA) Class 4 specifications.

The railroad facilities in the Boardman urban area are illustrated in Figure 15.The URPR mainline closely parallels the I-84 corridor and runs along Marine Drive through the urban area, passing through the Port of Morrow. Multiple branch lines in the port area enhance shipping and receiving efficiency, supporting rail-to-barge access at marine terminals to facilitate the movement of goods. Grain trains make up the primary rail freight coming into Boardman, where the grain is then either transferred to barges or transported by truck to ranches for livestock feed.

Rail crossings in the city are mostly grade separated. There is one at-grade crossing at Ullman Boulevard that is equipped with gates, lights, and bells, while two other at-grade crossings feature signage only.

The east-west rail route is part of the Strategic Rail Corridor Network (STRACNET), which provides essential rail access for military operations and installations across Oregon. On average, 22 freight trains pass through Boardman a day with a maximum speed of 60 mph.

Between 2018 and 2022, one crash occurred at a rail crossing on Industrial Way (at-grade). This incident did not involve a train; instead, a vehicle collided with a fixed object. The crash happened around 6 AM, in foggy and dark conditions, with icy road conditions. There were no injuries reported, and the incident resulted in property damage only. The cause of the crash was cited as the driver was traveling too fast for the conditions.

Intermodal Connectors

The 1999 OHP[8] defines intermodal connections as short lengths of roads that connect intermodal facilities such as airports, ports, air terminals, and other passenger and freight facilities to Interstate and Statewide highways. Table 8 lists the six Tier 1 NHS Intermodal Connectors identified in Appendix E of the OHP that are in the Boardman urban area.

[8] Oregon Department of Transportation (ODOT). *Oregon Highway Plan*, 1999.

Table 8. Intermodal Connectors

Ownership	Route Description	Total Miles
State	I-84, Conn. 002HC/Conn. 002HB - Laurel Rd. Ahead	0.14
Morrow County	Laurel Rd./I-84 Conn. 002HC - Boardman-Irrigon Rd.	0.04
Morrow County	Boardman Irrigon Rd./Laurel Rd. - Ullman Blvd.	043
Port of Morrow	Ulman Blvd./Boardman Rd. - Port Terminal Facility	0.63
Morrow County	Boardman-Irrigon Rd./Laurel Rd. - Coyote Station Rd.	1.18
Port of Morrow	Marine Dr./Ullman Rd. - Port Access Rd.	0.51

Marine System

The Columbia River borders the northern city limit of Boardman and is used to transport goods. The Port of Morrow is located in the northeast part of the City and serves as the primary economic center of eastern Oregon, facilitating the movement of goods across regional, national, and international markets. As stated in the 2020 Port of Morrow Strategic Business Plan, there are three marine terminals along the Columbia River within city limits. They are as follows:

- Terminal 1 (T-1) is a barge slip managed by the Port in the Boardman Industrial Park. T-1 needs dredging to be functional for larger barges.
- Terminal 2 (T-2) is a barge load-out facility operated by Boardman Chip in the Boardman Industrial Park.
- Terminal 3 (T-3) is a barge slip operated by Tidewater in the Boardman Industrial Park. T-3 is the largest container terminal upriver of Portland handling approximately 11,000 containers 9 to and from barge and truck annually.

The Port of Morrow is located north of I-84 and accessible by Exit 165 which connects to Laurel Lane. North of the freeway ramps, Laurel Lane connects with Columbia Avenue, which intersects with Ulman Boulevard, providing access to terminals along Marine Drive. Along Marine Drive there are bicycle lanes and sidewalks that provide multi modal access to the Port of Morrow.

A Union Pacific Railroad (UPRR) mainline runs parallel to Marine Drive, with a rail spur extending from this mainline to support rail-to-barge shipping along the Columbia River at the three marine terminals. There are no known capacity issues related to infrastructure/programs and port facilities and operations at this time.

Pipeline System

Gas Transmission Northwest operates a gas pipeline passing through Boardman, where it connects to the Coyote Springs Cogeneration Natural Gas Plant. The gas plant, owned by Portland General Electric, is located at the northeast corner of Ulma Boulevard and Industrial Way, as shown in Figure 16. There are no known deficiencies associated with the pipeline at this time.

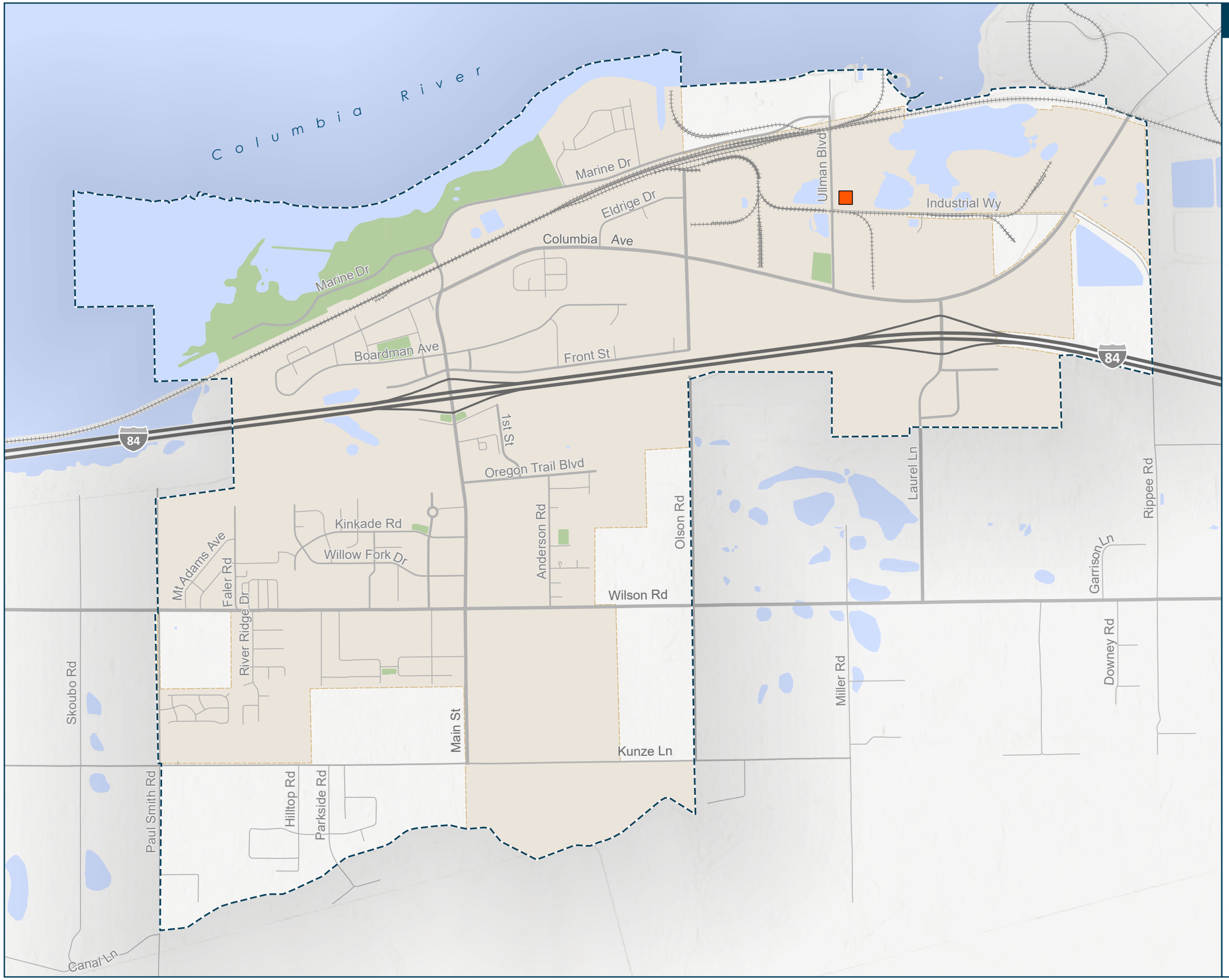
Air System

Boardman Airport is located about seven miles west of the Boardman urban area limits. This airport is not in the Project Area.

Figure 16

Pipeline System

Boardman STRATEGIC PLAN
CONNECTING COMMUNITIES
Making big dreams a reality.



- Gas Plant
- City Boundary
- Urban Growth Boundary
- Park
- Water

0 0.25 0.5 Mile

Existing System Conditions Analysis (2024)

The existing system conditions analysis provides insight into the functionality and performance of the transportation system in the Boardman urban area in terms of intersection traffic operations, crash history, and system gaps in the multimodal network. The observed results from these assessments create a foundation for identifying capacity, safety, and other performance deficiencies in the transportation network.

An overview of the methodology and operational standards used for conducting the existing and future conditions analyses is discussed in the *Methodology Memorandum*.

Intersection Operations Analysis

The intersection operations analysis examines how the 14 study intersections from Figure 1, previously shown at the beginning of this memorandum, function during the weekday AM and PM peak period with their existing traffic control and lane configurations, previously shown in Figure 10. This section summarizes the observed results from intersection operations and vehicle queueing analyses.

Traffic Counts

Traffic count data were provided by ODOT for all the study intersections, which was collected independently. The traffic counts provided by ODOT were collected in May 2024. All count data were collected over a 16-hour period (6:00AM to 10:00PM). These counts were seasonally adjusted to reflect the 30th Highest Hour Volumes. The data includes the total number of pedestrians, bicyclists, and motor vehicles that entered the intersections in 15-minute intervals. *Attachment A contains the traffic count worksheets*.

Analysis Methodology and Performance Standards

All traffic operations analyses described in this section conform with State and City standard methodologies and guidelines. Applicable volume-to-capacity thresholds based on ODOT and local mobility targets for the study intersections are identified and discussed in the *Methodology Memorandum*.

Traffic Operations Analysis

The traffic operations analysis helps to identify study intersections that do not meet their mobility targets today. The analysis used PTV Vistro software and its Highway Capacity Manual (HCM) 7th Edition reports to summarize the intersection traffic operations in terms of v/c ratios and 95th-percentile queues. The v/c ratios are reported for the intersection critical movement at unsignalized intersections. Figure 17 and Figure 18 summarize the existing traffic volumes at the study intersections and the resultant v/c ratios, delay, and level of service (LOS) for the weekday

AM and PM peak hour respectively. Figure 19 and Figure 20 illustrate weekday AM and weekday PM operational results at the study intersections based on their respective performance thresholds. Table 9 identifies the intersections from Figure 19 that are exceeding their performance thresholds (mobility targets) today. As shown, results indicate that study intersections meet mobility targets under the existing conditions during the weekday AM and PM peak hour except the N Main Street & Boardman Avenue (#3), N Main Street & N Front Street (#4), S Main Street & I-84 Westbound Ramp Terminal (#5), S Main Street & S Front Street (#7).

Attachment B contains the existing traffic operations worksheets. Due to the unique traffic operations at the intersection of the intersection of N Main Street and Marine Drive (#1) it was assumed that this intersection operates at LOS A. Due to the unique traffic operations at the intersection of Laurel Lane and Columbia Avenue (#12) the Vistro reports only reflect certain movements.

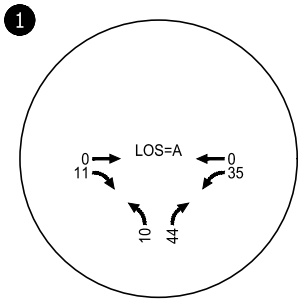
Table 9. Study Intersection Performance Summary, Weekday AM Peak Hour

ID	Intersection	Owner	Operational Standard	Observed Operations	Exceeds Operational Standard?
1	N Main Street / Marine Drive	City	LOS C	LOS A	
2	N Main Street / Columbia Avenue	City	LOS C	LOS B	
3	N Main Street / Boardman Avenue	City	LOS C	LOS E	✓
4	N Main Street / N Front Street	City	LOS C	LOS D	✓
5	N Main Street / I-84 Westbound Ramp Terminal	ODOT	v/c = 0.85 Main Street approach/0.80 ramp approach	v/c = 0.03 Main Street approach/0.72 ramp approach	
6	S Main Street / I-84 Eastbound Ramp Terminal	ODOT	v/c = 0.85 Main Street approach/0.80 ramp approach	v/c = 0.08 Main Street approach/0.12 ramp approach	
7	S Main Street / S Front Street	City	LOS C	LOS D	✓
8	S Main Street / Oregon Trail Boulevard	City	LOS C	LOS B	
9	S Main Street / Kinkade Road	City	LOS C	LOS B	
10	S Main Street / Wilson Lane	City	LOS C	LOS A	
11	Olson Street / Columbia Avenue	City	LOS C	LOS B	
12	Laurel Lane / Columbia Avenue	City	LOS C	LOS C	
13	Laurel Lane / I-84 Westbound Ramp Terminal	ODOT	v/c = 0.85 Laurel Lane approach/0.80 ramp approach	v/c = 0.01 Laurel Lane approach/0.64 ramp approach	
14	Laurel Lane / I-84 Eastbound Ramp Terminal	ODOT	v/c = 0.85 Laurel Lane approach/0.80 ramp approach	v/c = 0.08 Laurel Lane approach/0.10 ramp approach	

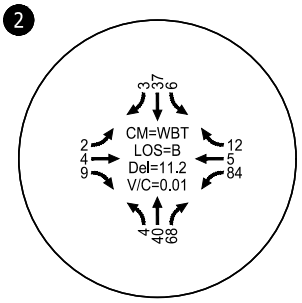
Table 10. Study Intersection Performance Summary, Weekday PM Peak Hour

ID	Intersection	Owner	Operational Standard	Observed Operations	Exceeds Operational Standard?
1	N Main Street / Marine Drive	City	LOS C	LOS A	
2	N Main Street / Columbia Avenue	City	LOS C	LOS B	
3	N Main Street / Boardman Avenue	City	LOS C	LOS C	
4	N Main Street / N Front Street	City	LOS C	LOS E	✓
5	N Main Street / I-84 Westbound Ramp Terminal	ODOT	v/c = 0.85 Main Street approach/0.80 ramp approach	v/c = 0.02 Main Street approach/1.14 ramp approach	✓
6	S Main Street / I-84 Eastbound Ramp Terminal	ODOT	v/c = 0.85 Main Street approach/0.80 ramp approach	v/c = 0.11 Main Street approach/0.79 ramp approach	
7	S Main Street / S Front Street	City	LOS C	LOS E	✓
8	S Main Street / Oregon Trail Boulevard	City	LOS C	LOS C	
9	S Main Street / Kinkade Road	City	LOS C	LOS C	
10	S Main Street / Wilson Lane	City	LOS C	LOS A	
11	Olson Street / Columbia Avenue	City	LOS C	LOS B	
12	Laurel Lane / Columbia Avenue	City	LOS C	LOS B	
13	Laurel Lane / I-84 Westbound Ramp Terminal	ODOT	v/c = 0.85 Laurel Lane approach/0.80 ramp approach	v/c = 0.00 Laurel Lane approach/0.13 ramp approach	
14	Laurel Lane / I-84 Eastbound Ramp Terminal	ODOT	v/c = 0.85 Laurel Lane approach/0.80 ramp approach	v/c = 0.14 Laurel Lane approach/0.10 ramp approach	

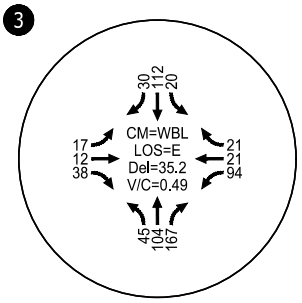
N Main Street / Marine Drive



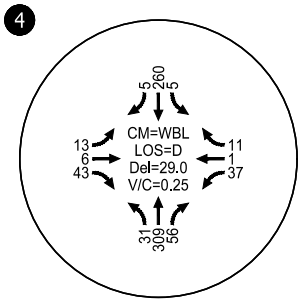
N Main Street / Columbia Avenue



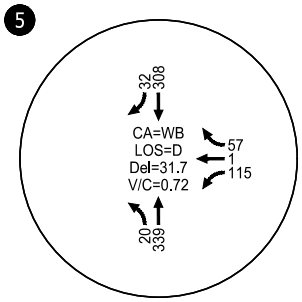
N Main Street / Boardman Avenue



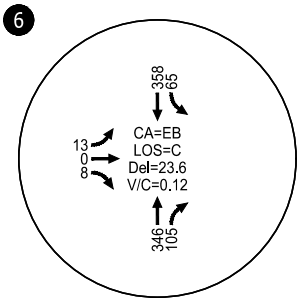
N Main Street / N Front Street



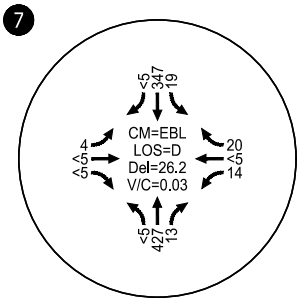
N Main Street / I-84 Westbound Ramp Terminal



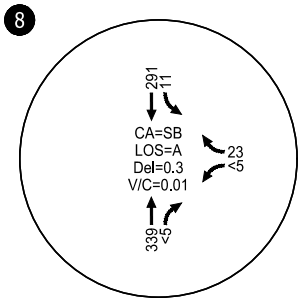
S Main Street / I-84 Eastbound Ramp Terminal



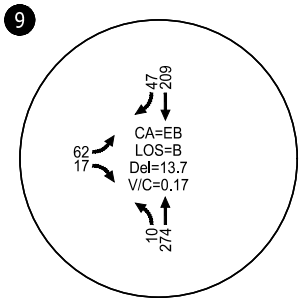
S Main Street / S Front Street



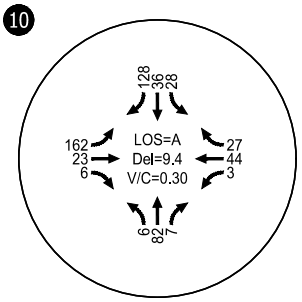
S Main Street / Oregon Trail Boulevard



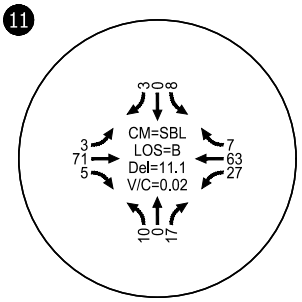
S Main Street / Kinkade Road



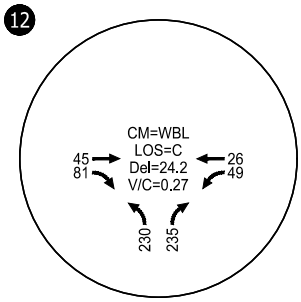
S Main Street / Wilson Lane



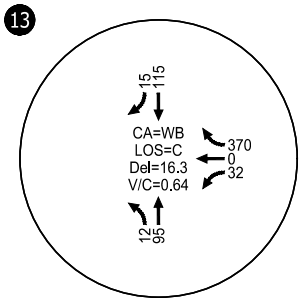
Olson Street / Columbia Avenue



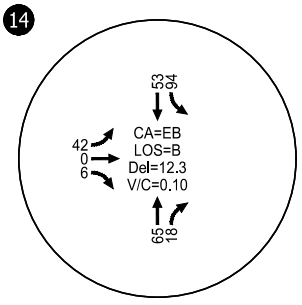
Laurel Lane / Columbia Avenue



Laurel Lane / I-84 Westbound Ramp Terminal



Laurel Lane / I-84 Eastbound Ramp Terminal

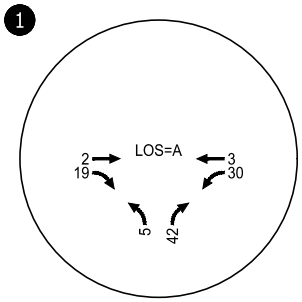


Existing Traffic Conditions
Weekday AM Peak Hour
Boardman, Oregon

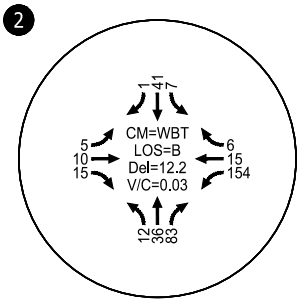
Figure
17

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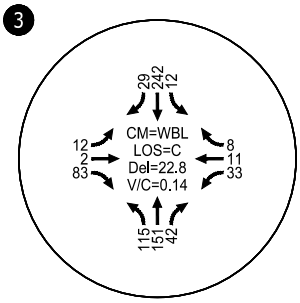
N Main Street / Marine Drive



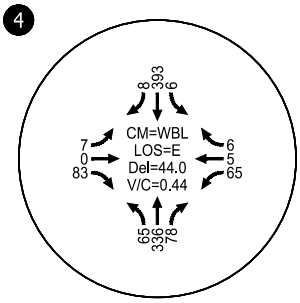
N Main Street / Columbia Avenue



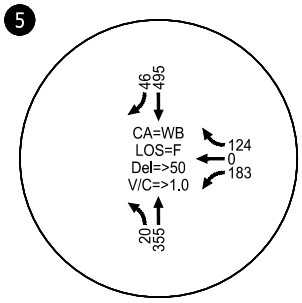
N Main Street / Boardman Avenue



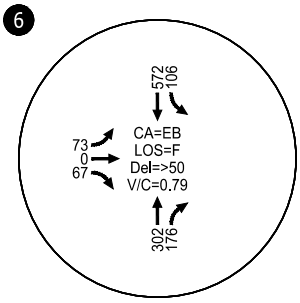
N Main Street / N Front Street



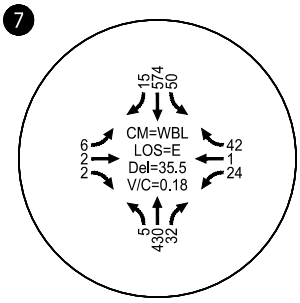
N Main Street / I-84 Westbound Ramp Terminal



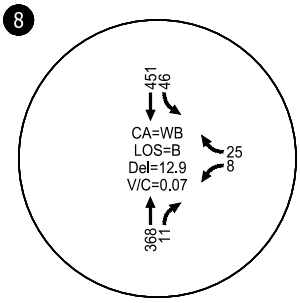
S Main Street / I-84 Eastbound Ramp Terminal



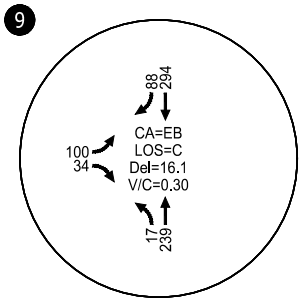
S Main Street / S Front Street



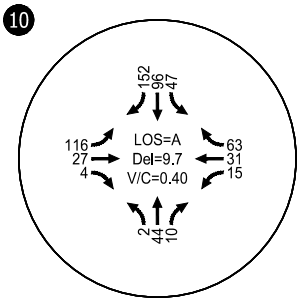
S Main Street / Oregon Trail Boulevard



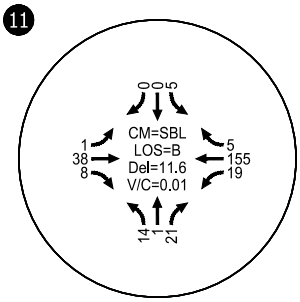
S Main Street / Kinkade Road



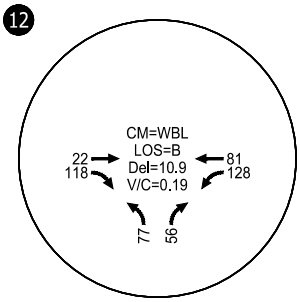
S Main Street / Wilson Lane



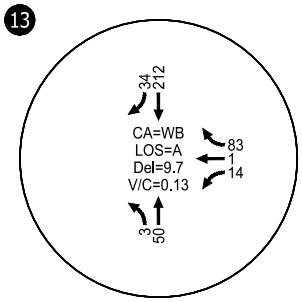
Olson Street / Columbia Avenue



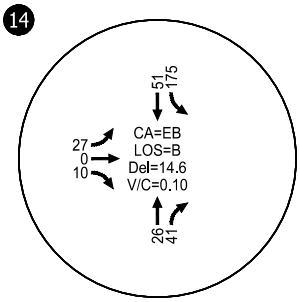
Laurel Lane / Columbia Avenue



Laurel Lane / I-84 Westbound Ramp Terminal



Laurel Lane / I-84 Eastbound Ramp Terminal



Existing Traffic Conditions
Weekday PM Peak Hour
Boardman, Oregon

Figure
18

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Figure 19. Existing Traffic Operations, Weekday AM Peak Hour

Figure 20. Existing Traffic Operations, Weekday PM Peak Hour

Table 11 summarizes the 95th-percentile queues for intersections having one or more movements that exceed available storage. As shown, queues exceed available storage at none of the study intersections.

Table 11. Existing Intersection 95th-Percentile Queues

ID	Intersection	Movement	Storage (ft)	95th-Percentile Queue (ft)	
				Weekday AM	Weekday PM
2	N Main Street / Columbia Avenue	NBL	100	25	25
		SBL	150	25	25
3	N Main Street / Boardman Avenue	NBL	150	25	25
		SBL	100	25	25
4	N Main Street / N Front Street	NBL	75	25	25
		SBL	150	25	25
		EBR	100	25	25
5	N Main Street / I-84 Westbound Ramp Terminal	WBLTR	1250[1]	100	300
6	S Main Street / I-84 Eastbound Ramp Terminal	EBLTR	1300[1]	25	150
7	S Main Street / S Front Street	NBL	100	0	25
		SBL	100	25	25
		WBR	125	25	25
11	Olson Street / Columbia Avenue	NBTL	100	25	25
		EBL	100	25	25
12	Laurel Lane / Columbia Avenue	WBL	250	25	25
13	Laurel Lane / I-84 Westbound Ramp Terminal	WBTLR	1300[1]	50	50
14	Laurel Lane / I-84 Eastbound Ramp Terminal	EBTLR	1600[1]	25	25

Note that 95th percentile queue lengths have been rounded up to the nearest car length, assuming one vehicle equals 25 feet.

[1]Storage measured from ramp exit to stop bar at ramp terminal.

Crash Analysis

Crash data was obtained from the ODOT crash data reporting database for the most recent available five-year period between January 1, 2018, and December 31, 2022. The data includes detailed information on crashes that occurred in the City of Boardman.

The crash data presented information related to crash type, crash severity, time of day, weather condition, and other factors. Table 12 presents crash type and severity summaries for the data whereas Table 13 shows the observed and predicted crash frequencies. A summary of the crash data and analysis is as follows:

- Angle and Turning Movement related crashes were the most common crash types and comprised approximately 52 and 35 percent of the total crashes respectively.
- There were no reported bicycle or pedestrian-related crashes (Majority of the study intersections lack pedestrian and bicycle facilities).
- Approximately 70 percent of the crashes were property damage only (PDO) and approximately 30 percent of the crashes involved minor personal injuries. There were no reported fatalities.
- Two of the reported crashes involved alcohol intoxication and one of the reported crashes was a hit and run case.
- Most crashes (more than 50 percent) occurred between 12:00 PM and 6:00 PM.
- 17 percent of crashes (4) occurred during wet/ snowy conditions. The rest of the crashes occurred during dry/ typical conditions with the exception of one crash that occurred during unknown conditions. 35 percent of crashes occurred during darkness (with streetlights).

A reported crash occurred at the intersection of Laurel Lane and the I-84 eastbound ramp terminal, involving a truck and a mobile home. The incident, classified as a turning movement crash, resulted in non-fatal injuries. The collision was caused by one vehicle failing to yield the right-of-way at a stop-controlled approach. It took place during daylight hours under dry, typical weather conditions.

Attachment C contains the 2018-2022 ODOT crash data.

Table 12. Reported Crash History (2018 – 2022)

ID	Intersection	Crash Type								Crash Severity			Total
		Angle	Turn	Rear-End	Side Swipe	Fixed Object	Pedestrian/ Bike	Head - On	Backing	Property Damage Only (PDO)	Non-Fatal Injury Crashes	Fatal and Severe Injury	
1	N Main Street / Marine Drive	-	-	-	-	-	-	-	-	-	-	-	**-**
2	N Main Street / Columbia Avenue	-	1	-	-	1	-	-	-	1	1	-	**2**
3	N Main Street / Boardman Avenue	-	2	-	-	-	-	-	-	-	2	-	**2**
4	N Main Street / N Front Street	1	1	-	-	-	-	-	-	2	-	-	**2**
5	N Main Street / I-84 Westbound Ramp Terminal	3	1	2	-	-	-	-	-	5	1	-	**6**
6	S Main Street / I-84 Eastbound Ramp Terminal	2	-	-	-	-	-	-	-	2	-	-	**2**
7	S Main Street / S Front Street	-	-	-	-	-	-	-	-	-	-	-	**-**
8	S Main Street / Oregon Trail Boulevard	-	-	-	-	-	-	-	-	-	-	-	**-**
9	S Main Street / Kinkade Road	-	-	-	-	-	-	-	-	-	-	-	**-**
10	S Main Street / Wilson Lane	4	2	-	-	-	-	-	-	4	2	-	**6**
11	Olson Street / Columbia Avenue	-	-	-	-	-	-	-	-	-	-	-	**-**
12	Laurel Lane / Columbia Avenue	-	-	-	-	-	-	-	-	-	-	-	**-**
13	Laurel Lane / I-84 Westbound Ramp Terminal	2	-	-	-	-	-	-	-	2	-	-	**2**
14	Laurel Lane / I-84 Eastbound Ramp Terminal	-	1	-	-	-	-	-	-	-	1	-	**1**
	Total	**12**	**8**	**2**	**-**	**1**	**-**	**-**	**-**	**16**	**7**	**-**	**23**

Critical crash rates were calculated for the study intersections following the analysis methodology presented in the ODOT *Analysis Procedures Manual* (*APM,* Reference 5). *APM* Chapter 4 provides 90th percentile crash rates per million entering vehicles at a variety of intersection configurations based on number of approaches and traffic control types. The critical crash rate for each intersection is calculated based on the average crash rate for each facility and serves as a threshold for further analysis. Per the APM, intersections with crash rates that exceed the 90th percentile values shown in *APM* Exhibit 4-1 or with a crash rate that exceeds its critical crash rate should be flagged for further analysis. Table 13 summarizes the crash rate assessment for each intersection and compares those values to the observed crash rate.

Table 13. Crash Assessment

ID	Intersection	No. of crashes	90th Percentile Rate	Observed Crash Rate	Observed Crash rate > 90th Percentile Rate
1	N Main Street / Marine Drive	0	0.293	0.00	No
2	N Main Street / Columbia Avenue	2	0.408	0.28	No
3	N Main Street / Boardman Avenue	2	0.408	0.18	No
4	N Main Street / N Front Street	2	0.408	0.12	No
5	N Main Street / I-84 Westbound Ramp Terminal	6	0.408	0.32	No
6	S Main Street / I-84 Eastbound Ramp Terminal	2	0.408	0.10	No
7	S Main Street / S Front Street	0	0.408	0.00	No
8	S Main Street / Oregon Trail Boulevard	0	0.293	0.00	No
9	S Main Street / Kinkade Road	0	0.293	0.00	No
10	S Main Street / Wilson Lane	**6**	**0.408**	**0.54**	**Yes**
11	Olson Street / Columbia Avenue	0	0.408	0.00	No
12	Laurel Lane / Columbia Avenue	0	0.293	0.00	No
13	Laurel Lane / I-84 Westbound Ramp Terminal	2	0.408	0.28	No
14	Laurel Lane / I-84 Eastbound Ramp Terminal	1	0.408	0.17	No

As shown above, all study intersections except the S Main Street / Wilson Lane intersection have crash rates above their 90th percentile crash rate. The urban four-leg stop controlled crash rate was used in the comparison. It is noted that if the rural four-leg stop controlled rate was used then the observed crash rate would not exceed the 90th percentile crash rate. The S Main Street / Wilson Lane intersection recorded a majority of angle crashes, along with two turning movement crashes. The turning movement crashes involved left and right turns. Of the reported incidents, most occurred under clear and dry conditions, although one crash took place on snow and ice. Lighting conditions varied, with crashes occurring during both daylight and darkness with streetlights. No fatalities were reported, with crashes resulting in either property damage or non-fatal injuries.

Attachment D contains the intersection crash rate analysis worksheet.

ODOT SPIS List

ODOT maintains Safety Priority Index System (SPIS) lists to identify existing hazardous intersections for potential safety improvements. The SPIS lists consider the crash data for the three prior years. The ODOT Region 5 2023, 2022, and 2021 SPIS lists were reviewed to determine if any of the ODOT Interstate 84 /Highway 30 study intersections were identified as having an SPIS score in the top 15 percent and ranking amongst other projects. Additionally, the off-state highways list was reviewed as well. The SPIS score is calculated based on three factors[9]:

- Frequency of crashes (25% of the SPIS score)
- Rate of crashes (25% of the SPIS score)
- Severity of crashes (50% of the SPIS score)

No study intersections were identified within the 2023, 2022, and 2022 ODOT Region 5 top 15% SPIS lists for both on-state and off-state highways.

[9] Reference: https://www.oregon.gov/odot/Engineering/Docs_TrafficEng/SPIS-User-Guide.pdf

Multimodal Analysis

The multimodal transportation analysis was conducted in accordance with the methodologies identified in Chapter 14 of ODOT's APM.

Pedestrian Level of Traffic Stress

Pedestrian level of traffic stress (PLTS) is a perception-based analysis methodology that is used to evaluate the adequacy of streets to accommodate pedestrians in urban and rural environments. As applied by ODOT, this methodology classifies four levels of traffic stress that a pedestrian can experience on the street, ranging from PLTS 1 (little traffic stress) to PLTS 4 (high traffic stress). A street or street segment that is rated PLTS 1 generally has low traffic volumes and travel speeds and has a sidewalk that is separated from vehicle traffic. These segments are generally suitable for all pedestrians, including children. A street or street segment that is rated PLTS 4 generally has high traffic volumes and travel speeds and curb-tight sidewalks that are perceived as unsafe by most adults. Segments rated PLTS 4 also include those with no sidewalks or other pedestrian facilities. Per the APM, PLTS 2 is considered a reasonable target for most streets due to its acceptability with most pedestrians.

The PLTS score is determined based on four criteria, including sidewalk condition, physical buffer type, total buffering width, and general land use. All four criteria are scored from 1 to 4 and the highest score determines the overall score for the road segment. Figure 21 illustrates the results of the PLTS analysis for the arterial and collector streets in the Boardman urban area. It is important to note that while some segments are shown as PLTS 3 or 4, they may have shorter segments with lower PLTS scores.

As shown in Figure 21, most arterial and collector streets in Boardman have segments are rated PLTS 2 or 4. Most of the PLTS 4 segments have no sidewalks or other pedestrian facilities. In order for these segments to be rated PLTS 2, sidewalks with appropriate sidewalk and buffer widths would need to be installed along the full length of the roadway. Segments rated PLTS 2 and PLTS 3 may have curb-tight sidewalks, not have adequate buffer width, or be adjacent to industrial or freeway interchange land uses such as along Columbia Avenue. There are a few segments rated PLTS 1, which are primarily multi-use paths.

Attachment E contains detailed information on the PLTS analysis results.

Figure 21

Pedestrian Level of Traffic Stress (PLTS) Analysis Results

Boardman STRATEGIC PLAN
CONNECTING COMMUNITIES
Making big dreams a reality.

- PLTS 1
- PLTS 2
- PLTS 3
- PLTS 4
- City Boundary
- Urban Growth Boundary
- Park
- Water

0 0.25 0.5 Mile

Bicycle Level of Traffic Stress

Similar to PLTS, Bicycle level of traffic stress (BLTS) is a perception-based analysis methodology that is used to evaluate the adequacy of streets to accommodate cyclists in urban and rural environments. As applied by ODOT, this methodology classifies four levels of traffic stress that a cyclist can experience on the street, ranging from BLTS 1 (little traffic stress) to BLTS 4 (high traffic stress). A street or street segment that is rated BLTS 1 generally has low traffic volumes and travel speeds and is suitable for all cyclists, including children. A street or street segment that is rated BLTS 4 generally has high traffic volumes and travel speeds and is perceived as unsafe by most adults. Per the APM, BLTS 2 is considered a reasonable target for streets due to its acceptability with most cyclists.

The BLTS score is determined based on the speed of the street, the number of travel lanes per direction, the presence and width of an on-street bike lane and/or adjacent parking lane, and several other factors. Figure 22 illustrates the results of the BLTS analysis for the arterial and collector streets in the Boardman urban area. It is important to note that while some segments are shown as BLTS 3 or 4, they may have shorter segments with lower BLTS scores.

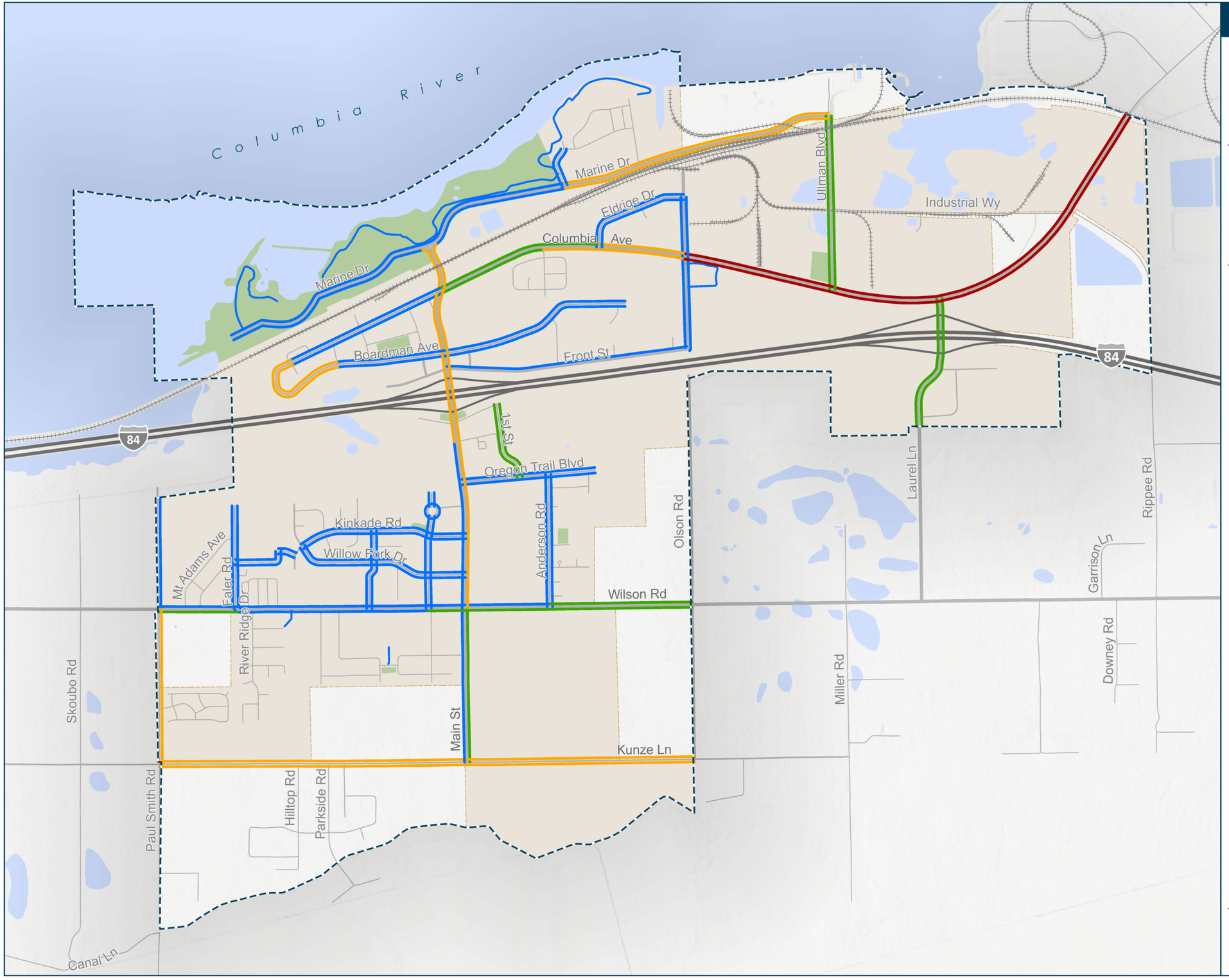
As shown in Figure 22, several arterial and collector streets in Boardman have segments that are rated BLTS 3 and BLTS 4. The segments rated BLTS 3 or BLTS 4 may have bike lanes that are too narrow for roadway conditions (e.g., high speeds and/or the number of lanes per direction). In order for these segments to be rated BLTS 2, the bike lanes would need to be widened to seven feet. Other segments rated BLTS 3 may not have bike lanes and may be considered mixed traffic (shoulder bikeways or no bicycle facilities present). In order for these segments to be rated BLTS 2, the shoulder would need to be restriped as a bike lane with appropriate width or the posted speed would need to be 35 mph for segments with less than 750 vehicles per day. It should also be noted that a majority of the segments evaluated as mixed traffic that were rated BLTS 2 could include signage and/or striping to remind motorists to share the road.

Attachment E contains detailed information on the BLTS analysis results.

Figure 22

Bicycle Level of Traffic Stress (BLTS) Analysis Results

Boardman STRATEGIC PLAN
CONNECTING COMMUNITIES
Making big dreams a reality.



- BLTS 1
- BLTS 2
- BLTS 3
- BLTS 4
- City Boundary
- Urban Growth Boundary
- Park
- Water

0 0.25 0.5 Mile

Attachments

A. Traffic Counts for Study Intersections
B. Existing Traffic Operations Worksheets
C. ODOT Crash Data
D. Crash Analysis Worksheet
E. Detailed Pedestrian and Bicycle Level of Traffic Stress

Attachment A – Traffic Counts for Study Intersections

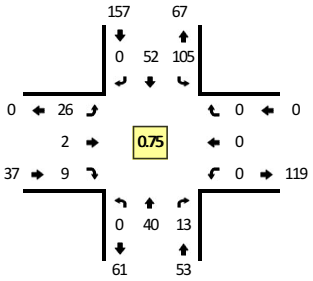
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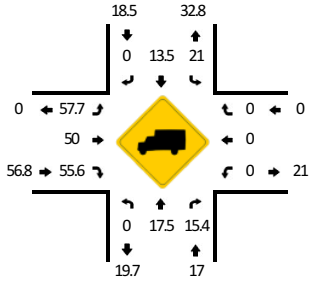
Method for determining peak hour: Total Entering Volume

LOCATION: Laurel Ln -- I-84 EB Ramps
CITY/STATE: Boardman, OR

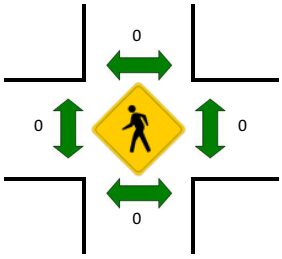
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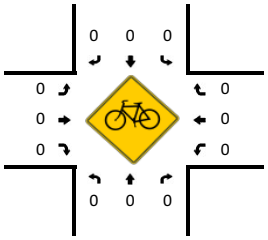


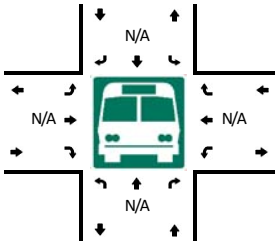


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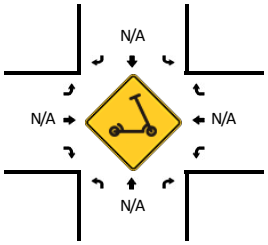












5-Min Count Period Beginning At	Laurel Ln (Northbound)				Laurel Ln (Southbound)				I-84 EB Ramps (Eastbound)				I-84 EB Ramps (Westbound)				Total	Hourly Totals
	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U		
7:00 AM	0	6	1	0	4	9	0	0	4	0	1	0	0	0	0	0	25	
7:05 AM	0	3	1	0	6	5	0	0	3	0	1	0	0	0	0	0	19	
7:10 AM	0	2	1	0	8	6	0	0	3	1	1	0	0	0	0	0	22	
7:15 AM	0	1	0	0	19	3	0	0	3	0	0	0	0	0	0	0	26	
7:20 AM	0	3	1	0	14	8	0	0	1	0	0	0	0	0	0	0	27	
7:25 AM	0	8	1	0	12	3	0	0	5	0	0	0	0	0	0	0	29	
7:30 AM	0	0	3	0	10	3	0	1	1	0	1	0	0	0	0	0	19	
7:35 AM	0	3	1	0	11	2	0	0	0	0	0	0	0	0	0	0	17	
7:40 AM	0	4	1	0	7	5	0	0	2	0	1	0	0	0	0	0	20	
7:45 AM	0	4	1	0	4	3	0	0	1	0	3	0	0	0	0	0	16	
7:50 AM	0	3	1	0	4	3	0	0	3	0	1	0	0	0	0	0	15	
7:55 AM	0	3	1	0	5	2	0	0	0	1	0	0	0	0	0	0	12	247
8:00 AM	0	4	3	0	9	5	0	0	1	0	1	0	0	0	0	0	23	245
8:05 AM	0	5	1	0	6	1	0	0	4	0	0	0	0	0	0	0	17	243
8:10 AM	0	0	0	0	3	3	0	0	8	0	2	0	0	0	0	0	16	237
8:15 AM	0	6	1	0	9	1	0	0	4	0	0	0	0	0	0	0	21	232
8:20 AM	0	3	0	0	3	4	0	0	7	0	1	0	0	0	0	0	18	223
8:25 AM	0	3	0	0	8	2	0	0	0	0	0	0	0	0	0	0	13	207
8:30 AM	0	5	1	0	7	3	0	0	4	0	0	0	0	0	0	0	20	208
8:35 AM	0	3	1	0	3	2	0	0	2	0	1	0	0	0	0	0	12	203
8:40 AM	0	1	3	0	4	4	0	0	1	0	0	0	0	0	0	0	13	196
8:45 AM	0	2	1	0	12	5	0	0	4	0	4	0	0	0	0	0	28	208
8:50 AM	0	5	1	0	8	5	0	0	4	0	0	0	0	0	0	0	23	216
8:55 AM	0	2	2	0	3	2	0	0	2	0	0	0	0	0	0	0	11	215

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	48	8	0	180	56	0	0	36	0	0	0	0	0	0	0	328
Heavy Trucks	0	8	0		24	4	0		20	0	0		0	0	0		56
Buses																	
Pedestrians		0				0				0				0			0
Bicycles	0	0	0		0	0	0		0	0	0		0	0	0		0
Scooters																	

Comments:

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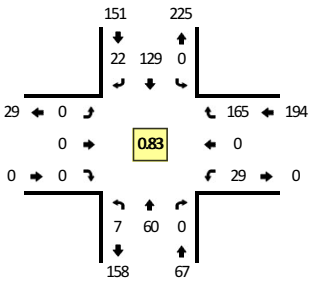
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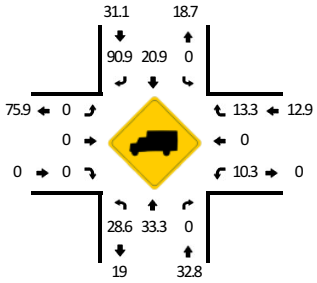
Method for determining peak hour: Total Entering Volume

LOCATION: Laurel Ln -- I-84 WB Ramps
CITY/STATE: Boardman, OR

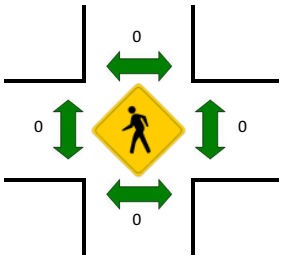
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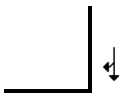
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Peak 15-Min: 7:15 AM -- 7:30 AM

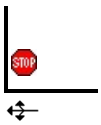


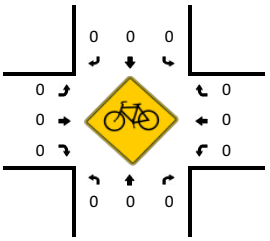


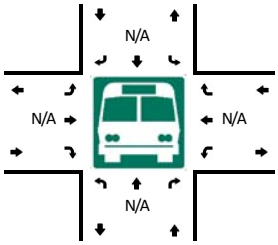
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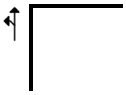


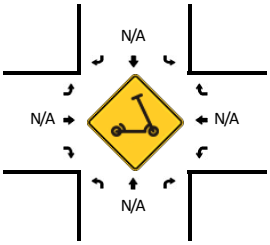












5-Min Count Period Beginning At	Laurel Ln (Northbound)				Laurel Ln (Southbound)				I-84 WB Ramps (Eastbound)				I-84 WB Ramps (Westbound)				Total	Hourly Totals
	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U		
7:00 AM	1	9	0	0	0	8	0	0	0	0	0	0	5	0	13	0	36	
7:05 AM	1	5	0	0	0	7	2	0	0	0	0	0	4	0	17	0	36	
7:10 AM	1	4	0	0	0	13	4	0	0	0	0	0	2	0	7	0	31	
7:15 AM	0	3	0	0	0	21	2	0	0	0	0	0	2	0	14	0	42	
7:20 AM	2	3	0	0	0	17	3	0	0	0	0	0	3	0	10	0	38	
7:25 AM	1	10	0	0	0	16	2	0	0	0	0	0	1	0	14	0	44	
7:30 AM	0	4	0	0	0	10	3	0	0	0	0	0	4	0	14	0	35	
7:35 AM	0	3	0	0	0	11	0	0	0	0	0	0	1	0	19	0	34	
7:40 AM	0	6	0	0	0	9	1	0	0	0	0	0	3	0	9	0	28	
7:45 AM	1	4	0	0	0	7	2	0	0	0	0	0	1	0	16	0	31	
7:50 AM	0	5	0	0	0	3	0	0	0	0	0	0	2	0	15	0	25	
7:55 AM	0	4	0	0	0	7	3	0	0	0	0	0	1	0	17	0	32	412
8:00 AM	2	2	0	0	0	11	1	0	0	0	0	0	3	0	13	0	32	408
8:05 AM	1	8	0	0	0	6	2	0	0	0	0	0	0	0	10	0	27	399
8:10 AM	1	7	0	0	0	5	4	0	0	0	0	0	1	0	4	0	22	390
8:15 AM	0	11	0	0	0	12	2	0	0	0	0	0	0	0	13	0	38	386
8:20 AM	0	10	0	0	0	4	3	0	0	0	0	0	2	0	7	0	26	374
8:25 AM	0	3	0	0	0	8	2	0	0	0	0	0	2	0	6	0	21	351
8:30 AM	1	8	0	0	0	7	2	0	0	0	0	0	2	0	5	0	25	341
8:35 AM	1	3	0	0	0	4	3	0	0	0	0	0	2	0	13	0	26	333
8:40 AM	0	2	0	0	0	7	3	0	0	0	0	0	0	0	11	0	23	328
8:45 AM	1	6	0	0	0	20	2	0	0	0	0	0	2	0	5	0	36	333
8:50 AM	3	5	0	0	0	7	3	0	0	0	0	0	3	0	10	0	31	339
8:55 AM	2	3	0	0	0	5	0	0	0	0	0	0	0	0	7	0	17	324

Peak 15-Min Flowrates	Northbound				Southbound				Eastbound				Westbound				Total
	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U	
All Vehicles	12	64	0	0	0	216	28	0	0	0	0	0	24	0	152	0	496
Heavy Trucks	8	16	0		0	28	28		0	0	0		0	0	24		104
Buses																	
Pedestrians		0				0				0				0			0
Bicycles	0	0	0		0	0	0		0	0	0		0	0	0		0
Scooters																	

Comments:

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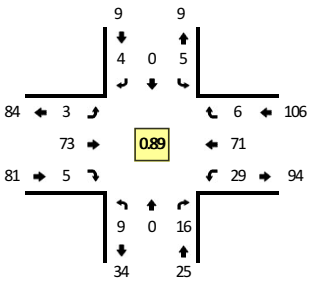
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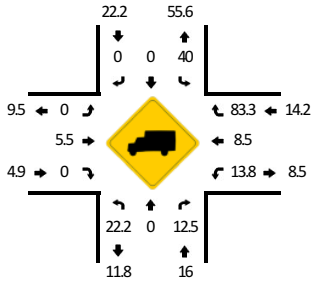
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CITY/STATE: Boardman, OR

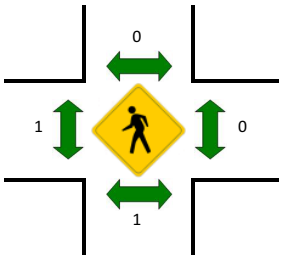
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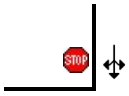
Peak-Hour: 7:20 AM -- 8:20 AM
Peak 15-Min: 7:55 AM -- 8:10 AM

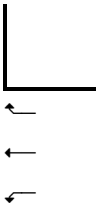


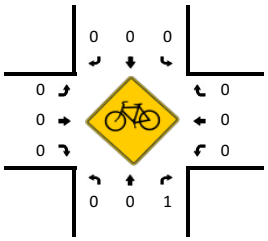


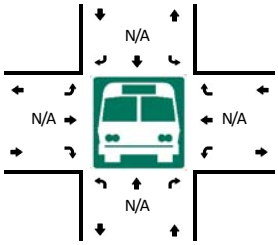
TRUE DATA TO IMPROVE MOBILITY

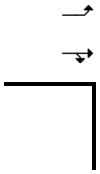


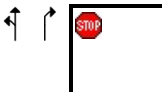


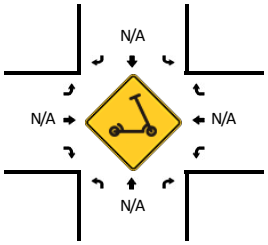












5-Min Count Period Beginning At	Olson Rd (Northbound)				Olson Rd (Southbound)				Columbia Ave NE (Eastbound)				Columbia Ave NE (Westbound)				Total	Hourly Totals
	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U		
7:00 AM	0	1	1	0	3	0	0	0	0	2	0	0	1	3	3	0	14	
7:05 AM	1	0	0	0	3	0	0	0	0	5	0	0	4	5	0	0	18	
7:10 AM	1	0	2	0	0	0	0	0	0	5	0	0	2	4	2	0	16	
7:15 AM	0	0	1	0	1	0	0	0	0	3	0	0	1	6	0	0	12	
7:20 AM	1	0	0	0	0	0	1	0	1	4	0	0	4	10	1	0	22	
7:25 AM	1	0	3	0	0	0	1	0	0	5	1	0	3	7	1	0	22	
7:30 AM	0	0	1	0	0	0	1	0	0	3	0	0	2	4	0	0	11	
7:35 AM	1	0	4	0	2	0	0	0	0	5	1	0	2	3	1	0	19	
7:40 AM	1	0	0	0	0	0	0	0	0	10	2	0	1	5	1	0	20	
7:45 AM	1	0	1	0	0	0	0	0	2	8	0	0	3	4	0	0	19	
7:50 AM	1	0	3	0	1	0	0	0	0	7	1	0	1	2	0	0	16	
7:55 AM	0	0	1	0	0	0	0	0	0	9	0	0	3	9	0	0	22	211
8:00 AM	2	0	1	0	1	0	0	0	0	7	0	0	1	4	1	0	17	214
8:05 AM	1	0	0	0	1	0	0	0	0	5	0	0	5	11	0	0	23	219
8:10 AM	0	0	1	0	0	0	0	0	0	4	0	0	2	4	0	0	11	214
8:15 AM	0	0	1	0	0	0	1	0	0	6	0	0	2	8	1	0	19	221
8:20 AM	0	0	1	0	0	0	0	0	0	2	0	0	1	4	1	0	9	208
8:25 AM	0	0	0	0	1	0	0	0	0	0	0	0	0	2	1	0	4	190
8:30 AM	0	0	0	0	0	0	0	0	1	3	1	0	0	5	0	0	10	189
8:35 AM	3	0	1	0	0	0	0	0	0	2	1	0	1	6	0	0	14	184
8:40 AM	2	0	1	0	0	0	0	0	0	3	3	0	2	3	1	0	15	179
8:45 AM	0	1	2	0	0	0	0	0	0	5	2	0	3	7	2	0	22	182
8:50 AM	2	1	1	0	1	0	0	0	1	4	0	0	3	0	1	0	14	180

Peak 15-Min Flowrates	Northbound				Southbound				Eastbound				Westbound				Total
	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U	
All Vehicles	12	0	8	0	8	0	0	0	0	84	0	0	36	96	4	0	248
Heavy Trucks	0	0	4		4	0	0		0	4	0		0	16	4		32
Buses																	
Pedestrians		0				0				0				0			0
Bicycles	0	0	0		0	0	0		0	0	0		0	0	0		0
Scooters																	

Comments:

Report generated on 8/16/2024 2:46 PM

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

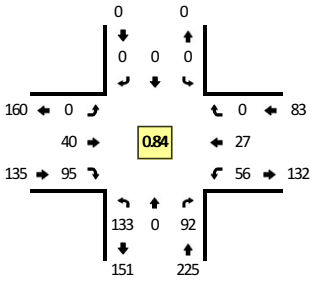
Type of peak hour being reported: Intersection Peak

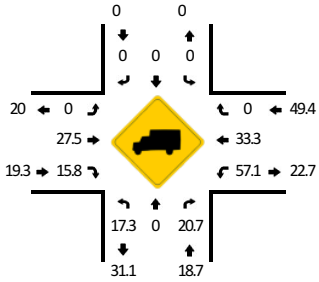
Method for determining peak hour: Total Entering Volume

LOCATION: Laurel Ln -- Columbia Blvd
CITY/STATE: Boardman, OR

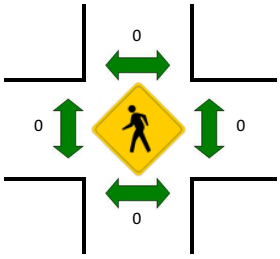
QC JOB #: 16719904
DATE: Tue, May 21 2024

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

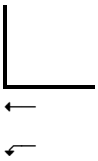


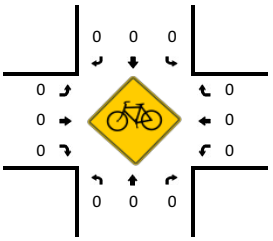


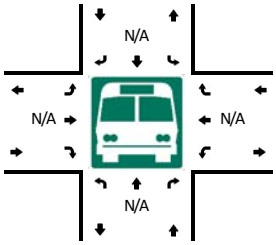
TRUE DATA TO IMPROVE MOBILITY

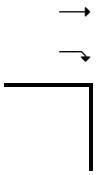


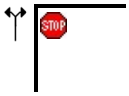


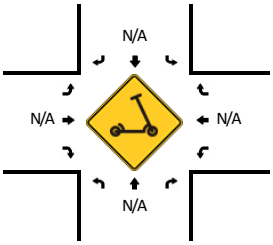












5-Min Count Period Beginning At	Laurel Ln (Northbound)				Laurel Ln (Southbound)				Columbia Blvd (Eastbound)				Columbia Blvd (Westbound)				Total	Hourly Totals
	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U		
7:00 AM	11	0	11	0	0	0	0	0	0	6	4	0	4	2	0	0	38	
7:05 AM	17	0	5	0	0	0	0	0	0	4	5	0	4	2	0	0	37	
7:10 AM	6	0	5	0	0	0	0	0	0	5	11	0	7	6	0	0	40	
7:15 AM	7	0	9	0	0	0	0	0	0	3	17	0	5	0	0	0	41	
7:20 AM	7	0	5	0	0	0	0	0	0	2	12	0	9	7	0	0	42	
7:25 AM	17	0	9	0	0	0	0	0	0	4	12	0	6	1	0	0	49	
7:30 AM	13	0	4	0	0	0	0	0	0	3	7	0	5	0	0	0	32	
7:35 AM	11	0	11	0	0	0	0	0	0	2	9	0	2	4	0	0	39	
7:40 AM	6	0	9	0	0	0	0	0	0	2	5	0	5	2	0	0	29	
7:45 AM	12	0	9	0	0	0	0	0	0	5	6	0	3	0	0	0	35	
7:50 AM	11	0	9	0	0	0	0	0	0	2	2	0	1	1	0	0	26	
7:55 AM	15	0	6	0	0	0	0	0	0	2	5	0	5	2	0	0	35	443
8:00 AM	8	0	7	0	0	0	0	0	0	7	6	0	6	4	0	0	38	443
8:05 AM	9	0	8	0	0	0	0	0	0	1	6	0	2	0	0	0	26	432
8:10 AM	3	0	9	0	0	0	0	0	0	6	3	0	7	1	0	0	29	421
8:15 AM	12	0	11	0	0	0	0	0	0	3	6	0	7	2	0	0	41	421
8:20 AM	9	0	8	0	0	0	0	0	0	0	3	0	5	2	0	0	27	406
8:25 AM	5	0	5	0	0	0	0	0	0	0	4	0	6	1	0	0	21	378
8:30 AM	4	0	8	0	0	0	0	0	0	4	2	0	6	1	0	0	25	371
8:35 AM	7	0	9	0	0	0	0	0	0	4	2	0	5	3	0	0	30	362
8:40 AM	4	0	10	0	0	0	0	0	0	2	3	0	7	0	0	0	26	359
8:45 AM	5	0	6	0	0	0	0	0	0	2	9	0	13	4	0	0	39	363
8:50 AM	6	0	8	0	0	0	0	0	0	5	4	0	7	2	0	0	32	369

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	124	0	92	0	0	0	0	0	0	36	164	0	80	32	0	0	528
Heavy Trucks	16	0	24		0	0	0		0	8	20		40	8	0		116
Buses																	
Pedestrians		0				0				0				0			0
Bicycles	0	0	0		0	0	0		0	0	0		0	0	0		0
Scooters																	

Comments:

Report generated on 8/16/2024 2:46 PM

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

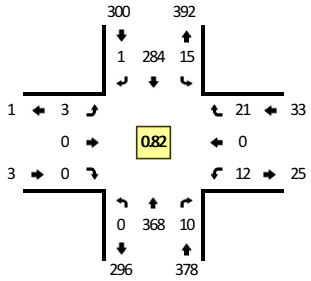
Type of peak hour being reported: Intersection Peak

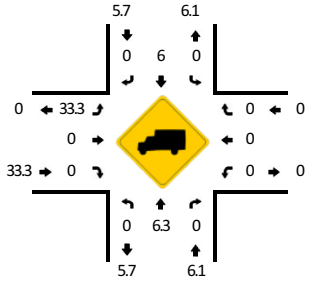
Method for determining peak hour: Total Entering Volume

LOCATION: S Main St -- SE Front St
CITY/STATE: Boardman, OR

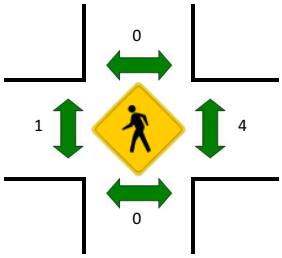
QC JOB #: 16719905
DATE: Tue, May 21 2024

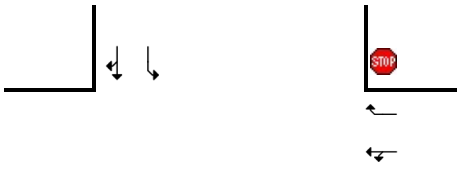
Peak-Hour: 7:00 AM -- 8:00 AM
Peak 15-Min: 7:10 AM -- 7:25 AM

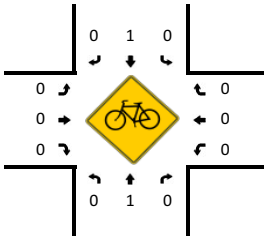


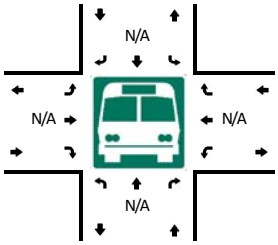


TRUE DATA TO IMPROVE MOBILITY

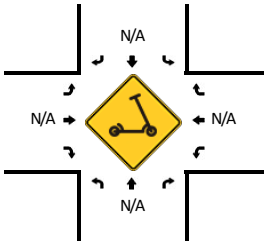












5-Min Count Period Beginning At	S Main St (Northbound)				S Main St (Southbound)				SE Front St (Eastbound)				SE Front St (Westbound)				Total	Hourly Totals
	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U		
7:00 AM	0	36	1	0	0	14	1	0	0	0	0	0	0	0	5	0	57	
7:05 AM	0	36	0	0	1	23	0	0	0	0	0	0	2	0	2	0	64	
7:10 AM	0	34	1	0	0	28	0	0	1	0	0	0	0	0	1	0	65	
7:15 AM	0	43	0	0	3	24	0	0	0	0	0	0	1	0	3	0	74	
7:20 AM	0	40	1	0	3	33	0	0	1	0	0	0	1	0	0	0	79	
7:25 AM	0	21	3	0	1	30	0	0	0	0	0	0	1	0	1	0	57	
7:30 AM	0	18	1	0	1	18	0	0	0	0	0	0	0	0	3	0	41	
7:35 AM	0	21	0	0	1	19	0	0	0	0	0	0	2	0	1	0	44	
7:40 AM	0	30	0	0	3	15	0	0	0	0	0	0	1	0	2	0	51	
7:45 AM	0	21	0	0	1	31	0	0	1	0	0	0	2	0	2	0	58	
7:50 AM	0	39	3	0	1	23	0	0	0	0	0	0	1	0	0	0	67	
7:55 AM	0	29	0	0	0	26	0	0	0	0	0	0	1	0	1	0	57	714
8:00 AM	0	25	2	0	1	20	0	0	0	0	0	0	0	0	1	0	49	706
8:05 AM	0	32	2	0	1	26	0	0	0	0	0	0	0	0	0	0	61	703
8:10 AM	0	29	0	0	2	15	0	0	1	0	0	0	1	0	2	0	50	688
8:15 AM	0	14	0	0	0	17	0	0	0	0	0	0	0	0	2	0	33	647
8:20 AM	0	13	1	0	1	15	0	0	0	0	0	0	0	0	4	0	34	602
8:25 AM	0	12	0	0	2	14	1	0	0	0	1	0	1	0	1	0	32	577
8:30 AM	0	12	0	0	2	9	0	0	0	0	0	0	0	0	0	0	23	559
8:35 AM	0	25	1	0	2	11	0	0	0	0	0	0	0	0	3	0	42	557
8:40 AM	0	15	0	0	1	11	1	0	1	0	0	0	0	0	3	0	32	538
8:45 AM	1	23	1	0	3	13	1	0	1	0	0	0	1	0	1	0	45	525
8:50 AM	0	21	1	0	1	9	1	0	2	0	0	0	0	0	6	0	41	499

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	468	8	0	24	340	0	0	8	0	0	0	8	0	16	0	872
Heavy Trucks	0	16	0		0	16	0		4	0	0		0	0	0		36
Buses																	
Pedestrians		0				0				4				4			8
Bicycles	0	0	0		0	4	0		0	0	0		0	0	0		4
Scooters																	

Comments:

Report generated on 8/16/2024 2:46 PM

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

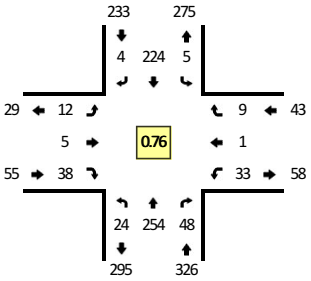
Type of peak hour being reported: Intersection Peak

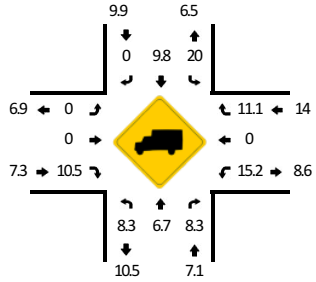
Method for determining peak hour: Total Entering Volume

LOCATION: N Main St -- Front St NW
CITY/STATE: Boardman, OR

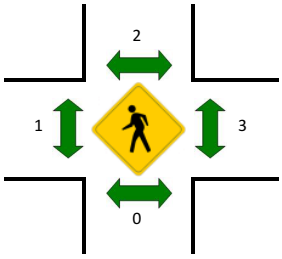
QC JOB #: 16719906
DATE: Tue, May 21 2024

Peak-Hour: 7:10 AM -- 8:10 AM
Peak 15-Min: 7:10 AM -- 7:25 AM

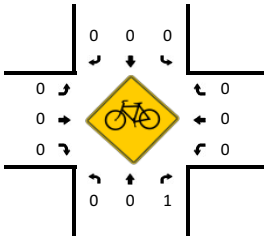


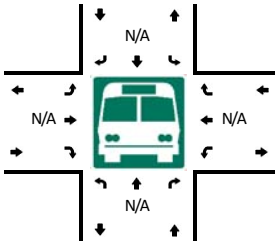


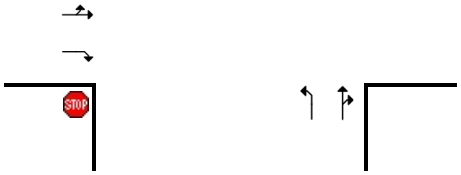
TRUE DATA TO IMPROVE MOBILITY

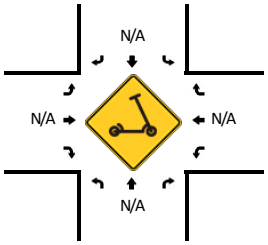












5-Min Count Period Beginning At	N Main St (Northbound)				N Main St (Southbound)				Front St NW (Eastbound)				Front St NW (Westbound)				Total	Hourly Totals
	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U		
7:00 AM	3	35	4	0	1	9	1	0	0	0	1	0	1	0	1	0	56	
7:05 AM	4	31	4	0	0	16	0	0	0	0	1	0	3	0	0	0	59	
7:10 AM	1	28	3	0	0	26	0	0	3	0	3	0	4	0	1	0	69	
7:15 AM	1	34	3	0	0	23	0	0	1	0	1	0	1	0	2	0	66	
7:20 AM	1	40	4	0	1	30	0	0	0	0	4	0	0	0	2	0	82	
7:25 AM	0	10	3	0	0	18	0	0	0	1	4	0	2	0	0	0	38	
7:30 AM	2	11	1	0	0	16	0	0	1	1	1	0	1	1	0	0	35	
7:35 AM	4	9	5	0	1	9	0	0	2	1	3	0	5	0	0	0	39	
7:40 AM	2	15	4	0	0	13	0	0	0	0	2	0	5	0	0	0	41	
7:45 AM	0	21	2	0	1	21	0	0	2	0	1	0	3	0	0	0	51	
7:50 AM	3	24	7	0	0	15	2	0	1	0	3	0	2	0	1	0	58	
7:55 AM	4	15	9	0	1	15	2	0	0	0	6	0	3	0	3	0	58	652
8:00 AM	4	21	2	0	0	15	0	0	1	2	7	0	2	0	0	0	54	650
8:05 AM	2	26	5	0	1	23	0	0	1	0	3	0	5	0	0	0	66	657
8:10 AM	0	18	8	0	0	15	0	0	0	0	2	0	1	0	0	0	44	632
8:15 AM	0	14	3	0	1	19	0	0	1	1	4	0	1	0	0	0	44	610
8:20 AM	1	9	2	0	0	12	1	0	1	0	1	0	3	0	0	0	30	558
8:25 AM	3	19	1	0	1	15	1	0	0	0	4	0	2	0	1	0	47	567
8:30 AM	2	10	5	0	0	6	0	0	2	0	5	0	3	0	1	0	34	566
8:35 AM	4	16	7	0	0	13	0	0	2	0	3	0	2	2	1	0	50	577
8:40 AM	0	14	7	0	1	14	1	0	2	0	2	0	4	0	0	0	45	581
8:45 AM	1	17	2	0	1	11	1	0	0	1	3	0	4	0	0	0	41	571
8:50 AM	2	27	6	0	1	10	1	0	0	0	4	0	4	0	0	0	55	568

Peak 15-Min Flowrates	Northbound				Southbound				Eastbound				Westbound				Total
	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U	
All Vehicles	12	408	40	0	4	316	0	0	16	0	32	0	20	0	20	0	868
Heavy Trucks	0	12	0		0	28	0		0	0	4		4	0	4		52
Buses																	
Pedestrians		0				0				0				4			4
Bicycles	0	0	0		0	0	0		0	0	0		0	0	0		0
Scooters																	

Comments:

Report generated on 8/16/2024 2:46 PM

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

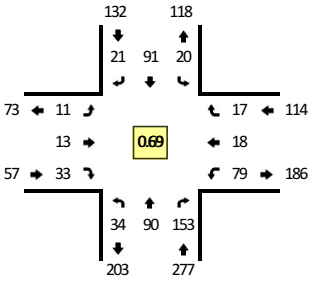
Type of peak hour being reported: Intersection Peak

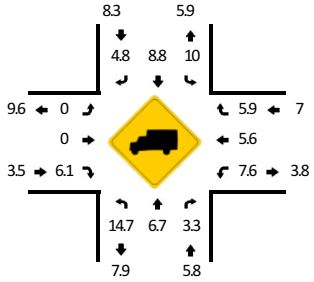
Method for determining peak hour: Total Entering Volume

LOCATION: N Main St -- Boardman Ave NE
CITY/STATE: Boardman, OR

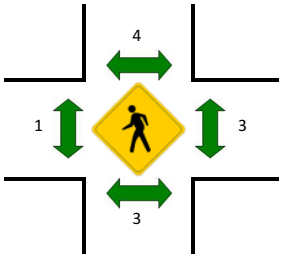
QC JOB #: 16719907
DATE: Tue, May 21 2024

Peak-Hour: 7:00 AM -- 8:00 AM
Peak 15-Min: 7:10 AM -- 7:25 AM

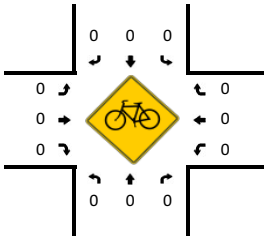


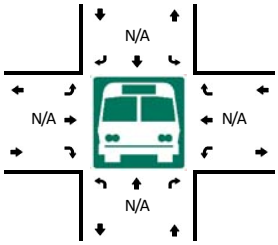


TRUE DATA TO IMPROVE MOBILITY

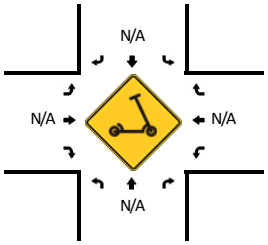












5-Min Count Period Beginning At	N Main St (Northbound)				N Main St (Southbound)				Boardman Ave NE (Eastbound)				Boardman Ave NE (Westbound)				Total	Hourly Totals
	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U		
7:00 AM	2	12	19	0	5	4	0	0	1	4	4	0	4	0	0	0	55	
7:05 AM	3	6	22	0	3	4	3	0	1	3	1	0	11	4	3	0	64	
7:10 AM	2	4	24	0	1	6	1	0	0	1	2	0	10	4	5	0	60	
7:15 AM	0	7	28	0	3	8	1	0	0	3	2	0	12	3	0	0	67	
7:20 AM	3	7	32	0	3	10	3	0	1	0	1	0	18	3	2	0	83	
7:25 AM	1	6	2	0	1	8	3	0	3	0	1	0	8	3	2	0	38	
7:30 AM	3	3	6	0	0	11	2	0	0	0	3	0	3	0	0	0	31	
7:35 AM	1	2	5	0	0	4	1	0	0	1	4	0	1	0	0	0	19	
7:40 AM	4	9	2	0	1	5	1	0	0	0	2	0	3	1	3	0	31	
7:45 AM	5	13	4	0	1	13	1	0	2	0	5	0	4	0	1	0	49	
7:50 AM	5	14	6	0	1	12	3	0	3	1	3	0	2	0	0	0	50	
7:55 AM	5	7	3	0	1	6	2	0	0	0	5	0	3	0	1	0	33	580
8:00 AM	6	9	6	0	2	7	4	0	4	1	3	0	4	0	1	0	47	572
8:05 AM	6	11	9	0	0	14	1	0	0	0	4	0	3	0	1	0	49	557
8:10 AM	7	8	3	0	0	9	2	0	1	2	1	0	3	1	0	0	37	534
8:15 AM	6	8	1	0	1	5	1	0	2	0	4	0	3	2	0	0	33	500
8:20 AM	2	5	4	0	2	10	0	0	0	0	5	0	1	0	0	0	29	446
8:25 AM	4	4	7	0	1	9	0	0	0	1	2	0	2	0	0	0	30	438
8:30 AM	4	5	4	0	1	6	2	0	0	0	0	0	1	1	0	0	24	431
8:35 AM	1	6	7	0	1	5	1	0	0	0	7	0	2	0	1	0	31	443
8:40 AM	1	7	7	0	0	5	1	0	1	1	9	0	5	0	0	0	37	449
8:45 AM	2	4	13	0	1	8	2	0	0	1	2	0	0	1	1	0	35	435
8:50 AM	5	8	11	0	1	8	0	0	0	0	2	0	0	1	1	0	37	422

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	20	72	336	0	28	96	20	0	4	16	20	0	160	40	28	0	840
Heavy Trucks	4	16	0		0	16	4		0	0	0		8	4	0		52
Buses																	
Pedestrians		0				4				0				0			4
Bicycles	0	0	0		0	0	0		0	0	0		0	0	0		0
Scooters																	

Comments:

Report generated on 8/16/2024 2:46 PM

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

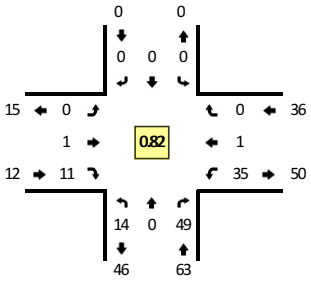
Type of peak hour being reported: Intersection Peak

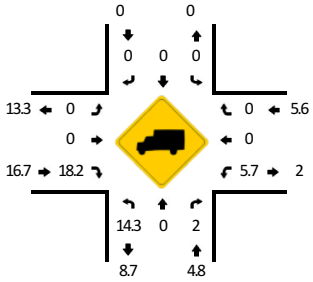
Method for determining peak hour: Total Entering Volume

LOCATION: N Main St -- Marine Dr NW
CITY/STATE: Boardman, OR

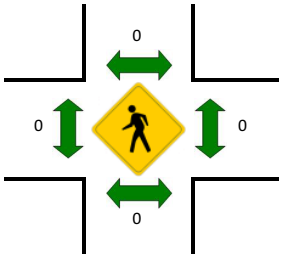
QC JOB #: 16719908
DATE: Tue, May 21 2024

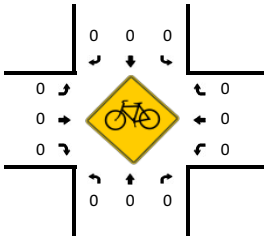
Peak-Hour: 7:25 AM -- 8:25 AM
Peak 15-Min: 7:40 AM -- 7:55 AM

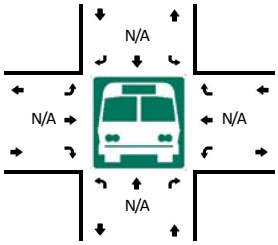


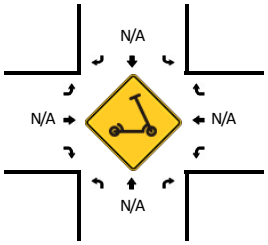


TRUE DATA TO IMPROVE MOBILITY









5-Min Count Period Beginning At	N Main St (Northbound)				N Main St (Southbound)				Marine Dr NW (Eastbound)				Marine Dr NW (Westbound)				Total	Hourly Totals
	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U		
7:00 AM	0	0	4	0	0	0	0	0	0	0	2	0	3	0	0	0	9	
7:05 AM	0	0	5	0	0	0	0	0	0	0	0	0	5	0	0	0	10	
7:10 AM	1	0	0	0	0	0	0	0	0	0	0	0	4	0	0	0	5	
7:15 AM	1	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	2	
7:20 AM	1	0	3	0	0	0	0	0	0	0	2	0	1	0	0	0	7	
7:25 AM	0	0	5	0	0	0	0	0	0	0	0	0	2	0	0	0	7	
7:30 AM	0	0	6	0	0	0	0	0	0	0	1	0	4	0	0	0	11	
7:35 AM	1	0	1	0	0	0	0	0	0	0	1	0	0	0	0	0	3	
7:40 AM	2	0	4	0	0	0	0	0	0	0	0	0	3	0	0	0	9	
7:45 AM	1	0	4	0	0	0	0	0	0	0	4	0	5	0	0	0	14	
7:50 AM	1	0	4	0	0	0	0	0	0	0	0	0	6	0	0	0	11	
7:55 AM	1	0	4	0	0	0	0	0	0	0	1	0	3	0	0	0	9	97
8:00 AM	1	0	7	0	0	0	0	0	0	0	2	0	2	0	0	0	12	100
8:05 AM	3	0	3	0	0	0	0	0	0	1	1	0	4	0	0	0	12	102
8:10 AM	0	0	2	0	0	0	0	0	0	0	0	0	2	0	0	0	4	101
8:15 AM	2	0	4	0	0	0	0	0	0	0	1	0	2	0	0	0	9	108
8:20 AM	2	0	5	0	0	0	0	0	0	0	0	0	2	1	0	0	10	111
8:25 AM	1	0	0	0	0	0	0	0	0	0	3	0	1	0	0	0	5	109
8:30 AM	0	0	4	0	0	0	0	0	0	0	1	0	3	0	0	0	8	106
8:35 AM	2	0	2	0	0	0	0	0	0	0	0	0	1	0	0	0	5	108
8:40 AM	1	0	3	0	0	0	0	0	0	0	3	0	1	0	0	0	8	107
8:45 AM	2	0	2	0	0	0	0	0	0	0	1	0	4	0	0	0	9	102
8:50 AM	0	0	1	0	0	0	0	0	0	1	2	0	1	0	0	0	5	96

Peak 15-Min Flowrates	Northbound				Southbound				Eastbound				Westbound				Total
	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U	
All Vehicles	16	0	48	0	0	0	0	0	0	0	16	0	56	0	0	0	136
Heavy Trucks	4	0	0		0	0	0		0	0	8		4	0	0		16
Buses																	
Pedestrians		0				0				0				0			0
Bicycles	0	0	0		0	0	0		0	0	0		0	0	0		0
Scooters																	

Comments:

Report generated on 8/16/2024 2:46 PM

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

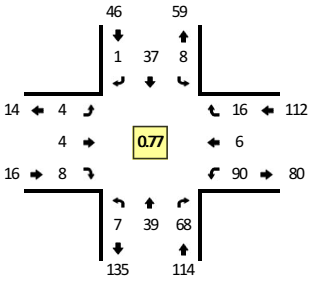
Type of peak hour being reported: Intersection Peak

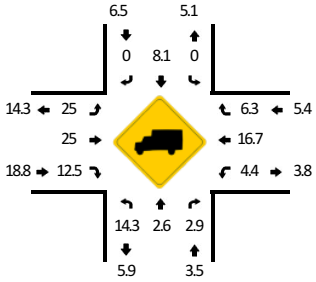
Method for determining peak hour: Total Entering Volume

LOCATION: N Main St -- Columbia Ave NW
CITY/STATE: Boardman, OR

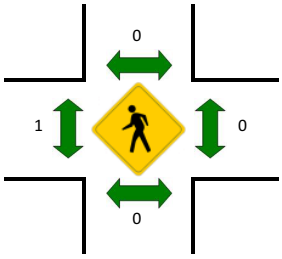
QC JOB #: 16719909
DATE: Tue, May 21 2024

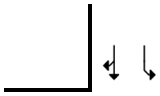
Peak-Hour: 7:20 AM -- 8:20 AM
Peak 15-Min: 7:45 AM -- 8:00 AM

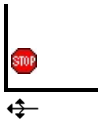


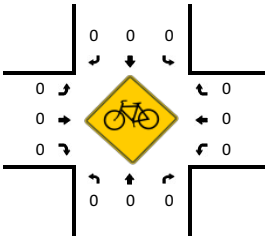


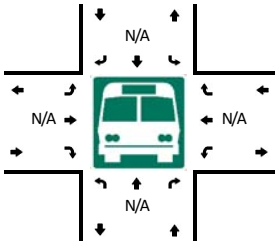
TRUE DATA TO IMPROVE MOBILITY

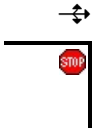


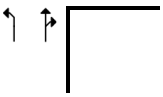


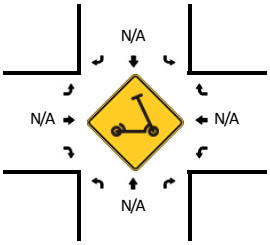












5-Min Count Period Beginning At	N Main St (Northbound)				N Main St (Southbound)				Columbia Ave NW (Eastbound)				Columbia Ave NW (Westbound)				Total	Hourly Totals
	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U		
7:00 AM	0	5	11	0	1	3	1	0	0	0	2	0	2	0	0	0	25	
7:05 AM	1	5	6	0	1	2	2	0	0	0	0	0	6	0	1	0	24	
7:10 AM	0	1	4	0	0	4	0	0	0	0	2	0	2	0	0	0	13	
7:15 AM	0	1	6	0	0	0	0	0	0	1	0	0	7	0	0	0	15	
7:20 AM	0	4	5	0	0	3	0	0	0	0	1	0	12	1	0	0	26	
7:25 AM	1	5	3	0	0	2	0	0	1	1	1	0	9	1	1	0	25	
7:30 AM	0	2	1	0	0	5	0	0	0	1	0	0	6	0	2	0	17	
7:35 AM	0	0	3	0	0	0	0	0	0	0	0	0	3	1	2	0	9	
7:40 AM	0	5	6	0	0	2	0	0	0	0	0	0	5	0	1	0	19	
7:45 AM	0	5	10	0	3	6	0	0	0	1	0	0	12	1	0	0	38	
7:50 AM	1	3	12	0	1	6	0	0	1	0	3	0	7	1	1	0	36	
7:55 AM	1	2	5	0	1	2	1	0	0	0	0	0	6	0	2	0	20	267
8:00 AM	0	6	7	0	0	4	0	0	0	0	2	0	9	0	2	0	30	272
8:05 AM	3	6	5	0	2	3	0	0	0	0	1	0	11	1	0	0	32	280
8:10 AM	1	0	5	0	1	1	0	0	0	1	0	0	8	0	2	0	19	286
8:15 AM	0	1	6	0	0	3	0	0	2	0	0	0	2	0	3	0	17	288
8:20 AM	0	5	0	0	0	2	0	0	0	0	1	0	8	1	2	0	19	281
8:25 AM	2	1	3	0	0	3	0	0	0	0	0	0	6	0	1	0	16	272
8:30 AM	1	2	3	0	0	5	0	0	0	2	1	0	3	0	1	0	18	273
8:35 AM	1	3	2	0	1	0	0	0	0	1	1	0	5	2	1	0	17	281
8:40 AM	1	3	3	0	1	2	1	0	0	1	1	0	4	1	1	0	19	281
8:45 AM	0	3	4	0	1	4	1	0	0	2	1	0	6	0	1	0	23	266
8:50 AM	1	2	2	0	1	2	0	0	0	0	2	0	4	0	1	0	15	245

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	8	40	108	0	20	56	4	0	4	4	12	0	100	8	12	0	376
Heavy Trucks	0	0	0		0	8	0		0	0	0		4	0	4		16
Buses																	
Pedestrians		0				0				4				0			4
Bicycles	0	0	0		0	0	0		0	0	0		0	0	0		0
Scooters																	

Comments:

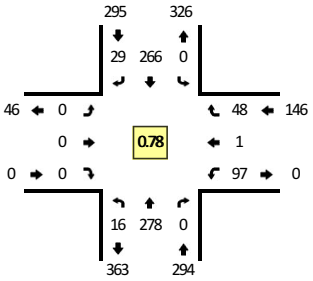
Report generated on 8/16/2024 2:46 PM

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

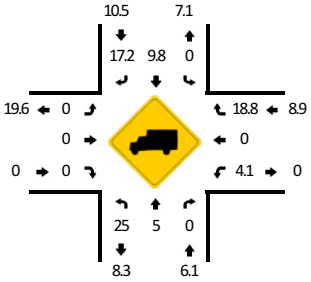
Type of peak hour being reported: Intersection Peak | Method for determining peak hour: Total Entering Volume

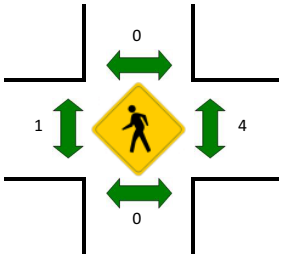
LOCATION: N Main St -- I-84 WB Ramps | **QC JOB #:** 16719910
CITY/STATE: Boardman, OR | **DATE:** Tue, May 21 2024

Peak-Hour: 7:10 AM -- 8:10 AM
Peak 15-Min: 7:10 AM -- 7:25 AM

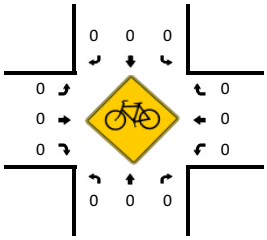


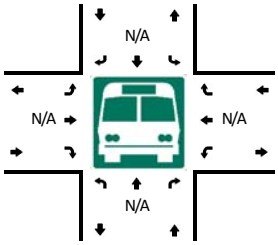




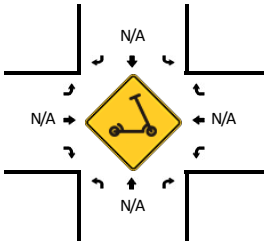












5-Min Count Period Beginning At	N Main St (Northbound)				N Main St (Southbound)				I-84 WB Ramps (Eastbound)				I-84 WB Ramps (Westbound)				Total	Hourly Totals
	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U		
7:00 AM	1	29	0	0	0	10	0	0	0	0	0	0	7	0	13	0	60	
7:05 AM	2	30	0	0	0	21	1	0	0	0	0	0	6	0	9	0	69	
7:10 AM	2	28	0	0	0	29	4	0	0	0	0	0	7	0	4	0	74	
7:15 AM	0	38	0	0	0	21	4	0	0	0	0	0	8	0	2	0	73	
7:20 AM	3	38	0	0	0	33	0	0	0	0	0	0	8	0	6	0	88	
7:25 AM	2	9	0	0	0	22	3	0	0	0	0	0	11	0	3	0	50	
7:30 AM	1	14	0	0	0	16	0	0	0	0	0	0	5	1	0	0	37	
7:35 AM	0	13	0	0	0	17	2	0	0	0	0	0	6	0	5	0	43	
7:40 AM	1	20	0	0	0	18	2	0	0	0	0	0	7	0	2	0	50	
7:45 AM	4	18	0	0	0	21	4	0	0	0	0	0	12	0	4	0	63	
7:50 AM	0	35	0	0	0	18	2	0	0	0	0	0	8	0	2	0	65	
7:55 AM	1	22	0	0	0	21	2	0	0	0	0	0	13	0	3	0	62	734
8:00 AM	1	20	0	0	0	22	3	0	0	0	0	0	6	0	8	0	60	734
8:05 AM	1	23	0	0	0	28	3	0	0	0	0	0	6	0	9	0	70	735
8:10 AM	1	22	0	0	0	16	2	0	0	0	0	0	5	0	4	0	50	711
8:15 AM	0	14	0	0	0	19	5	0	0	0	0	0	1	0	3	0	42	680
8:20 AM	0	10	0	0	0	15	1	0	0	0	0	0	4	0	3	0	33	625
8:25 AM	0	17	0	0	0	19	1	0	0	0	0	0	3	0	6	0	46	621
8:30 AM	0	13	0	0	0	12	3	0	0	0	0	0	2	0	3	0	33	617
8:35 AM	0	20	0	0	0	12	6	0	0	0	0	0	3	0	8	0	49	623
8:40 AM	2	17	0	0	0	19	1	0	0	0	0	0	4	0	4	0	47	620
8:45 AM	1	18	0	0	0	16	1	0	0	0	0	0	7	0	3	0	46	603
8:50 AM	1	25	0	0	0	15	2	0	0	0	0	0	4	0	10	0	57	595

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	20	416	0	0	0	332	32	0	0	0	0	0	92	0	48	0	940
Heavy Trucks	8	8	0		0	24	12		0	0	0		0	0	4		56
Buses																	
Pedestrians		0				0				0				4			4
Bicycles	0	0	0		0	0	0		0	0	0		0	0	0		0
Scooters																	

Comments:

Report generated on 8/16/2024 2:46 PM | SOURCE: Quality Counts, LLC (http://www.qualitycounts.net) 1-877-580-2212

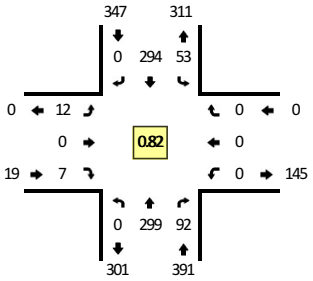
Type of peak hour being reported: Intersection Peak

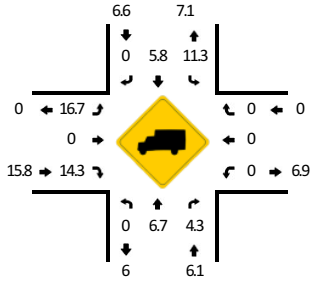
Method for determining peak hour: Total Entering Volume

LOCATION: S Main St -- I-84 EB Ramps
CITY/STATE: Boardman, OR

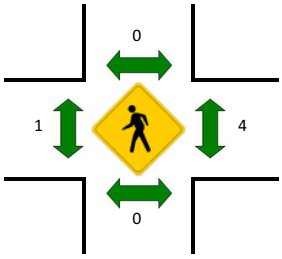
QC JOB #: 16719911
DATE: Tue, May 21 2024

Peak-Hour: 7:00 AM -- 8:00 AM
Peak 15-Min: 7:10 AM -- 7:25 AM

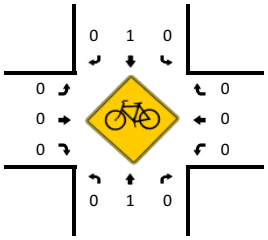


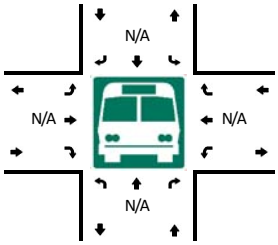


TRUE DATA TO IMPROVE MOBILITY

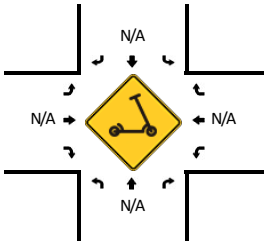












5-Min Count Period Beginning At	S Main St (Northbound)				S Main St (Southbound)				I-84 EB Ramps (Eastbound)				I-84 EB Ramps (Westbound)				Total	Hourly Totals
	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U		
7:00 AM	0	31	11	0	6	14	0	0	1	0	1	0	0	0	0	0	64	
7:05 AM	0	32	6	0	4	23	0	0	1	0	1	0	0	0	0	0	67	
7:10 AM	0	28	8	0	5	28	0	0	0	0	0	0	0	0	0	0	69	
7:15 AM	0	39	5	0	3	27	0	0	5	0	0	0	0	0	0	0	79	
7:20 AM	0	33	10	0	4	36	0	0	1	0	0	0	0	0	0	0	84	
7:25 AM	0	9	12	0	3	30	0	0	2	0	1	0	0	0	0	0	57	
7:30 AM	0	15	7	0	3	19	0	0	0	0	0	0	0	0	0	0	44	
7:35 AM	0	13	9	0	5	19	0	0	0	0	1	0	0	0	0	0	47	
7:40 AM	0	23	8	0	4	19	0	0	0	0	0	0	0	0	0	0	54	
7:45 AM	0	19	5	0	3	31	0	0	1	0	1	0	0	0	0	0	60	
7:50 AM	0	34	6	0	5	23	0	0	1	0	0	0	0	0	0	0	69	
7:55 AM	0	23	5	0	8	25	0	0	0	0	2	0	0	0	0	0	63	757
8:00 AM	0	21	7	0	8	19	0	0	0	0	1	0	0	0	0	0	56	749
8:05 AM	0	24	8	0	7	27	0	0	0	0	0	0	0	0	0	0	66	748
8:10 AM	0	23	9	0	5	17	0	0	2	0	1	0	0	0	0	0	57	736
8:15 AM	0	13	3	0	3	16	0	0	0	0	0	0	0	0	0	0	35	692
8:20 AM	0	10	6	0	4	16	0	0	1	0	0	0	0	0	0	0	37	645
8:25 AM	0	12	2	0	3	17	0	0	4	0	0	0	0	0	0	0	38	626
8:30 AM	0	10	2	0	4	11	0	0	2	0	0	0	0	0	0	0	29	611
8:35 AM	0	19	9	0	6	9	0	0	1	0	4	0	0	0	0	0	48	612
8:40 AM	0	17	2	0	11	13	0	0	3	0	0	0	0	0	0	0	46	604
8:45 AM	0	16	9	0	5	17	0	0	2	0	0	0	0	0	0	0	49	593
8:50 AM	0	26	3	0	8	11	0	0	1	0	0	0	0	0	0	0	49	573

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	400	92	0	48	364	0	0	24	0	0	0	0	0	0	0	928
Heavy Trucks	0	16	4		8	16	0		0	0	0		0	0	0		44
Buses																	
Pedestrians		0				0				4				4			8
Bicycles	0	0	0		0	4	0		0	0	0		0	0	0		4
Scooters																	

Comments:

Report generated on 8/16/2024 2:46 PM

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

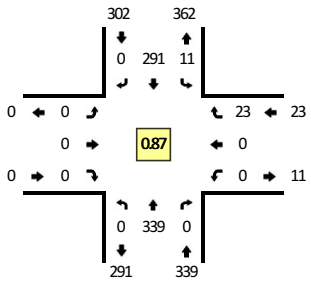
Type of peak hour being reported: Intersection Peak

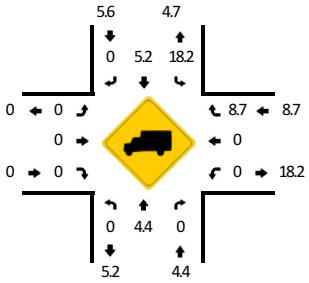
Method for determining peak hour: Total Entering Volume

LOCATION: S Main St -- Oregon Trail Blvd
CITY/STATE: Boardman, OR

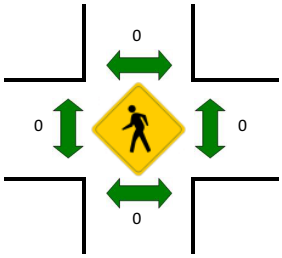
QC JOB #: 16719912
DATE: Tue, May 21 2024

Peak-Hour: 7:05 AM -- 8:05 AM
Peak 15-Min: 7:10 AM -- 7:25 AM

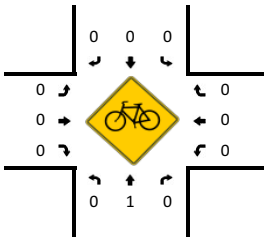


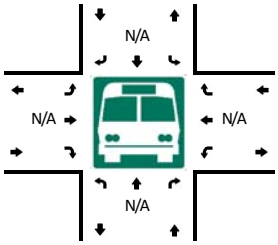


TRUE DATA TO IMPROVE MOBILITY

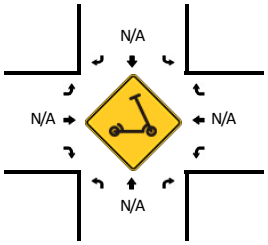












5-Min Count Period Beginning At	S Main St (Northbound)				S Main St (Southbound)				Oregon Trail Blvd (Eastbound)				Oregon Trail Blvd (Westbound)				Total	Hourly Totals
	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U		
7:00 AM	0	26	0	0	0	13	0	0	0	0	0	0	0	0	6	0	45	
7:05 AM	0	29	0	0	1	23	0	0	0	0	0	0	0	0	3	0	56	
7:10 AM	0	35	0	0	0	27	0	0	0	0	0	0	0	0	2	0	64	
7:15 AM	0	40	0	0	1	22	0	0	0	0	0	0	0	0	3	0	66	
7:20 AM	0	30	0	0	1	27	0	0	0	0	0	0	0	0	3	0	61	
7:25 AM	0	18	0	0	2	29	0	0	0	0	0	0	0	0	3	0	52	
7:30 AM	0	17	0	0	1	19	0	0	0	0	0	0	0	0	2	0	39	
7:35 AM	0	20	0	0	0	22	0	0	0	0	0	0	0	0	2	0	44	
7:40 AM	0	28	0	0	0	17	0	0	0	0	0	0	0	0	1	0	46	
7:45 AM	0	22	0	0	1	31	0	0	0	0	0	0	0	0	0	0	54	
7:50 AM	0	42	0	0	0	27	0	0	0	0	0	0	0	0	2	0	71	
7:55 AM	0	32	0	0	2	26	0	0	0	0	0	0	0	0	0	0	60	658
8:00 AM	0	26	0	0	2	21	0	0	0	0	0	0	0	0	2	0	51	664
8:05 AM	0	30	0	0	1	24	0	0	0	0	0	0	0	0	0	0	55	663
8:10 AM	0	22	0	0	0	17	0	0	0	0	0	0	0	0	3	0	42	641
8:15 AM	0	17	0	0	2	13	0	0	0	0	0	0	0	0	0	0	32	607
8:20 AM	0	14	0	0	2	15	0	0	0	0	0	0	0	0	0	0	31	577
8:25 AM	0	9	0	0	0	15	0	0	0	0	0	0	0	0	1	0	25	550
8:30 AM	0	14	0	0	0	10	0	0	0	0	0	0	0	0	1	0	25	536
8:35 AM	0	19	0	0	1	10	0	0	0	0	0	0	0	0	1	0	31	523
8:40 AM	0	16	0	0	0	10	0	0	0	0	0	0	0	0	0	0	26	503
8:45 AM	0	23	0	0	0	13	0	0	0	0	0	0	0	0	0	0	36	485
8:50 AM	0	21	0	0	0	7	0	0	0	0	0	0	1	0	0	0	29	443

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	420	0	0	8	304	0	0	0	0	0	0	0	0	32	0	764
Heavy Trucks	0	16	0		0	8	0		0	0	0		0	0	0		24
Buses																	
Pedestrians		0				0				0				0			0
Bicycles	0	0	0		0	0	0		0	0	0		0	0	0		0
Scooters																	

Comments:

Report generated on 8/16/2024 2:46 PM

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

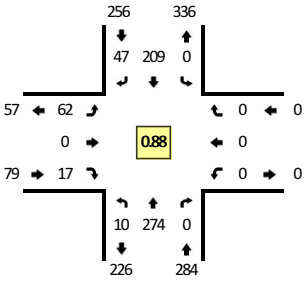
Type of peak hour being reported: Intersection Peak

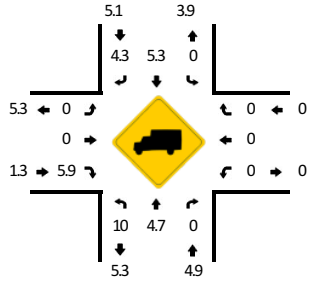
Method for determining peak hour: Total Entering Volume

LOCATION: S Main St -- Kinkade Rd
CITY/STATE: Boardman, OR

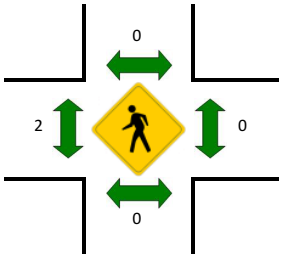
QC JOB #: 16719913
DATE: Tue, May 21 2024

Peak-Hour: 7:05 AM -- 8:05 AM
Peak 15-Min: 7:45 AM -- 8:00 AM

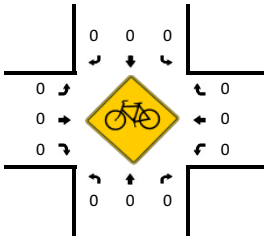


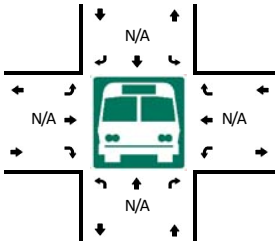


TRUE DATA TO IMPROVE MOBILITY

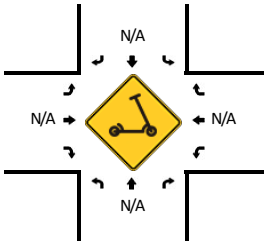












5-Min Count Period Beginning At	S Main St (Northbound)				S Main St (Southbound)				Kinkade Rd (Eastbound)				Kinkade Rd (Westbound)				Total	Hourly Totals
	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U		
7:00 AM	0	20	0	0	0	9	2	0	6	0	0	0	0	0	0	0	37	
7:05 AM	0	29	0	0	0	19	2	0	4	0	0	0	0	0	0	0	54	
7:10 AM	0	22	0	0	0	17	2	0	10	0	0	0	0	0	0	0	51	
7:15 AM	1	33	0	0	0	17	1	0	9	0	1	0	0	0	0	0	62	
7:20 AM	1	21	0	0	0	20	7	0	5	0	0	0	0	0	0	0	54	
7:25 AM	1	13	0	0	0	26	1	0	3	0	5	0	0	0	0	0	49	
7:30 AM	3	8	0	0	0	14	2	0	8	0	2	0	0	0	0	0	37	
7:35 AM	0	18	0	0	0	19	4	0	2	0	0	0	0	0	0	0	43	
7:40 AM	0	29	0	0	0	14	1	0	1	0	0	0	0	0	0	0	45	
7:45 AM	0	17	0	0	0	18	8	0	5	0	3	0	0	0	0	0	51	
7:50 AM	0	37	0	0	0	15	5	0	5	0	1	0	0	0	0	0	63	
7:55 AM	3	24	0	0	0	19	5	0	6	0	4	0	0	0	0	0	61	607
8:00 AM	1	23	0	0	0	11	9	0	4	0	1	0	0	0	0	0	49	619
8:05 AM	1	24	0	0	0	6	6	0	5	0	1	0	0	0	0	0	43	608
8:10 AM	1	16	0	0	0	12	2	0	5	0	3	0	0	0	0	0	39	596
8:15 AM	2	9	0	0	0	7	5	0	7	0	1	0	0	0	0	0	31	565
8:20 AM	1	6	0	0	0	12	1	0	5	0	1	0	0	0	0	0	26	537
8:25 AM	2	11	0	0	0	10	3	0	2	0	0	0	0	0	0	0	28	516
8:30 AM	3	9	0	0	0	6	1	0	3	0	3	0	0	0	0	0	25	504
8:35 AM	0	16	0	0	0	2	2	0	3	0	2	0	0	0	0	0	25	486
8:40 AM	0	14	0	0	0	5	3	0	2	0	1	0	0	0	0	0	25	466
8:45 AM	0	17	0	0	0	7	2	0	3	0	2	0	0	0	0	0	31	446
8:50 AM	0	11	0	0	0	7	2	0	7	0	0	0	0	0	0	0	27	410

Peak 15-Min Flowrates	Northbound				Southbound				Eastbound				Westbound				Total
	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U	
All Vehicles	12	312	0	0	0	208	72	0	64	0	32	0	0	0	0	0	700
Heavy Trucks	0	24	0		0	8	0		0	0	0		0	0	0		32
Buses																	
Pedestrians		0				0				0				0			0
Bicycles	0	0	0		0	0	0		0	0	0		0	0	0		0
Scooters																	

Comments:

Report generated on 8/16/2024 2:46 PM

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

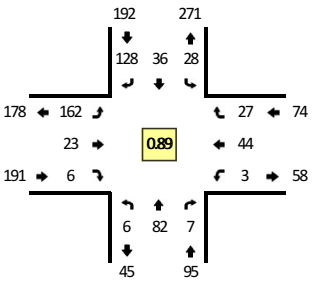
Type of peak hour being reported: Intersection Peak

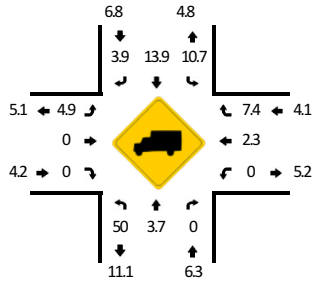
Method for determining peak hour: Total Entering Volume

LOCATION: S Main St -- Wilson Ln SE
CITY/STATE: Boardman, OR

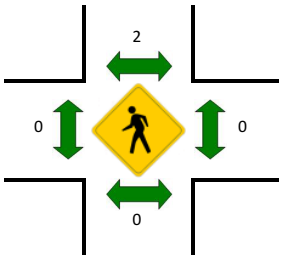
QC JOB #: 16719914
DATE: Tue, May 21 2024

Peak-Hour: 7:05 AM -- 8:05 AM
Peak 15-Min: 7:40 AM -- 7:55 AM

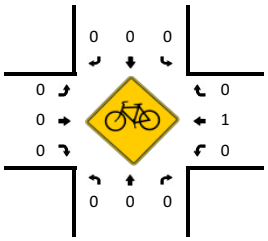


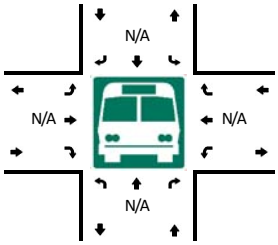


TRUE DATA TO IMPROVE MOBILITY

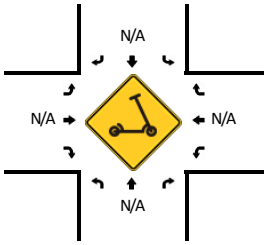












5-Min Count Period Beginning At	S Main St (Northbound)				S Main St (Southbound)				Wilson Ln SE (Eastbound)				Wilson Ln SE (Westbound)				Total	Hourly Totals
	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U		
7:00 AM	0	4	1	0	1	1	4	0	14	1	0	0	0	2	1	0	29	
7:05 AM	1	11	0	0	3	1	10	0	17	2	0	0	0	2	2	0	49	
7:10 AM	1	7	0	0	3	2	9	0	14	0	0	0	0	3	0	0	39	
7:15 AM	0	9	1	0	1	3	12	0	18	2	0	0	0	1	3	0	50	
7:20 AM	0	7	1	0	2	2	13	0	6	2	0	0	0	5	4	0	42	
7:25 AM	0	4	0	0	4	9	18	0	8	0	0	0	0	2	3	0	48	
7:30 AM	0	6	0	0	2	2	10	0	3	2	0	0	1	1	1	0	28	
7:35 AM	1	11	2	0	1	2	10	0	8	0	0	0	0	7	0	0	42	
7:40 AM	2	8	0	0	1	4	12	0	17	4	2	0	0	7	3	0	60	
7:45 AM	1	5	0	0	2	3	10	0	14	1	1	0	0	3	2	0	42	
7:50 AM	0	5	0	0	2	1	9	0	23	1	2	0	2	4	4	0	53	
7:55 AM	0	3	1	0	3	2	10	0	19	6	0	0	0	9	3	0	56	538
8:00 AM	0	6	2	0	4	5	5	0	15	3	1	0	0	0	2	0	43	552
8:05 AM	1	4	1	0	1	3	3	0	17	4	0	0	0	4	2	0	40	543
8:10 AM	0	2	1	0	4	1	8	0	9	3	0	0	0	0	2	0	30	534
8:15 AM	0	2	2	0	0	2	4	0	3	4	0	0	0	1	4	0	22	506
8:20 AM	0	3	0	0	3	3	9	0	4	0	0	0	1	2	3	0	28	492
8:25 AM	0	3	0	0	5	2	1	0	5	0	0	0	2	3	3	0	24	468
8:30 AM	0	2	2	0	1	2	3	0	6	2	0	0	0	2	7	0	27	467
8:35 AM	0	6	0	0	3	2	0	0	9	1	0	0	1	3	0	0	25	450
8:40 AM	0	5	0	0	4	1	1	0	4	1	0	0	0	0	2	0	18	408
8:45 AM	0	3	0	0	0	1	4	0	6	2	0	0	0	3	4	0	23	389
8:50 AM	0	2	0	0	2	4	2	0	8	1	0	0	0	0	1	0	20	356

Peak 15-Min Flowrates	Northbound				Southbound				Eastbound				Westbound				Total
	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U	
All Vehicles	12	72	0	0	20	32	124	0	216	24	20	0	8	56	36	0	620
Heavy Trucks	4	8	0		0	12	4		24	0	0		0	0	4		56
Buses																	
Pedestrians		0				4				0				0			4
Bicycles	0	0	0		0	0	0		0	0	0		0	4	0		4
Scooters																	

Comments:

Report generated on 8/16/2024 2:46 PM

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

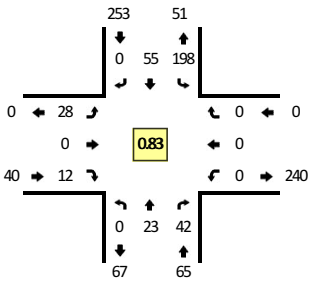
Type of peak hour being reported: Intersection Peak

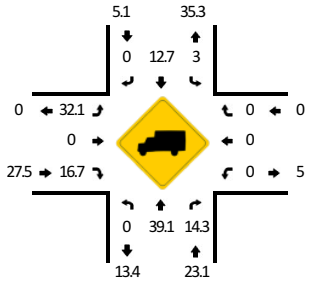
Method for determining peak hour: Total Entering Volume

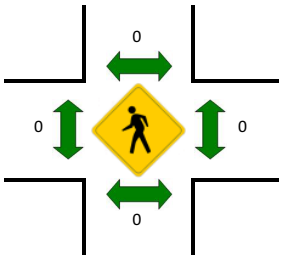
LOCATION: Laurel Ln -- I-84 EB Ramps
CITY/STATE: Boardman, OR

QC JOB #: 16719915
DATE: Tue, May 21 2024

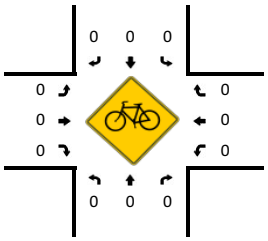
Peak-Hour: 4:05 PM -- 5:05 PM
Peak 15-Min: 4:05 PM -- 4:20 PM

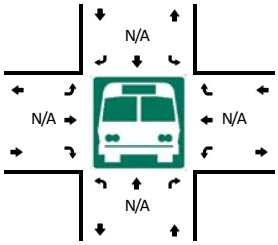




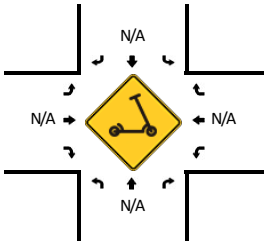












5-Min Count Period Beginning At	Laurel Ln (Northbound)				Laurel Ln (Southbound)				I-84 EB Ramps (Eastbound)				I-84 EB Ramps (Westbound)				Total	Hourly Totals
	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U		
4:00 PM	0	1	0	0	13	5	0	0	2	0	2	0	0	0	0	0	23	
4:05 PM	0	1	3	0	37	7	0	0	1	0	2	0	0	0	0	0	51	
4:10 PM	0	2	3	0	26	2	0	0	0	0	0	0	0	0	0	0	33	
4:15 PM	0	1	1	0	14	6	0	0	1	0	1	0	0	0	0	0	24	
4:20 PM	0	2	4	0	11	4	0	0	4	0	0	0	0	0	0	0	25	
4:25 PM	0	5	2	0	10	6	0	0	6	0	3	0	0	0	0	0	32	
4:30 PM	0	1	1	0	17	7	0	0	3	0	0	0	0	0	0	0	29	
4:35 PM	0	1	5	0	18	5	0	0	3	0	3	0	0	0	0	0	35	
4:40 PM	0	1	9	0	20	3	0	0	4	0	0	0	0	0	0	0	37	
4:45 PM	0	5	6	0	7	3	0	0	3	0	1	0	0	0	0	0	25	
4:50 PM	0	1	3	0	8	2	0	0	2	0	1	0	0	0	0	0	17	
4:55 PM	0	0	4	0	11	6	0	0	1	0	1	0	0	0	0	0	23	354
5:00 PM	0	3	1	0	19	4	0	0	0	0	0	0	0	0	0	0	27	358
5:05 PM	0	4	2	0	14	3	0	0	0	0	0	0	0	0	0	0	23	330
5:10 PM	0	2	1	0	12	6	0	0	0	0	0	0	0	0	0	0	21	318
5:15 PM	0	1	1	0	9	5	0	0	0	0	1	0	0	0	0	0	17	311
5:20 PM	0	2	1	0	13	5	0	0	1	0	1	0	0	0	0	0	23	309
5:25 PM	0	2	1	0	14	7	0	0	1	0	0	0	0	0	0	0	25	302
5:30 PM	0	1	0	0	10	4	0	0	1	0	0	0	0	0	0	0	16	289
5:35 PM	0	4	1	0	15	1	0	0	0	0	1	0	0	0	0	0	22	276
5:40 PM	0	4	3	0	13	2	0	0	2	0	0	0	0	0	0	0	24	263
5:45 PM	0	1	1	0	6	1	0	0	4	0	0	0	0	0	0	0	13	251
5:50 PM	0	3	2	0	5	2	0	0	1	0	0	0	0	0	0	0	13	247

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	16	28	0	308	60	0	0	8	0	12	0	0	0	0	0	432
Heavy Trucks	0	4	0		0	4	0		4	0	4		0	0	0		16
Buses																	
Pedestrians		0				0				0				0			0
Bicycles	0	0	0		0	0	0		0	0	0		0	0	0		0
Scooters																	

Comments:

Report generated on 8/16/2024 2:46 PM

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

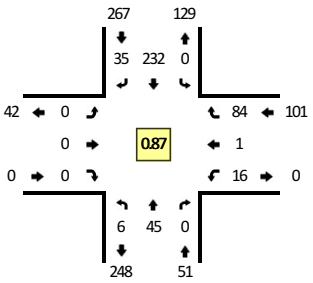
Type of peak hour being reported: Intersection Peak

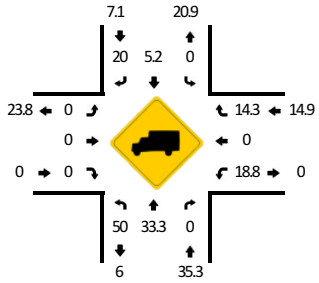
Method for determining peak hour: Total Entering Volume

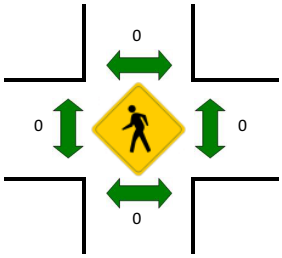
LOCATION: Laurel Ln -- I-84 WB Ramps
CITY/STATE: Boardman, OR

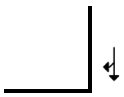
QC JOB #: 16719916
DATE: Tue, May 21 2024

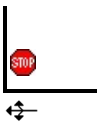
Peak-Hour: 4:00 PM -- 5:00 PM
Peak 15-Min: 4:00 PM -- 4:15 PM

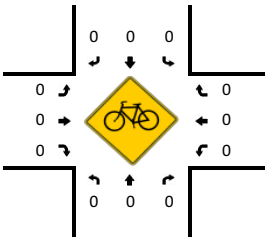


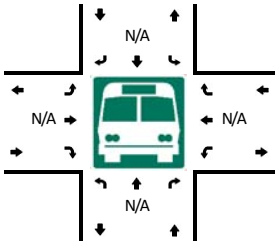




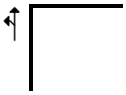


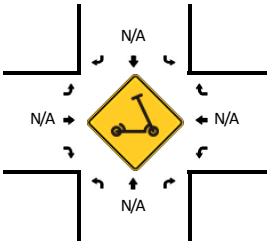












5-Min Count Period Beginning At	Laurel Ln (Northbound)				Laurel Ln (Southbound)				I-84 WB Ramps (Eastbound)				I-84 WB Ramps (Westbound)				Total	Hourly Totals
	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U		
4:00 PM	2	1	0	0	0	22	2	0	0	0	0	0	0	0	6	0	33	
4:05 PM	1	1	0	0	0	41	1	0	0	0	0	0	2	0	4	0	50	
4:10 PM	0	2	0	0	0	26	3	0	0	0	0	0	0	0	6	0	37	
4:15 PM	0	2	0	0	0	17	2	0	0	0	0	0	2	0	3	0	26	
4:20 PM	0	6	0	0	0	13	3	0	0	0	0	0	2	0	5	0	29	
4:25 PM	1	10	0	0	0	16	5	0	0	0	0	0	0	0	8	0	40	
4:30 PM	0	4	0	0	0	23	3	0	0	0	0	0	2	0	6	0	38	
4:35 PM	0	3	0	0	0	23	3	0	0	0	0	0	1	0	9	0	39	
4:40 PM	0	5	0	0	0	21	2	0	0	0	0	0	1	0	12	0	41	
4:45 PM	1	7	0	0	0	10	2	0	0	0	0	0	1	0	8	0	29	
4:50 PM	1	3	0	0	0	8	3	0	0	0	0	0	1	1	7	0	24	
4:55 PM	0	1	0	0	0	12	6	0	0	0	0	0	4	0	10	0	33	419
5:00 PM	0	3	0	0	0	24	1	0	0	0	0	0	0	0	4	0	32	418
5:05 PM	0	4	0	0	0	17	1	0	0	0	0	0	0	0	5	0	27	395
5:10 PM	0	2	0	0	0	14	2	0	0	0	0	0	3	0	6	0	27	385
5:15 PM	0	1	0	0	0	15	2	0	0	0	0	0	4	0	8	0	30	389
5:20 PM	0	3	0	0	0	15	1	0	0	0	0	0	2	0	10	0	31	391
5:25 PM	1	2	0	0	0	14	0	0	0	0	0	0	3	0	5	0	25	376
5:30 PM	0	1	0	0	0	11	0	0	0	0	0	0	4	0	10	0	26	364
5:35 PM	1	4	0	0	0	15	3	0	0	0	0	0	1	0	5	0	29	354
5:40 PM	0	5	0	0	0	15	2	0	0	0	0	0	0	0	3	0	25	338
5:45 PM	0	6	0	0	0	5	4	0	0	0	0	0	1	0	7	0	23	332
5:50 PM	1	3	0	0	0	5	0	0	0	0	0	0	2	0	2	0	13	321

Peak 15-Min Flowrates	Northbound				Southbound				Eastbound				Westbound				Total
	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U	
All Vehicles	12	16	0	0	0	356	24	0	0	0	0	0	8	0	64	0	480
Heavy Trucks	4	4	0		0	12	12		0	0	0		0	0	12		44
Buses																	
Pedestrians		0				0				0				0			0
Bicycles	0	0	0		0	0	0		0	0	0		0	0	0		0
Scooters																	

Comments:

Report generated on 8/16/2024 2:46 PM

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

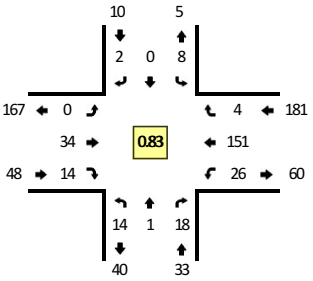
Type of peak hour being reported: Intersection Peak

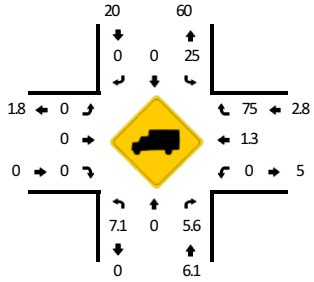
Method for determining peak hour: Total Entering Volume

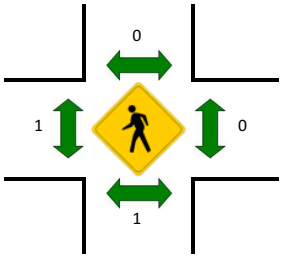
LOCATION: Olson Rd -- Columbia Ave NE
CITY/STATE: Boardman, OR

QC JOB #: 16719917
DATE: Tue, May 21 2024

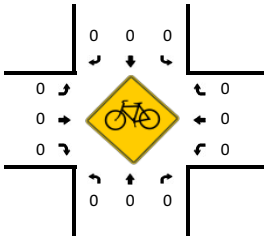
Peak-Hour: 4:40 PM -- 5:40 PM
Peak 15-Min: 4:55 PM -- 5:10 PM

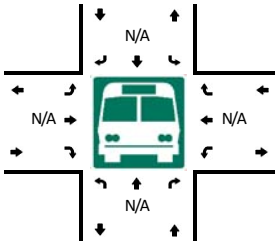


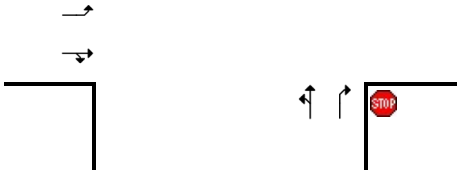


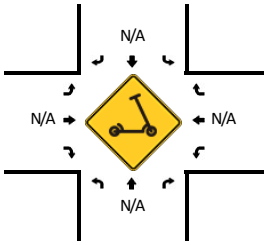












5-Min Count Period Beginning At	Olson Rd (Northbound)				Olson Rd (Southbound)				Columbia Ave NE (Eastbound)				Columbia Ave NE (Westbound)				Total	Hourly Totals
	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U		
4:00 PM	2	0	1	0	0	0	0	0	0	6	0	0	3	10	0	0	22	
4:05 PM	2	1	4	0	0	0	0	0	0	0	2	0	2	22	2	0	35	
4:10 PM	0	0	3	0	1	0	0	0	0	1	0	0	2	12	1	0	20	
4:15 PM	0	0	3	0	0	0	0	0	0	9	0	0	0	12	0	0	24	
4:20 PM	1	1	0	0	0	0	0	0	0	2	0	0	2	7	1	0	14	
4:25 PM	1	0	3	0	0	0	0	0	1	3	0	0	0	11	0	0	19	
4:30 PM	1	0	1	0	0	0	0	0	0	3	1	0	2	12	0	0	20	
4:35 PM	1	0	1	0	0	0	0	0	0	6	0	0	0	9	0	0	17	
4:40 PM	1	0	1	0	2	0	0	0	0	3	0	0	3	13	1	0	24	
4:45 PM	1	0	4	0	1	0	0	0	0	4	1	0	1	10	0	0	22	
4:50 PM	0	0	3	0	1	0	0	0	0	0	0	0	1	20	0	0	25	
4:55 PM	1	0	0	0	0	0	0	0	0	4	3	0	2	13	1	0	24	266
5:00 PM	4	0	1	0	0	0	0	0	0	2	1	0	2	15	0	0	25	269
5:05 PM	3	0	1	0	0	0	0	0	0	1	2	0	4	21	1	0	33	267
5:10 PM	1	0	1	0	0	0	0	0	0	3	2	0	1	12	1	0	21	268
5:15 PM	0	0	3	0	0	0	0	0	0	3	1	0	3	15	0	0	25	269
5:20 PM	0	0	1	0	1	0	0	0	0	3	2	0	4	5	0	0	16	271
5:25 PM	0	0	2	0	0	0	0	0	0	6	0	0	1	7	0	0	16	268
5:30 PM	1	1	1	0	3	0	0	0	0	2	1	0	2	11	0	0	22	270
5:35 PM	2	0	0	0	0	0	2	0	0	3	1	0	2	9	0	0	19	272
5:40 PM	0	0	0	0	0	0	0	0	0	2	0	0	0	6	0	0	8	256
5:45 PM	1	0	0	0	1	0	0	0	0	3	0	0	3	2	0	0	10	244
5:50 PM	0	0	2	0	1	0	0	0	0	3	1	0	1	4	1	0	13	232

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	32	0	8	0	0	0	0	0	0	28	24	0	32	196	8	0	328
Heavy Trucks	0	0	4		0	0	0		0	0	0		0	4	4		12
Buses																	
Pedestrians		0				0				0				0			0
Bicycles	0	0	0		0	0	0		0	0	0		0	0	0		0
Scooters																	

Comments:

Report generated on 8/16/2024 2:46 PM

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

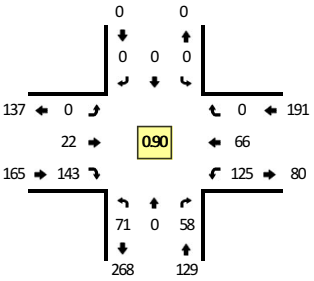
Type of peak hour being reported: Intersection Peak

Method for determining peak hour: Total Entering Volume

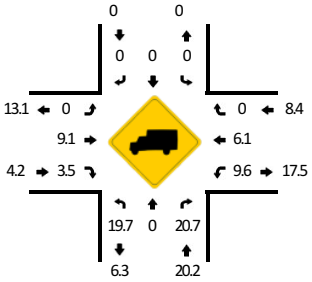
LOCATION: Laurel Ln -- Columbia Blvd
CITY/STATE: Boardman, OR

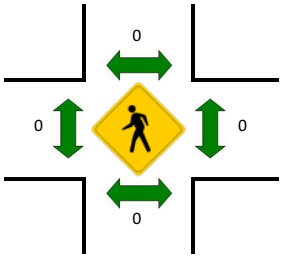
QC JOB #: 16719918
DATE: Tue, May 21 2024

Peak-Hour: 4:05 PM -- 5:05 PM
Peak 15-Min: 4:30 PM -- 4:45 PM

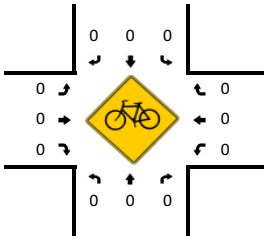


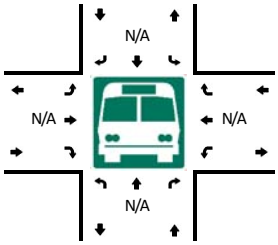




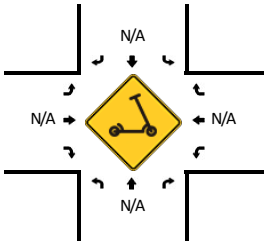












5-Min Count Period Beginning At	Laurel Ln (Northbound)				Laurel Ln (Southbound)				Columbia Blvd (Eastbound)				Columbia Blvd (Westbound)				Total	Hourly Totals
	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U		
4:00 PM	5	0	2	0	0	0	0	0	0	0	13	0	11	10	0	0	41	
4:05 PM	2	0	3	0	0	0	0	0	0	1	30	0	13	3	0	0	52	
4:10 PM	7	0	1	0	0	0	0	0	0	1	16	0	12	4	0	0	41	
4:15 PM	3	0	2	0	0	0	0	0	0	4	17	0	3	4	0	0	33	
4:20 PM	4	0	6	0	0	0	0	0	0	3	10	0	8	2	0	0	33	
4:25 PM	10	0	9	0	0	0	0	0	0	0	9	0	9	4	0	0	41	
4:30 PM	5	0	5	0	0	0	0	0	0	2	14	0	13	2	0	0	41	
4:35 PM	4	0	8	0	0	0	0	0	0	3	8	0	17	4	0	0	44	
4:40 PM	11	0	6	0	0	0	0	0	0	3	11	0	12	7	0	0	50	
4:45 PM	6	0	8	0	0	0	0	0	0	2	6	0	6	8	0	0	36	
4:50 PM	5	0	5	0	0	0	0	0	0	1	8	0	5	8	0	0	32	
4:55 PM	7	0	5	0	0	0	0	0	0	1	3	0	13	11	0	0	40	484
5:00 PM	7	0	0	0	0	0	0	0	0	1	11	0	14	9	0	0	42	485
5:05 PM	8	0	1	0	0	0	0	0	0	1	4	0	14	18	0	0	46	479
5:10 PM	5	0	1	0	0	0	0	0	0	0	2	0	14	5	0	0	27	465
5:15 PM	7	0	4	0	0	0	0	0	0	2	9	0	9	5	0	0	36	468
5:20 PM	9	0	4	0	0	0	0	0	0	0	5	0	10	1	0	0	29	464
5:25 PM	5	0	2	0	0	0	0	0	0	1	9	0	6	3	0	0	26	449
5:30 PM	10	0	1	0	0	0	0	0	0	1	5	0	5	3	0	0	25	433
5:35 PM	7	0	2	0	0	0	0	0	0	1	5	0	13	3	0	0	31	420
5:40 PM	4	0	3	0	0	0	0	0	0	0	9	0	8	4	0	0	28	398
5:45 PM	5	0	9	0	0	0	0	0	0	1	2	0	7	1	0	0	25	387
5:50 PM	4	0	1	0	0	0	0	0	0	2	5	0	0	1	0	0	13	368

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	80	0	76	0	0	0	0	0	0	32	132	0	168	52	0	0	540
Heavy Trucks	12	0	4		0	0	0		0	0	8		16	4	0		44
Buses																	
Pedestrians		0				0				0				0			0
Bicycles	0	0	0		0	0	0		0	0	0		0	0	0		0
Scooters																	

Comments:

Report generated on 8/16/2024 2:46 PM

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

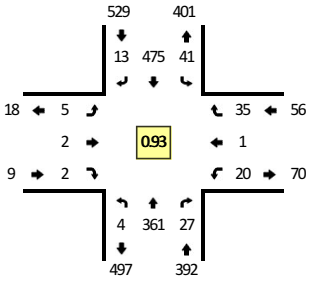
Type of peak hour being reported: Intersection Peak

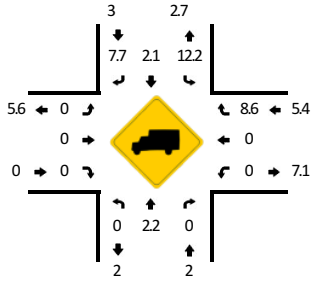
Method for determining peak hour: Total Entering Volume

LOCATION: S Main St -- SE Front St
CITY/STATE: Boardman, OR

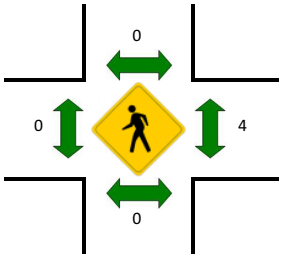
QC JOB #: 16719919
DATE: Tue, May 21 2024

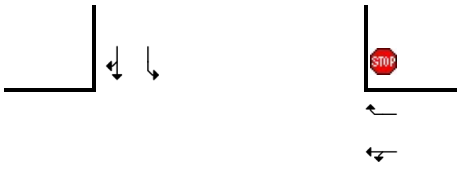
Peak-Hour: 4:10 PM -- 5:10 PM
Peak 15-Min: 4:20 PM -- 4:35 PM

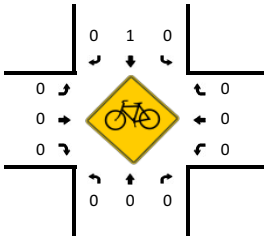


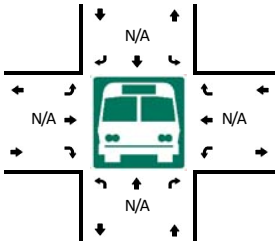


TRUE DATA TO IMPROVE MOBILITY

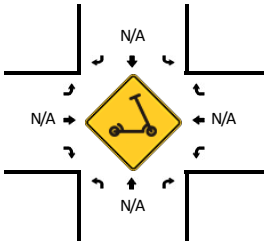












5-Min Count Period Beginning At	S Main St (Northbound)				S Main St (Southbound)				SE Front St (Eastbound)				SE Front St (Westbound)				Total	Hourly Totals
	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U		
4:00 PM	0	33	1	0	0	30	1	0	0	0	0	0	2	0	1	0	68	
4:05 PM	0	28	1	0	2	46	0	0	0	0	0	0	2	0	1	0	80	
4:10 PM	0	44	2	0	2	46	0	0	1	0	0	0	0	0	1	0	96	
4:15 PM	0	28	2	0	5	30	0	0	0	0	0	0	3	0	0	0	68	
4:20 PM	1	31	0	0	5	40	3	0	1	0	0	0	2	0	3	0	86	
4:25 PM	0	29	2	0	2	51	3	0	0	1	0	0	0	0	4	0	92	
4:30 PM	0	35	2	0	2	39	1	0	1	0	1	0	4	0	1	0	86	
4:35 PM	2	27	4	0	1	35	2	0	1	0	1	0	3	0	3	0	79	
4:40 PM	0	26	2	0	3	34	0	0	0	0	0	0	2	0	4	0	71	
4:45 PM	0	19	4	0	4	35	0	0	0	0	0	0	0	0	5	0	67	
4:50 PM	0	25	3	0	6	41	1	0	0	0	0	0	1	0	3	0	80	
4:55 PM	1	29	1	0	5	38	0	0	1	0	0	0	2	1	2	0	80	953
5:00 PM	0	35	1	0	4	42	1	0	0	0	0	0	2	0	7	0	92	977
5:05 PM	0	33	4	0	2	44	2	0	0	1	0	0	1	0	2	0	89	986
5:10 PM	0	21	2	0	3	42	3	0	3	0	5	0	5	1	4	0	89	979
5:15 PM	0	23	1	0	0	24	3	0	3	0	2	0	2	0	3	0	61	972
5:20 PM	1	30	4	0	0	35	0	0	1	0	1	0	1	0	2	0	75	961
5:25 PM	0	24	4	0	6	32	1	0	0	0	0	0	2	0	5	0	74	943
5:30 PM	0	22	2	0	2	32	0	0	0	0	1	0	0	0	1	0	60	917
5:35 PM	0	29	0	0	2	36	1	0	0	0	0	0	6	0	3	0	77	915
5:40 PM	0	30	2	0	0	23	0	0	0	0	0	0	1	0	3	0	59	903
5:45 PM	0	38	1	0	5	28	1	0	1	0	0	0	0	0	0	0	74	910
5:50 PM	0	34	0	0	1	27	1	0	0	0	0	0	1	0	2	0	66	896

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	4	380	16	0	36	520	28	0	8	4	4	0	24	0	32	0	1056
Heavy Trucks	0	4	0		4	8	4		0	0	0		0	0	4		24
Buses																	
Pedestrians		0				0				0				4			4
Bicycles	0	0	0		0	0	0		0	0	0		0	0	0		0
Scooters																	

Comments:

Report generated on 8/16/2024 2:46 PM

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

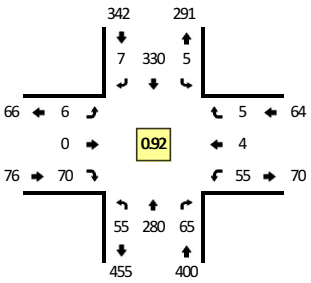
Type of peak hour being reported: Intersection Peak

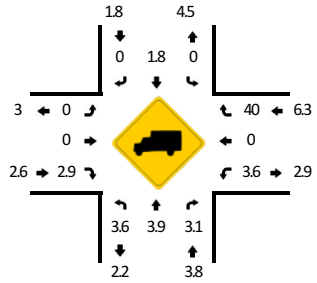
Method for determining peak hour: Total Entering Volume

LOCATION: N Main St -- Front St NW
CITY/STATE: Boardman, OR

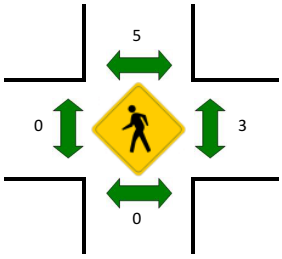
QC JOB #: 16719920
DATE: Tue, May 21 2024

Peak-Hour: 4:10 PM -- 5:10 PM
Peak 15-Min: 4:20 PM -- 4:35 PM

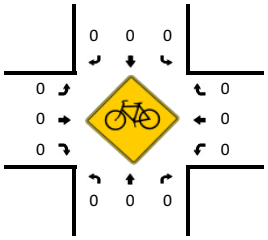


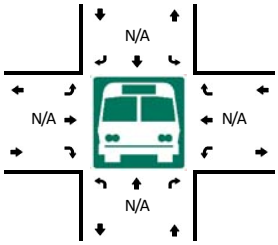


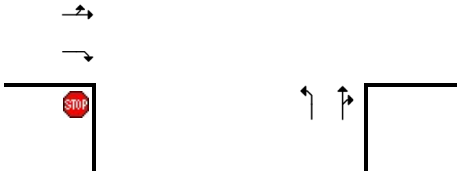
TRUE DATA TO IMPROVE MOBILITY

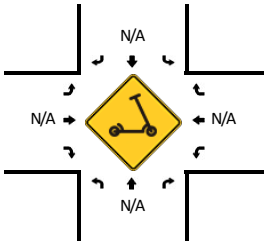












5-Min Count Period Beginning At	N Main St (Northbound)				N Main St (Southbound)				Front St NW (Eastbound)				Front St NW (Westbound)				Total	Hourly Totals
	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U		
4:00 PM	6	28	7	0	0	23	0	0	1	1	2	0	0	1	0	0	69	
4:05 PM	1	16	3	0	0	34	1	0	1	0	8	0	7	0	0	0	71	
4:10 PM	5	24	4	0	0	30	1	0	1	0	5	0	12	1	1	0	84	
4:15 PM	2	22	1	0	0	25	0	0	0	0	4	0	4	0	0	0	58	
4:20 PM	8	17	7	0	0	35	0	0	0	0	11	0	2	0	1	0	81	
4:25 PM	4	29	5	0	0	33	1	0	0	0	3	0	3	0	0	0	78	
4:30 PM	7	29	8	0	1	22	0	0	1	0	6	0	5	0	1	0	80	
4:35 PM	2	28	4	0	1	22	0	0	1	0	5	0	5	1	1	0	70	
4:40 PM	4	29	3	0	0	24	1	0	1	0	5	0	3	0	0	0	70	
4:45 PM	5	14	6	0	1	27	0	0	0	0	6	0	5	0	0	0	64	
4:50 PM	6	18	8	0	0	26	0	0	1	0	6	0	2	1	1	0	69	
4:55 PM	5	22	7	0	2	20	1	0	0	0	2	0	5	1	0	0	65	859
5:00 PM	5	27	5	0	0	29	2	0	1	0	10	0	5	0	0	0	84	874
5:05 PM	2	21	7	0	0	37	1	0	0	0	7	0	4	0	0	0	79	882
5:10 PM	3	19	8	0	0	28	1	0	0	0	4	0	4	0	2	0	69	867
5:15 PM	5	26	7	0	0	21	1	0	0	1	2	0	5	0	0	0	68	877
5:20 PM	8	26	5	0	2	23	1	0	0	0	3	0	2	0	0	0	70	866
5:25 PM	1	24	6	0	2	22	0	0	3	0	7	0	4	0	2	0	71	859
5:30 PM	5	22	2	0	2	17	1	0	0	1	8	0	6	0	2	0	66	845
5:35 PM	2	27	0	0	0	24	0	0	0	0	3	0	1	1	0	0	58	833
5:40 PM	5	21	4	0	0	16	0	0	0	0	4	0	2	0	0	0	52	815
5:45 PM	8	28	4	0	0	20	0	0	5	0	5	0	7	0	1	0	78	829
5:50 PM	2	30	7	0	0	18	0	0	1	0	6	0	1	1	1	0	67	827

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	76	300	80	0	4	360	4	0	4	0	80	0	40	0	8	0	956
Heavy Trucks	0	12	0		0	8	0		0	0	0		4	0	4		28
Buses																	
Pedestrians		0				8				0				0			8
Bicycles	0	0	0		0	0	0		0	0	0		0	0	0		0
Scooters																	

Comments:

Report generated on 8/16/2024 2:46 PM

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

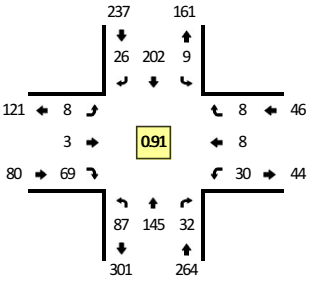
Type of peak hour being reported: Intersection Peak

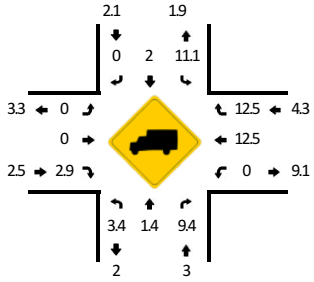
Method for determining peak hour: Total Entering Volume

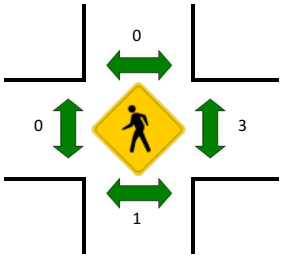
LOCATION: N Main St -- Boardman Ave NE
CITY/STATE: Boardman, OR

QC JOB #: 16719921
DATE: Tue, May 21 2024

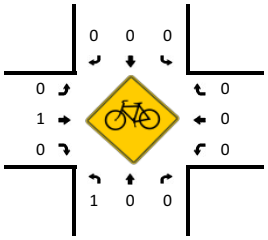
Peak-Hour: 4:20 PM -- 5:20 PM
Peak 15-Min: 5:00 PM -- 5:15 PM

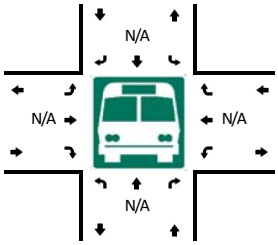




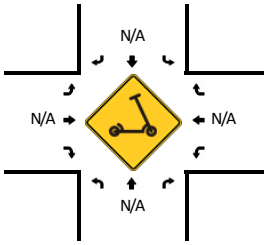












5-Min Count Period Beginning At	N Main St (Northbound)				N Main St (Southbound)				Boardman Ave NE (Eastbound)				Boardman Ave NE (Westbound)				Total	Hourly Totals
	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U		
4:00 PM	9	14	3	0	1	13	3	0	1	0	7	0	2	0	1	0	54	
4:05 PM	6	7	3	0	1	23	2	0	0	1	10	0	4	1	2	0	60	
4:10 PM	9	10	2	0	0	20	1	0	3	0	5	0	1	0	1	0	52	
4:15 PM	9	4	6	0	1	17	1	0	1	0	5	0	0	3	0	0	47	
4:20 PM	8	8	2	0	0	19	1	0	1	0	9	0	6	0	0	0	54	
4:25 PM	9	14	2	0	1	20	1	0	0	0	4	0	4	1	1	0	57	
4:30 PM	12	9	7	0	1	14	2	0	2	0	5	0	1	1	0	0	54	
4:35 PM	9	14	5	0	1	12	2	0	1	0	8	0	2	0	2	0	56	
4:40 PM	7	15	1	0	1	14	1	0	0	1	6	0	1	0	1	0	48	
4:45 PM	8	7	2	0	1	23	1	0	0	1	2	0	1	1	0	0	47	
4:50 PM	6	8	1	0	0	10	3	0	0	0	9	0	2	0	1	0	40	
4:55 PM	5	14	4	0	3	17	1	0	0	0	5	0	1	0	0	0	50	619
5:00 PM	8	13	2	0	1	14	4	0	0	0	7	0	5	2	0	0	56	621
5:05 PM	7	11	1	0	0	23	6	0	2	0	5	0	4	1	1	0	61	622
5:10 PM	4	16	3	0	0	21	1	0	2	1	5	0	0	1	2	0	56	626
5:15 PM	4	16	2	0	0	15	3	0	0	0	4	0	3	1	0	0	48	627
5:20 PM	8	12	1	0	0	16	1	0	3	0	6	0	1	1	1	0	50	623
5:25 PM	11	10	4	0	1	13	2	0	1	0	5	0	3	0	1	0	51	617
5:30 PM	9	9	5	0	1	10	0	0	0	1	6	0	1	0	1	0	43	606
5:35 PM	9	10	11	0	0	16	1	0	0	0	5	0	2	0	1	0	55	605
5:40 PM	8	11	2	0	0	8	1	0	1	0	6	0	2	0	0	0	39	596
5:45 PM	8	17	8	0	2	10	1	0	2	2	5	0	5	0	0	0	60	609
5:50 PM	9	13	9	0	0	5	3	0	2	4	5	0	5	1	0	0	56	625

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	76	160	24	0	4	232	44	0	16	4	68	0	36	16	12	0	692
Heavy Trucks	8	4	0		0	8	0		0	0	4		0	0	0		24
Buses																	
Pedestrians		0				0				0				8			8
Bicycles	4	0	0		0	0	0		0	0	0		0	0	0		4
Scooters																	

Comments:

Report generated on 8/16/2024 2:46 PM

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

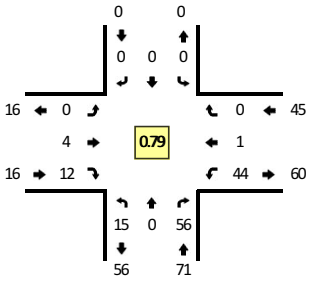
Type of peak hour being reported: Intersection Peak

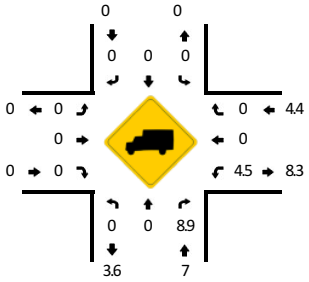
Method for determining peak hour: Total Entering Volume

LOCATION: N Main St -- Marine Dr NW
CITY/STATE: Boardman, OR

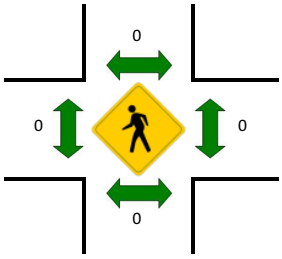
QC JOB #: 16719922
DATE: Tue, May 21 2024

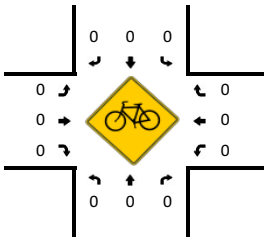
Peak-Hour: 4:55 PM -- 5:55 PM
Peak 15-Min: 5:15 PM -- 5:30 PM

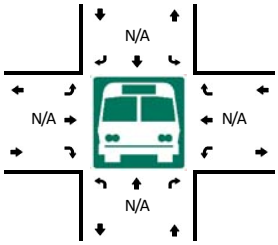


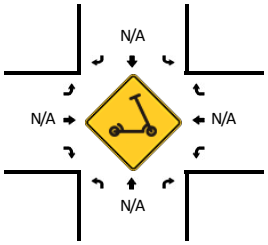


TRUE DATA TO IMPROVE MOBILITY









5-Min Count Period Beginning At	N Main St (Northbound)				N Main St (Southbound)				Marine Dr NW (Eastbound)				Marine Dr NW (Westbound)				Total	Hourly Totals
	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U		
4:00 PM	2	0	5	0	0	0	0	0	0	0	0	0	4	0	0	0	11	
4:05 PM	2	0	2	0	0	0	0	0	0	0	0	0	4	0	0	0	8	
4:10 PM	0	0	3	0	0	0	0	0	0	0	2	0	4	1	0	0	10	
4:15 PM	0	0	1	0	0	0	0	0	0	1	3	0	3	0	0	0	8	
4:20 PM	1	0	4	0	0	0	0	0	0	0	0	0	0	0	0	0	5	
4:25 PM	0	0	1	0	0	0	0	0	0	0	0	0	1	1	0	0	3	
4:30 PM	1	0	5	0	0	0	0	0	0	0	4	0	1	0	0	0	11	
4:35 PM	2	0	2	0	0	0	0	0	0	0	1	0	1	0	0	0	6	
4:40 PM	1	0	8	0	0	0	0	0	0	1	1	0	2	0	0	0	13	
4:45 PM	0	0	4	0	0	0	0	0	0	0	4	0	3	0	0	0	11	
4:50 PM	0	0	2	0	0	0	0	0	0	0	1	0	1	1	0	0	5	
4:55 PM	0	0	6	0	0	0	0	0	0	0	0	0	4	0	0	0	10	101
5:00 PM	0	0	2	0	0	0	0	0	0	0	2	0	4	0	0	0	8	98
5:05 PM	0	0	3	0	0	0	0	0	0	0	1	0	6	0	0	0	10	100
5:10 PM	5	0	7	0	0	0	0	0	0	0	0	0	1	0	0	0	13	103
5:15 PM	0	0	5	0	0	0	0	0	0	1	1	0	5	1	0	0	13	108
5:20 PM	0	0	4	0	0	0	0	0	0	1	2	0	6	0	0	0	13	116
5:25 PM	3	0	4	0	0	0	0	0	0	1	1	0	7	0	0	0	16	129
5:30 PM	1	0	3	0	0	0	0	0	0	1	3	0	2	0	0	0	10	128
5:35 PM	2	0	3	0	0	0	0	0	0	0	1	0	1	0	0	0	7	129
5:40 PM	1	0	4	0	0	0	0	0	0	0	1	0	2	0	0	0	8	124
5:45 PM	1	0	11	0	0	0	0	0	0	0	0	0	2	0	0	0	14	127
5:50 PM	2	0	4	0	0	0	0	0	0	0	0	0	4	0	0	0	10	132

Peak 15-Min Flowrates	Northbound				Southbound				Eastbound				Westbound				Total
	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U	
All Vehicles	12	0	52	0	0	0	0	0	0	12	16	0	72	4	0	0	168
Heavy Trucks	0	0	0		0	0	0		0	0	0		4	0	0		4
Buses																	
Pedestrians		0				0				0				0			0
Bicycles	0	0	0		0	0	0		0	0	0		0	0	0		0
Scooters																	

Comments:

Report generated on 8/16/2024 2:46 PM

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

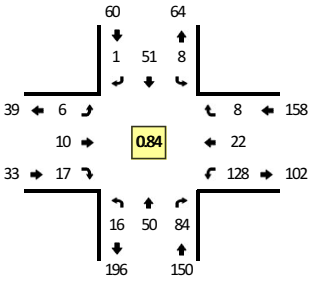
Type of peak hour being reported: Intersection Peak

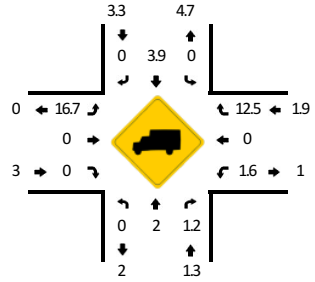
Method for determining peak hour: Total Entering Volume

LOCATION: N Main St -- Columbia Ave NW
CITY/STATE: Boardman, OR

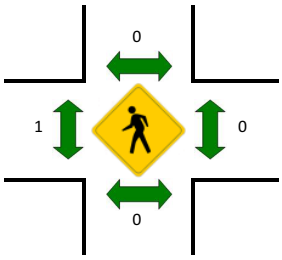
QC JOB #: 16719923
DATE: Tue, May 21 2024

Peak-Hour: 4:35 PM -- 5:35 PM
Peak 15-Min: 5:00 PM -- 5:15 PM

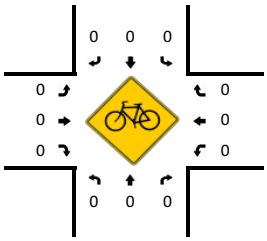


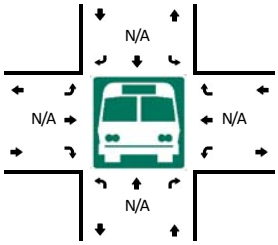


TRUE DATA TO IMPROVE MOBILITY

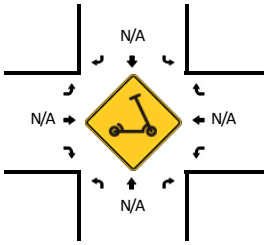












5-Min Count Period Beginning At	N Main St (Northbound)				N Main St (Southbound)				Columbia Ave NW (Eastbound)				Columbia Ave NW (Westbound)				Total	Hourly Totals
	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U		
4:00 PM	2	5	10	0	0	5	0	0	0	0	0	0	10	3	1	0	36	
4:05 PM	1	2	5	0	0	4	0	0	0	0	0	0	22	1	3	0	38	
4:10 PM	0	1	9	0	0	7	0	0	0	3	1	0	12	2	1	0	36	
4:15 PM	0	0	7	0	0	5	1	0	0	2	0	0	12	0	1	0	28	
4:20 PM	1	5	3	0	0	0	0	0	0	0	2	0	15	1	0	0	27	
4:25 PM	1	3	6	0	0	1	0	0	0	0	2	0	18	0	0	0	31	
4:30 PM	1	1	8	0	1	3	0	0	1	1	0	0	9	1	2	0	28	
4:35 PM	1	4	7	0	0	3	0	0	0	1	1	0	7	2	0	0	26	
4:40 PM	3	11	9	0	0	3	0	0	2	0	2	0	8	0	0	0	38	
4:45 PM	1	2	2	0	0	7	0	0	0	1	1	0	16	1	1	0	32	
4:50 PM	1	2	8	0	1	0	0	0	0	1	2	0	10	1	0	0	26	
4:55 PM	1	4	5	0	4	1	0	0	0	1	0	0	16	4	1	0	37	383
5:00 PM	1	1	7	0	1	6	0	0	1	0	1	0	12	1	0	0	31	378
5:05 PM	1	2	12	0	0	5	0	0	1	0	3	0	19	2	0	0	45	385
5:10 PM	2	8	8	0	0	3	0	0	0	0	1	0	16	2	3	0	43	392
5:15 PM	3	3	6	0	1	5	0	0	0	0	1	0	8	2	2	0	31	395
5:20 PM	0	5	9	0	1	7	0	0	0	3	1	0	4	0	0	0	30	398
5:25 PM	2	5	3	0	0	6	1	0	1	3	2	0	6	4	0	0	33	400
5:30 PM	0	3	8	0	0	5	0	0	1	0	2	0	6	3	1	0	29	401
5:35 PM	3	4	3	0	0	3	0	0	0	0	2	0	8	0	1	0	24	399
5:40 PM	0	5	7	0	0	3	0	0	0	1	2	0	5	1	0	0	24	385
5:45 PM	2	9	7	0	0	1	0	0	1	0	2	0	7	1	0	0	30	383
5:50 PM	0	4	8	0	1	3	0	0	0	1	1	0	4	0	1	0	23	380

Peak 15-Min Flowrates	Northbound				Southbound				Eastbound				Westbound				Total
	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U	
All Vehicles	16	44	108	0	4	56	0	0	8	0	20	0	188	20	12	0	476
Heavy Trucks	0	4	0		0	4	0		4	0	0		4	0	0		16
Buses																	
Pedestrians		0				0				0				0			0
Bicycles	0	0	0		0	0	0		0	0	0		0	0	0		0
Scooters																	

Comments:

Report generated on 8/16/2024 2:46 PM

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

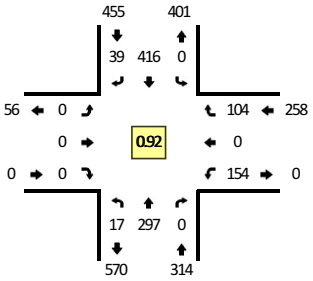
Type of peak hour being reported: Intersection Peak

Method for determining peak hour: Total Entering Volume

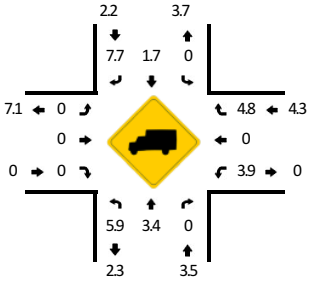
LOCATION: N Main St -- I-84 WB Ramps
CITY/STATE: Boardman, OR

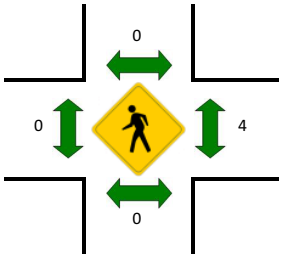
QC JOB #: 16719924
DATE: Tue, May 21 2024

Peak-Hour: 4:10 PM -- 5:10 PM
Peak 15-Min: 4:20 PM -- 4:35 PM

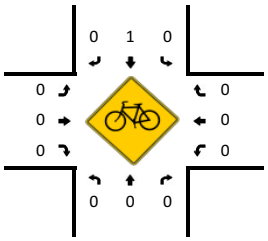


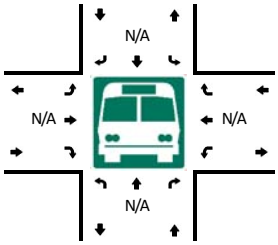




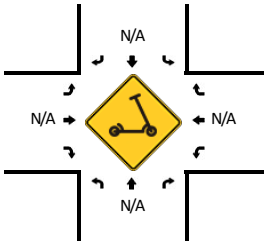












5-Min Count Period Beginning At	N Main St (Northbound)				N Main St (Southbound)				I-84 WB Ramps (Eastbound)				I-84 WB Ramps (Westbound)				Total	Hourly Totals
	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U		
4:00 PM	1	29	0	0	0	22	4	0	0	0	0	0	8	0	12	0	76	
4:05 PM	0	15	0	0	0	44	5	0	0	0	0	0	11	0	5	0	80	
4:10 PM	0	25	0	0	0	40	7	0	0	0	0	0	13	0	8	0	93	
4:15 PM	1	19	0	0	0	27	6	0	0	0	0	0	13	0	6	0	72	
4:20 PM	2	23	0	0	0	41	7	0	0	0	0	0	13	0	9	0	95	
4:25 PM	0	28	0	0	0	37	2	0	0	0	0	0	17	0	10	0	94	
4:30 PM	1	30	0	0	0	33	0	0	0	0	0	0	11	0	14	0	89	
4:35 PM	1	26	0	0	0	31	1	0	0	0	0	0	11	0	8	0	78	
4:40 PM	3	25	0	0	0	28	4	0	0	0	0	0	12	0	11	0	83	
4:45 PM	1	20	0	0	0	35	2	0	0	0	0	0	8	0	7	0	73	
4:50 PM	2	22	0	0	0	33	2	0	0	0	0	0	14	0	8	0	81	
4:55 PM	1	26	0	0	0	23	3	0	0	0	0	0	20	0	8	0	81	995
5:00 PM	4	28	0	0	0	42	3	0	0	0	0	0	11	0	9	0	97	1016
5:05 PM	1	25	0	0	0	46	2	0	0	0	0	0	11	0	6	0	91	1027
5:10 PM	1	23	0	0	0	35	0	0	0	0	0	0	9	0	6	0	74	1008
5:15 PM	0	29	0	0	0	26	3	0	0	0	0	0	5	0	9	0	72	1008
5:20 PM	0	28	0	0	0	28	0	0	0	0	0	0	8	0	11	0	75	988
5:25 PM	4	24	0	0	0	31	2	0	0	0	0	0	8	0	7	0	76	970
5:30 PM	1	27	0	0	0	29	1	0	0	0	0	0	11	0	2	0	71	952
5:35 PM	0	23	0	0	0	25	4	0	0	0	0	0	14	0	6	0	72	946
5:40 PM	1	26	0	0	0	19	2	0	0	0	0	0	9	0	4	0	61	924
5:45 PM	1	34	0	0	0	32	1	0	0	0	0	0	7	0	7	0	82	933
5:50 PM	0	33	0	0	0	24	1	0	0	0	0	0	11	0	5	0	74	926

Peak 15-Min Flowrates	Northbound				Southbound				Eastbound				Westbound				Total
	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U	
All Vehicles	12	324	0	0	0	444	36	0	0	0	0	0	164	0	132	0	1112
Heavy Trucks	0	8	0		0	4	8		0	0	0		4	0	4		28
Buses																	
Pedestrians		0				0				0				4			4
Bicycles	0	0	0		0	0	0		0	0	0		0	0	0		0
Scooters																	

Comments:

Report generated on 8/16/2024 2:46 PM

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

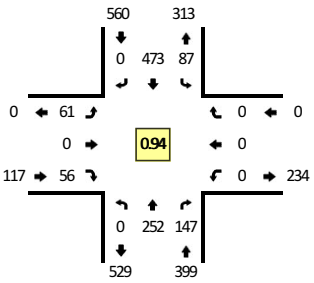
Type of peak hour being reported: Intersection Peak

Method for determining peak hour: Total Entering Volume

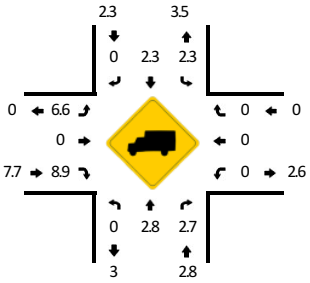
LOCATION: S Main St -- I-84 EB Ramps
CITY/STATE: Boardman, OR

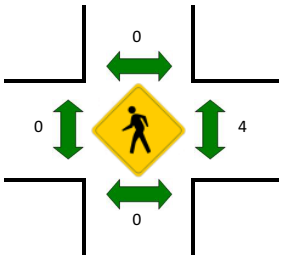
QC JOB #: 16719925
DATE: Tue, May 21 2024

Peak-Hour: 4:10 PM -- 5:10 PM
Peak 15-Min: 4:55 PM -- 5:10 PM

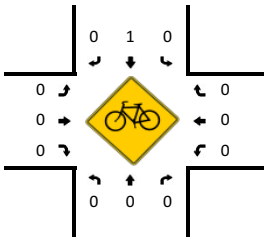


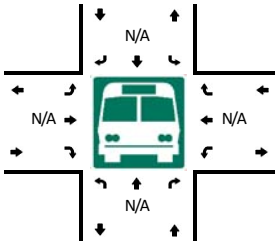




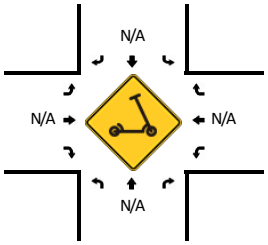












5-Min Count Period Beginning At	S Main St (Northbound)				S Main St (Southbound)				I-84 EB Ramps (Eastbound)				I-84 EB Ramps (Westbound)				Total	Hourly Totals
	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U		
4:00 PM	0	27	8	0	2	27	0	0	4	1	5	0	0	0	0	0	74	
4:05 PM	0	13	16	0	7	46	0	0	1	0	1	0	0	0	0	0	84	
4:10 PM	0	26	19	0	9	45	0	0	2	0	4	0	0	0	0	0	105	
4:15 PM	0	16	13	0	10	32	0	0	1	0	3	0	0	0	0	0	75	
4:20 PM	0	22	13	0	4	46	0	0	5	0	2	0	0	0	0	0	92	
4:25 PM	0	20	13	0	9	47	0	0	6	0	9	0	0	0	0	0	104	
4:30 PM	0	23	13	0	3	38	0	0	7	0	4	0	0	0	0	0	88	
4:35 PM	0	18	13	0	9	31	0	0	11	0	6	0	0	0	0	0	88	
4:40 PM	0	23	7	0	6	37	0	0	4	0	3	0	0	0	0	0	80	
4:45 PM	0	17	7	0	9	32	0	0	3	0	4	0	0	0	0	0	72	
4:50 PM	0	17	12	0	2	44	0	0	8	0	4	0	0	0	0	0	87	
4:55 PM	0	18	14	0	4	38	0	0	7	0	6	0	0	0	0	0	87	1036
5:00 PM	0	28	13	0	9	40	0	0	3	0	7	0	0	0	0	0	100	1062
5:05 PM	0	24	10	0	13	43	0	0	4	0	4	0	0	0	0	0	98	1076
5:10 PM	0	19	10	0	4	40	0	0	5	0	8	0	0	0	0	0	86	1057
5:15 PM	0	21	7	0	5	26	0	0	7	0	2	0	0	0	0	0	68	1050
5:20 PM	0	25	9	0	2	27	0	0	6	0	7	0	0	0	0	0	76	1034
5:25 PM	0	21	9	0	7	33	0	0	5	0	6	0	0	0	0	0	81	1011
5:30 PM	0	19	4	0	8	31	0	0	6	0	4	0	0	0	0	0	72	995
5:35 PM	0	23	9	0	6	36	0	0	3	0	2	0	0	0	0	0	79	986
5:40 PM	0	23	10	0	8	23	0	0	2	0	0	0	0	0	0	0	66	972
5:45 PM	0	30	8	0	7	32	0	0	7	0	2	0	0	0	0	0	86	986
5:50 PM	0	29	8	0	5	28	0	0	2	0	1	0	0	0	0	0	73	972

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	280	148	0	104	484	0	0	56	0	68	0	0	0	0	0	1140
Heavy Trucks	0	4	0		8	20	0		8	0	8		0	0	0		48
Buses																	
Pedestrians		0				0				0				4			4
Bicycles	0	0	0		0	0	0		0	0	0		0	0	0		0
Scooters																	

Comments:

Report generated on 8/16/2024 2:46 PM

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

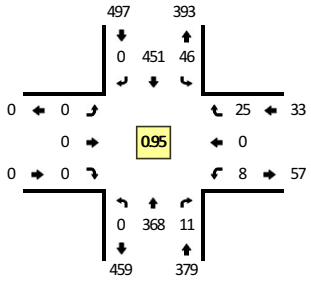
Type of peak hour being reported: Intersection Peak

Method for determining peak hour: Total Entering Volume

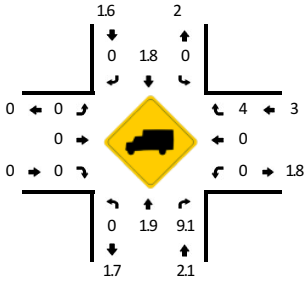
LOCATION: S Main St -- Oregon Trail Blvd
CITY/STATE: Boardman, OR

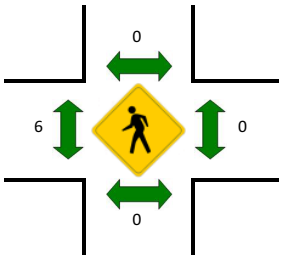
QC JOB #: 16719926
DATE: Tue, May 21 2024

Peak-Hour: 4:10 PM -- 5:10 PM
Peak 15-Min: 4:10 PM -- 4:25 PM

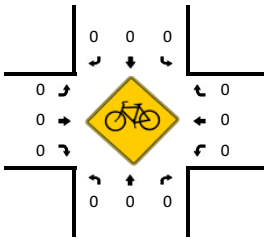


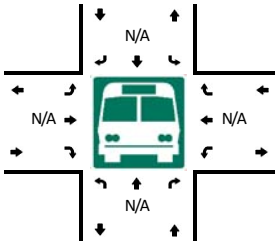




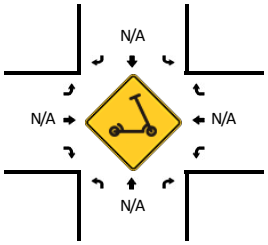












5-Min Count Period Beginning At	S Main St (Northbound)				S Main St (Southbound)				Oregon Trail Blvd (Eastbound)				Oregon Trail Blvd (Westbound)				Total	Hourly Totals
	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U		
4:00 PM	0	30	0	0	2	36	0	0	0	0	0	0	0	0	1	0	69	
4:05 PM	0	28	1	0	1	40	0	0	0	0	0	0	1	0	2	0	73	
4:10 PM	0	46	1	0	3	42	0	0	0	0	0	0	1	0	1	0	94	
4:15 PM	0	28	0	0	3	37	0	0	0	0	0	0	2	0	2	0	72	
4:20 PM	0	31	1	0	4	35	0	0	0	0	0	0	0	0	3	0	74	
4:25 PM	0	23	0	0	6	46	0	0	0	0	0	0	0	0	3	0	78	
4:30 PM	0	41	0	0	4	35	0	0	0	0	0	0	1	0	0	0	81	
4:35 PM	0	29	2	0	7	33	0	0	0	0	0	0	1	0	3	0	75	
4:40 PM	0	26	1	0	2	36	0	0	0	0	0	0	1	0	1	0	67	
4:45 PM	0	21	2	0	3	31	0	0	0	0	0	0	1	0	4	0	62	
4:50 PM	0	24	0	0	4	38	0	0	0	0	0	0	0	0	2	0	68	
4:55 PM	0	31	2	0	4	34	0	0	0	0	0	0	0	0	2	0	73	886
5:00 PM	0	37	1	0	1	41	0	0	0	0	0	0	0	0	2	0	82	899
5:05 PM	0	31	1	0	5	43	0	0	0	0	0	0	1	0	2	0	83	909
5:10 PM	0	21	1	0	6	46	0	0	0	0	0	0	1	0	0	0	75	890
5:15 PM	0	22	1	0	2	30	0	0	0	0	0	0	0	0	1	0	56	874
5:20 PM	0	31	0	0	5	32	0	0	0	0	0	0	1	0	1	0	70	870
5:25 PM	0	24	0	0	2	28	0	0	0	0	0	0	0	0	3	0	57	849
5:30 PM	0	25	0	0	4	31	0	0	0	0	0	0	0	0	3	0	63	831
5:35 PM	0	26	1	0	1	43	0	0	0	0	0	0	3	0	2	0	76	832
5:40 PM	0	33	2	0	2	24	0	0	0	0	0	0	1	0	0	0	62	827
5:45 PM	0	33	0	0	4	23	0	0	0	0	0	0	2	0	3	0	65	830
5:50 PM	0	33	2	0	2	13	0	0	0	0	0	0	0	0	2	0	52	814

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	420	8	0	40	456	0	0	0	0	0	0	12	0	24	0	960
Heavy Trucks	0	16	0		0	8	0		0	0	0		0	0	4		28
Buses																	
Pedestrians		0				0				8				0			8
Bicycles	0	0	0		0	0	0		0	0	0		0	0	0		0
Scooters																	

Comments:

Report generated on 8/16/2024 2:46 PM

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

Type of peak hour being reported: Intersection Peak

Method for determining peak hour: Total Entering Volume

LOCATION: S Main St -- Kinkade Rd

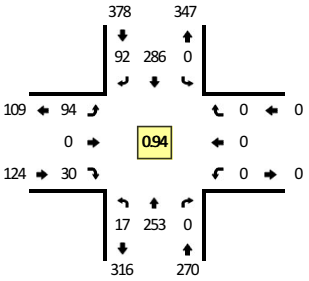
QC JOB #: 16719927

CITY/STATE: Boardman, OR

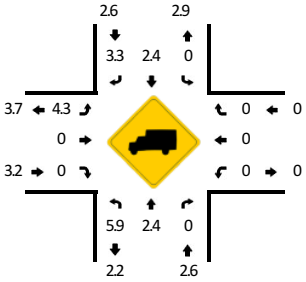
DATE: Tue, May 21 2024

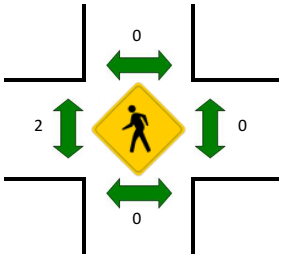
Peak-Hour: 4:05 PM -- 5:05 PM

Peak 15-Min: 4:05 PM -- 4:20 PM

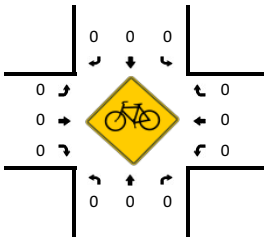


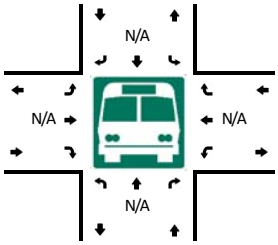




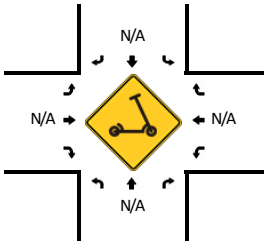












5-Min Count Period Beginning At	S Main St (Northbound)				S Main St (Southbound)				Kinkade Rd (Eastbound)				Kinkade Rd (Westbound)				Total	Hourly Totals
	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U		
4:00 PM	1	24	0	0	0	24	5	0	3	0	2	0	0	0	0	0	59	
4:05 PM	0	23	0	0	0	22	10	0	8	0	0	0	0	0	0	0	63	
4:10 PM	1	37	0	0	0	30	9	0	8	0	2	0	0	0	0	0	87	
4:15 PM	0	21	0	0	0	22	8	0	4	0	1	0	0	0	0	0	56	
4:20 PM	0	25	0	0	0	26	6	0	4	0	1	0	0	0	0	0	62	
4:25 PM	4	13	0	0	0	26	5	0	8	0	3	0	0	0	0	0	59	
4:30 PM	2	23	0	0	0	22	5	0	12	0	5	0	0	0	0	0	69	
4:35 PM	3	25	0	0	0	26	10	0	4	0	3	0	0	0	0	0	71	
4:40 PM	1	16	0	0	0	20	9	0	9	0	1	0	0	0	0	0	56	
4:45 PM	4	15	0	0	0	19	7	0	7	0	1	0	0	0	0	0	53	
4:50 PM	2	14	0	0	0	27	6	0	7	0	6	0	0	0	0	0	62	
4:55 PM	0	18	0	0	0	22	6	0	11	0	3	0	0	0	0	0	60	757
5:00 PM	0	23	0	0	0	24	11	0	12	0	4	0	0	0	0	0	74	772
5:05 PM	0	9	0	0	0	30	6	0	14	0	4	0	0	0	0	0	63	772
5:10 PM	0	13	0	0	0	33	8	0	6	0	3	0	0	0	0	0	63	748
5:15 PM	1	18	0	0	0	17	6	0	5	0	3	0	0	0	0	0	50	742
5:20 PM	1	17	0	0	0	14	11	0	7	0	1	0	0	0	0	0	51	731
5:25 PM	2	18	0	0	0	16	7	0	2	0	1	0	0	0	0	0	46	718
5:30 PM	1	19	0	0	0	19	4	0	8	0	3	0	0	0	0	0	54	703
5:35 PM	1	17	0	0	0	29	8	0	9	0	2	0	0	0	0	0	66	698
5:40 PM	3	24	0	0	0	19	4	0	6	0	1	0	0	0	0	0	57	699
5:45 PM	0	25	0	0	0	16	6	0	3	0	2	0	0	0	0	0	52	698
5:50 PM	2	18	0	0	0	15	2	0	9	0	2	0	0	0	0	0	48	684

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	4	324	0	0	0	296	108	0	80	0	12	0	0	0	0	0	824
Heavy Trucks	0	16	0		0	12	0		4	0	0		0	0	0		32
Buses																	
Pedestrians		0				0				0				0			0
Bicycles	0	0	0		0	0	0		0	0	0		0	0	0		0
Scooters																	

Comments:

Report generated on 8/16/2024 2:47 PM

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

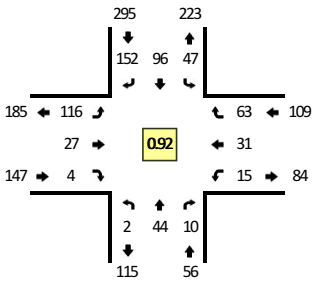
Type of peak hour being reported: Intersection Peak

Method for determining peak hour: Total Entering Volume

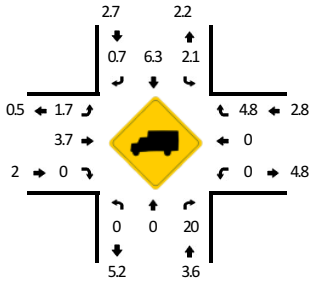
LOCATION: S Main St -- Wilson Ln SE
CITY/STATE: Boardman, OR

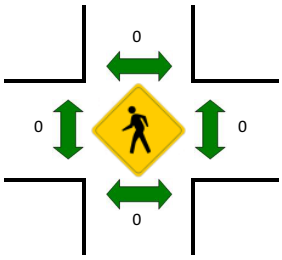
QC JOB #: 16719928
DATE: Tue, May 21 2024

Peak-Hour: 4:10 PM -- 5:10 PM
Peak 15-Min: 4:10 PM -- 4:25 PM

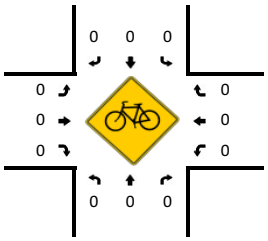


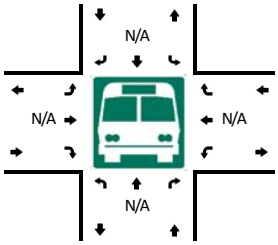




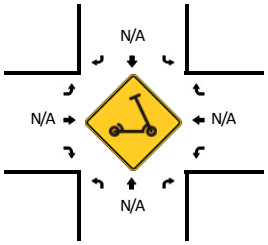












5-Min Count Period Beginning At	S Main St (Northbound)				S Main St (Southbound)				Wilson Ln SE (Eastbound)				Wilson Ln SE (Westbound)				Total	Hourly Totals
	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U		
4:00 PM	0	3	2	0	6	9	4	0	13	4	1	0	0	2	3	0	47	
4:05 PM	0	5	0	0	2	7	10	0	13	0	0	0	1	2	4	0	44	
4:10 PM	0	8	2	0	7	8	17	0	21	3	0	0	0	3	3	0	72	
4:15 PM	0	3	3	0	3	7	12	0	13	3	0	0	0	2	4	0	50	
4:20 PM	1	3	1	0	3	6	8	0	12	1	0	0	1	3	4	0	43	
4:25 PM	0	0	0	0	6	6	13	0	6	1	0	0	3	1	10	0	46	
4:30 PM	0	3	0	0	6	6	15	0	6	4	2	0	3	6	9	0	60	
4:35 PM	0	5	0	0	3	6	12	0	8	1	0	0	1	4	12	0	52	
4:40 PM	0	1	0	0	2	8	10	0	6	1	1	0	2	2	4	0	37	
4:45 PM	0	4	0	0	4	8	9	0	13	1	0	0	2	6	4	0	51	
4:50 PM	0	4	1	0	1	15	14	0	7	2	0	0	1	0	5	0	50	
4:55 PM	1	6	0	0	1	10	12	0	9	2	0	0	2	2	5	0	50	602
5:00 PM	0	7	2	0	7	4	16	0	10	1	1	0	0	1	2	0	51	606
5:05 PM	0	0	1	0	4	12	14	0	5	7	0	0	0	1	1	0	45	607
5:10 PM	0	3	0	0	4	8	15	0	5	3	1	0	0	0	4	0	43	578
5:15 PM	1	7	0	0	3	8	7	0	8	1	0	0	2	4	6	0	47	575
5:20 PM	0	8	0	0	4	7	8	0	4	0	0	0	0	3	4	0	38	570
5:25 PM	1	4	2	0	1	8	4	0	7	0	0	0	1	1	6	0	35	559
5:30 PM	0	5	0	0	4	5	13	0	9	2	1	0	1	4	2	0	46	545
5:35 PM	0	3	0	0	3	6	17	0	10	1	0	0	1	4	1	0	46	539
5:40 PM	1	12	2	0	2	5	12	0	5	0	0	0	0	1	6	0	46	548
5:45 PM	0	9	0	0	4	5	5	0	12	3	1	0	1	2	5	0	47	544
5:50 PM	0	2	0	0	6	6	2	0	9	3	0	0	0	2	1	0	31	525

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	4	56	24	0	52	84	148	0	184	28	0	0	4	32	44	0	660
Heavy Trucks	0	0	8		0	8	4		4	4	0		0	0	4		32
Buses																	
Pedestrians		0				0				0				0			0
Bicycles	0	0	0		0	0	0		0	0	0		0	0	0		0
Scooters																	

Comments:

Report generated on 8/16/2024 2:47 PM

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

Attachment B – Existing Traffic Operations Worksheets

Vistro File: H:\...\30287_Vistro.vistro
Report File: H:\...\EX AM.pdf

Scenario 1 EX AM
4/18/2025

Intersection Analysis Summary

ID	Intersection Name	Control Type	Method	Worst Mvmt	V/C	Delay (s/veh)	LOS
2	Main St/Columbia Ave	Two-way stop	HCM 7th Edition	WB Thru	0.010	11.2	B
3	Main St/Boardman Ave	Two-way stop	HCM 7th Edition	WB Left	0.494	35.2	E
4	Main St/Front St NE	Two-way stop	HCM 7th Edition	WB Left	0.248	29.0	D
5	Main St/I-84 WB Ramp Terminal	Two-way stop	HCM 7th Edition	WB Left	0.600	34.5	D
6	Main St/I-84 EB Ramp Terminal	Two-way stop	HCM 7th Edition	EB Left	0.101	30.0	D
7	Main St/Front St SE	Two-way stop	HCM 7th Edition	EB Left	0.029	26.2	D
8	Main St/Oregon Trail Blvd	Two-way stop	HCM 7th Edition	WB Right	0.040	10.8	B
9	Main St/Kinkade Rd	Two-way stop	HCM 7th Edition	EB Left	0.152	14.3	B
10	Main St/Wilson Ln	All-way stop	HCM 7th Edition	EB Left	0.300	9.4	A
11	Olson Rd/Columbia Ave	Two-way stop	HCM 7th Edition	SB Left	0.015	11.1	B
12	Laurel Ln/Columbia Ave	Two-way stop	HCM 7th Edition	WB Left	0.272	24.2	C
13	Laurel Ln/I-84 WB Ramp Terminal	Two-way stop	HCM 7th Edition	WB Left	0.073	18.1	C
14	Laurel Ln/I-84 EB Ramp Terminal	Two-way stop	HCM 7th Edition	EB Left	0.093	12.7	B

V/C, Delay, LOS: For two-way stop, these values are taken from the movement with the worst (highest) delay value. For all other control types, they are taken for the whole intersection.

Intersection Level Of Service Report
Intersection 2: Main St/Columbia Ave

Control Type:	Two-way stop	Delay (sec / veh):	11.2
Analysis Method:	HCM 7th Edition	Level Of Service:	B
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.010

Intersection Setup

Name	Main St			Main St			Columbia Ave			Columbia Ave		
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]	850.00	100.00	100.00	150.00	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]	20.00			20.00			25.00			35.00		
Grade [%]	0.00			0.00			0.00			0.00		
Crosswalk	Yes			Yes			Yes			Yes		

Volumes

Name	Main St			Main St			Columbia Ave			Columbia Ave		
Base Volume Input [veh/h]	4	40	68	6	37	3	2	4	9	84	5	12
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	3.00	7.00	0.00	14.00	0.00	0.00	25.00	22.00	5.00	0.00	8.00
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]	4	40	68	6	37	3	2	4	9	84	5	12
Peak Hour Factor	0.7200	0.7200	0.7200	0.7200	0.7200	0.7200	0.7200	0.7200	0.7200	0.7200	0.7200	0.7200
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]	1	14	24	2	13	1	1	1	3	29	2	4
Total Analysis Volume [veh/h]	6	56	94	8	51	4	3	6	13	117	7	17
Pedestrian Volume [ped/h]	0			1			1			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	0.00	0.00	0.00	0.01	0.00	0.00	0.00	0.01	0.01	0.16	0.01	0.02
d_M, Delay for Movement [s/veh]	7.32	0.00	0.00	7.51	0.00	0.00	10.02	10.90	8.88	11.00	11.21	9.95
Movement LOS	A	A	A	A	A	A	B	B	A	B	B	A
95th-Percentile Queue Length [veh/ln]	0.01	0.00	0.00	0.02	0.00	0.00	0.08	0.08	0.08	0.69	0.69	0.69
95th-Percentile Queue Length [ft/ln]	0.29	0.00	0.00	0.42	0.00	0.00	2.10	2.10	2.10	17.13	17.13	17.13
d_A, Approach Delay [s/veh]	0.28			0.95			9.59			10.88		
Approach LOS	A			A			A			B		
d_I, Intersection Delay [s/veh]	4.84											
Intersection LOS	B											

Intersection Level Of Service Report
Intersection 3: Main St/Boardman Ave

Control Type:	Two-way stop	Delay (sec / veh):	35.2
Analysis Method:	HCM 7th Edition	Level Of Service:	E
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.494

Intersection Setup

Name	Main St			Main St			Boardman Ave			Boardman Ave		
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]	20.00			20.00			25.00			20.00		
Grade [%]	0.00			0.00			0.00			0.00		
Crosswalk	Yes			Yes			Yes			Yes		

Volumes

Name	Main St			Main St			Boardman Ave			Boardman Ave		
Base Volume Input [veh/h]	45	104	167	20	112	30	17	12	38	94	21	21
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 [%]	16.00	5.00	4.00	12.00	9.00	4.00	0.00	0.00	6.00	9.00	6.00	6.00
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]	45	104	167	20	112	30	17	12	38	94	21	21
Peak Hour Factor	0.6800	0.6800	0.6800	0.6800	0.6800	0.6800	0.6800	0.6800	0.6800	0.6800	0.6800	0.6800
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]	17	38	61	7	41	11	6	4	14	35	8	8
Total Analysis Volume [veh/h]	66	153	246	29	165	44	25	18	56	138	31	31
Pedestrian Volume [ped/h]	3			3			1			5		

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	0.05	0.00	0.00	0.03	0.00	0.00	0.09	0.06	0.07	0.49	0.09	0.04
d_M, Delay for Movement [s/veh]	7.96	0.00	0.00	8.37	0.00	0.00	19.36	19.01	11.36	35.16	32.94	27.14
Movement LOS	A	A	A	A	A	A	C	C	B	E	D	D
95th-Percentile Queue Length [veh/ln]	0.16	0.00	0.00	0.08	0.00	0.00	0.79	0.79	0.79	3.99	3.99	3.99
95th-Percentile Queue Length [ft/ln]	4.07	0.00	0.00	2.03	0.00	0.00	19.84	19.84	19.84	99.66	99.66	99.66
d_A, Approach Delay [s/veh]	1.13			1.02			14.77			33.57		
Approach LOS	A			A			B			D		
d_I, Intersection Delay [s/veh]	8.93											
Intersection LOS	E											

Intersection Level Of Service Report
Intersection 4: Main St/Front St NE

Control Type:	Two-way stop	Delay (sec / veh):	29.0
Analysis Method:	HCM 7th Edition	Level Of Service:	D
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.248

Intersection Setup

Name	Main St			Main St			Front St NE			Front St NE		
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]	50.00	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			25.00			25.00		
Grade [%]	0.00			0.00			0.00			0.00		
Crosswalk	Yes			Yes			Yes			Yes		

Volumes

Name	Main St			Main St			Front St NE			Front St NE		
Base Volume Input [veh/h]	31	309	56	5	260	5	13	6	43	37	1	11
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 [%]	8.00	6.00	6.00	25.00	8.00	0.00	0.00	0.00	8.00	16.00	0.00	11.00
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]	31	309	56	5	260	5	13	6	43	37	1	11
Peak Hour Factor	0.7500	0.7500	0.7500	0.7500	0.7500	0.7500	0.7500	0.7500	0.7500	0.7500	0.7500	0.7500
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	103	19	2	87	2	4	2	14	12	0	4
Total Analysis Volume [veh/h]	41	412	75	7	347	7	17	8	57	49	1	15
Pedestrian Volume [ped/h]	0			2			1			3		

Intersection Settings

Priority Scheme	Free	Free	Stop	Stop
Flared Lane				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	0.04	0.00	0.00	0.01	0.00	0.00	0.07	0.03	0.08	0.25	0.00	0.03
d_M, Delay for Movement [s/veh]	8.19	0.00	0.00	8.77	0.00	0.00	21.68	20.83	10.80	28.98	24.30	16.94
Movement LOS	A	A	A	A	A	A	C	C	B	D	C	C
95th-Percentile Queue Length [veh/ln]	0.11	0.00	0.00	0.02	0.00	0.00	0.34	0.34	0.27	1.09	1.09	1.09
95th-Percentile Queue Length [ft/ln]	2.72	0.00	0.00	0.55	0.00	0.00	8.44	8.44	6.86	27.34	27.34	27.34
d_A, Approach Delay [s/veh]	0.64			0.17			14.03			26.13		
Approach LOS	A			A			B			D		
d_I, Intersection Delay [s/veh]	3.13											
Intersection LOS	D											

Intersection Level Of Service Report
Intersection 5: Main St/I-84 WB Ramp Terminal

Control Type:	Two-way stop	Delay (sec / veh):	34.5
Analysis Method:	HCM 7th Edition	Level Of Service:	D
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.600

Intersection Setup

Name	Main St			Main St						I-84 WB		
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]	30.00			30.00			30.00			45.00		
Grade [%]	0.00			0.00			0.00			0.00		
Crosswalk	Yes			Yes			Yes			Yes		

Volumes

Name	Main St			Main St						I-84 WB		
Base Volume Input [veh/h]	20	339	0	0	308	32	0	0	0	115	1	57
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 [%]	24.00	5.00	2.00	2.00	8.00	19.00	2.00	2.00	2.00	4.00	0.00	15.00
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]	20	339	0	0	308	32	0	0	0	115	1	57
Peak Hour Factor	0.7800	0.7800	1.0000	1.0000	0.7800	0.7800	1.0000	1.0000	1.0000	0.7800	0.7800	0.7800
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]	6	109	0	0	99	10	0	0	0	37	0	18
Total Analysis Volume [veh/h]	26	435	0	0	395	41	0	0	0	147	1	73
Pedestrian Volume [ped/h]	0			0			1			4		

Intersection Settings

Priority Scheme	Free	Free	Stop	Stop
Flared Lane				Yes
Storage Area [veh]	0	0	0	1
Two-Stage Gap Acceptance				No
Number of Storage Spaces in Median	0	0	0	0

Movement, Approach, & Intersection Results

V/C, Movement V/C Ratio	0.03	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.60	0.00	0.12
d_M, Delay for Movement [s/veh]	8.58	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	34.51	33.69	25.94
Movement LOS	A	A			A	A				D	D	D
95th-Percentile Queue Length [veh/ln]	0.04	0.04	0.00	0.00	0.00	0.00	0.00	0.00	0.00	3.92	3.92	3.92
95th-Percentile Queue Length [ft/ln]	1.10	1.10	0.00	0.00	0.00	0.00	0.00	0.00	0.00	98.01	98.01	98.01
d_A, Approach Delay [s/veh]	0.48			0.00			0.00			31.67		
Approach LOS	A			A			A			D		
d_I, Intersection Delay [s/veh]	6.46											
Intersection LOS	D											

Intersection Level Of Service Report
Intersection 6: Main St/I-84 EB Ramp Terminal

Control Type:	Two-way stop	Delay (sec / veh):	30.0
Analysis Method:	HCM 7th Edition	Level Of Service:	D
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.101

Intersection Setup

Name	Main St			Main St			I-84 EB					
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]	30.00			30.00			45.00			30.00		
Grade [%]	0.00			0.00			0.00			0.00		
Crosswalk	Yes			Yes			Yes			Yes		

Volumes

Name	Main St			Main St			I-84 EB					
Base Volume Input [veh/h]	0	346	105	65	358	0	13	0	8	0	0	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	6.00	3.00	15.00	6.00	2.00	18.00	0.00	14.00	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
Total Hourly Volume [veh/h]	0	346	105	65	358	0	13	0	8	0	0	0
Peak Hour Factor	1.0000	0.8100	0.8100	0.8100	0.8100	1.0000	0.8100	0.8100	0.8100	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]	0	107	32	20	110	0	4	0	2	0	0	0
Total Analysis Volume [veh/h]	0	427	130	80	442	0	16	0	10	0	0	0
Pedestrian Volume [ped/h]	0			0			1			4		

Intersection Settings

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

Movement, Approach, & Intersection Results

V/C, Movement V/C Ratio	0.00	0.00	0.00	0.08	0.00	0.00	0.10	0.00	0.02	0.00	0.00	0.00
d_M, Delay for Movement [s/veh]	0.00	0.00	0.00	8.90	0.00	0.00	29.98	27.96	13.29	0.00	0.00	0.00
Movement LOS		A	A	A	A		D	D	B			
95th-Percentile Queue Length [veh/ln]	0.00	0.00	0.00	0.14	0.14	0.00	0.40	0.40	0.40	0.00	0.00	0.00
95th-Percentile Queue Length [ft/ln]	0.00	0.00	0.00	3.49	3.49	0.00	9.90	9.90	9.90	0.00	0.00	0.00
d_A, Approach Delay [s/veh]	0.00			1.36			23.56			0.00		
Approach LOS	A			A			C			A		
d_I, Intersection Delay [s/veh]	1.20											
Intersection LOS	D											

Intersection Level Of Service Report
Intersection 7: Main St/Front St SE

Control Type:	Two-way stop	Delay (sec / veh):	26.2
Analysis Method:	HCM 7th Edition	Level Of Service:	D
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.029

Intersection Setup

Name	Main St			Main St			Front St SE			Front St SE		
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	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			25.00			25.00		
Grade [%]	0.00			0.00			0.00			0.00		
Crosswalk	Yes			Yes			Yes			Yes		

Volumes

Name	Main St			Main St			Front St SE			Front St SE		
Base Volume Input [veh/h]	0	427	13	19	347	0	4	0	0	14	0	20
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	5.00	0.00	0.00	6.00	0.00	33.00	0.00	0.00	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]	0	427	13	19	347	0	4	0	0	14	0	20
Peak Hour Factor	0.8100	0.8100	0.8100	0.8100	0.8100	0.8100	0.8100	0.8100	0.8100	0.8100	0.8100	0.8100
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	132	4	6	107	0	1	0	0	4	0	6
Total Analysis Volume [veh/h]	0	527	16	23	428	0	5	0	0	17	0	25
Pedestrian Volume [ped/h]	0			0			1			4		

Intersection Settings

Priority Scheme	Free	Free	Stop	Stop
Flared Lane			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	0.00	0.01	0.00	0.02	0.00	0.00	0.03	0.00	0.00	0.08	0.00	0.05
d_M, Delay for Movement [s/veh]	8.16	0.00	0.00	8.58	0.00	0.00	26.18	21.16	11.32	23.31	21.84	11.93
Movement LOS	A	A	A	A	A	A	D	C	B	C	C	B
95th-Percentile Queue Length [veh/ln]	0.00	0.00	0.00	0.07	0.00	0.00	0.09	0.09	0.09	0.26	0.26	0.14
95th-Percentile Queue Length [ft/ln]	0.00	0.00	0.00	1.71	0.00	0.00	2.20	2.20	2.20	6.42	6.42	3.60
d_A, Approach Delay [s/veh]	0.00			0.44			26.18			16.54		
Approach LOS	A			A			D			C		
d_I, Intersection Delay [s/veh]	0.98											
Intersection LOS	D											

Intersection Level Of Service Report
Intersection 8: Main St/Oregon Trail Blvd

Control Type:	Two-way stop	Delay (sec / veh):	10.8
Analysis Method:	HCM 7th Edition	Level Of Service:	B
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.040

Intersection Setup

Name	Main St		Main St		Oregon Trail Blvd	
Approach	Northbound		Southbound		Westbound	
Lane Configuration						
Turning Movement	Thru	Right	Left	Thru	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		25.00	
Grade [%]	0.00		0.00		0.00	
Crosswalk	Yes		Yes		Yes	

Volumes

Name	Main St		Main St		Oregon Trail Blvd	
Base Volume Input [veh/h]	339	0	11	291	0	23
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	4.00	0.00	18.00	5.00	0.00	9.00
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]	339	0	11	291	0	23
Peak Hour Factor	0.8700	0.8700	0.8700	0.8700	0.8700	0.8700
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	97	0	3	84	0	7
Total Analysis Volume [veh/h]	390	0	13	334	0	26
Pedestrian Volume [ped/h]	0		0		0	

Intersection Settings

Priority Scheme	Free	Free	Stop
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	0.00	0.00	0.01	0.00	0.00	0.04
d_M, Delay for Movement [s/veh]	0.00	0.00	8.33	0.00	14.80	10.83
Movement LOS	A	A	A	A	B	B
95th-Percentile Queue Length [veh/ln]	0.00	0.00	0.02	0.02	0.13	0.13
95th-Percentile Queue Length [ft/ln]	0.00	0.00	0.55	0.55	3.15	3.15
d_A, Approach Delay [s/veh]	0.00		0.31		10.83	
Approach LOS	A		A		B	
d_I, Intersection Delay [s/veh]	0.51					
Intersection LOS	B					

Intersection Level Of Service Report
Intersection 9: Main St/Kinkade Rd

Control Type:	Two-way stop	Delay (sec / veh):	14.3
Analysis Method:	HCM 7th Edition	Level Of Service:	B
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.152

Intersection Setup

Name	Main St		Main St		Kinkade Rd	
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		25.00	
Grade [%]	0.00		0.00		0.00	
Crosswalk	Yes		Yes		Yes	

Volumes

Name	Main St		Main St		Kinkade Rd	
Base Volume Input [veh/h]	10	274	209	47	62	17
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	10.00	5.00	5.00	4.00	0.00	6.00
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]	10	274	209	47	62	17
Peak Hour Factor	0.8800	0.8800	0.8800	0.8800	0.8800	0.8800
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	3	78	59	13	18	5
Total Analysis Volume [veh/h]	11	311	238	53	70	19
Pedestrian Volume [ped/h]	0		0		2	

Intersection Settings

Priority Scheme	Free	Free	Stop
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	0.01	0.00	0.00	0.00	0.15	0.02
d_M, Delay for Movement [s/veh]	7.96	0.00	0.00	0.00	14.33	11.26
Movement LOS	A	A	A	A	B	B
95th-Percentile Queue Length [veh/ln]	0.02	0.02	0.00	0.00	0.64	0.64
95th-Percentile Queue Length [ft/ln]	0.46	0.46	0.00	0.00	15.89	15.89
d_A, Approach Delay [s/veh]	0.27		0.00		13.67	
Approach LOS	A		A		B	
d_I, Intersection Delay [s/veh]	1.86					
Intersection LOS	B					

Intersection Level Of Service Report
Intersection 10: Main St/Wilson Ln

Control Type:	All-way stop	Delay (sec / veh):	9.4
Analysis Method:	HCM 7th Edition	Level Of Service:	A
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.300

Intersection Setup

Name	Main St			Main St			Wilson Ln			Wilson 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]	35.00			30.00			20.00			30.00		
Grade [%]	0.00			0.00			0.00			0.00		
Crosswalk	Yes			Yes			Yes			Yes		

Volumes

Name	Main St			Main St			Wilson Ln			Wilson Ln		
Base Volume Input [veh/h]	6	82	7	28	36	128	162	23	6	3	44	27
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 [%]	50.00	4.00	0.00	11.00	14.00	4.00	5.00	0.00	0.00	0.00	2.00	7.00
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]	6	82	7	28	36	128	162	23	6	3	44	27
Peak Hour Factor	0.8900	0.8900	0.8900	0.8900	0.8900	0.8900	0.8900	0.8900	0.8900	0.8900	0.8900	0.8900
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]	2	23	2	8	10	36	46	6	2	1	12	8
Total Analysis Volume [veh/h]	7	92	8	31	40	144	182	26	7	3	49	30
Pedestrian Volume [ped/h]	0			2			0			0		

Intersection Settings

Lanes

Capacity per Entry Lane [veh/h]	716	790	718	743
Degree of Utilization, x	0.15	0.27	0.30	0.11

Movement, Approach, & Intersection Results

95th-Percentile Queue Length [veh]	0.52	1.11	1.26	0.37
95th-Percentile Queue Length [ft]	13.08	27.64	31.48	9.26
Approach Delay [s/veh]	8.91	9.26	10.15	8.44
Approach LOS	A	A	B	A
Intersection Delay [s/veh]	9.40			
Intersection LOS	A			

Intersection Level Of Service Report
Intersection 11: Olson Rd/Columbia Ave

Control Type:	Two-way stop	Delay (sec / veh):	11.1
Analysis Method:	HCM 7th Edition	Level Of Service:	B
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.015

Intersection Setup

Name	Olson Rd			Olson Rd			Columbia Ave			Columbia Ave		
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	1	0	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	150.00	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			40.00			40.00		
Grade [%]	0.00			0.00			0.00			0.00		
Crosswalk	Yes			Yes			Yes			Yes		

Volumes

Name	Olson Rd			Olson Rd			Columbia Ave			Columbia Ave		
Base Volume Input [veh/h]	10	0	17	8	0	3	3	71	5	27	63	7
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 [%]	20.00	0.00	12.00	62.00	0.00	0.00	0.00	4.00	0.00	7.00	8.00	57.00
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]	10	0	17	8	0	3	3	71	5	27	63	7
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]	3	0	5	2	0	1	1	19	1	7	17	2
Total Analysis Volume [veh/h]	11	0	18	9	0	3	3	77	5	29	68	8
Pedestrian Volume [ped/h]	0			0			0			0		

Intersection Settings

Priority Scheme	Stop	Stop	Free	Free
Flared Lane		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	0.02	0.00	0.02	0.02	0.00	0.00	0.00	0.00	0.00	0.02	0.00	0.00
d_M, Delay for Movement [s/veh]	10.32	10.46	8.83	11.14	10.48	8.72	7.35	0.00	0.00	7.47	0.00	0.00
Movement LOS	B	B	A	B	B	A	A	A	A	A	A	A
95th-Percentile Queue Length [veh/ln]	0.05	0.05	0.06	0.06	0.06	0.06	0.01	0.00	0.00	0.06	0.00	0.00
95th-Percentile Queue Length [ft/ln]	1.22	1.22	1.44	1.38	1.38	1.38	0.15	0.00	0.00	1.49	0.00	0.00
d_A, Approach Delay [s/veh]	9.40			10.54			0.26			2.06		
Approach LOS	A			B			A			A		
d_I, Intersection Delay [s/veh]	2.76											
Intersection LOS	B											

Intersection Level Of Service Report
Intersection 12: Laurel Ln/Columbia Ave

Control Type:	Two-way stop	Delay (sec / veh):	24.2
Analysis Method:	HCM 7th Edition	Level Of Service:	C
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.272

Intersection Setup

Name	Laurel Ln						Columbia Ave			Columbia Ave		
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]	30.00			30.00			40.00			40.00		
Grade [%]	0.00			0.00			0.00			0.00		
Crosswalk	Yes			No			Yes			Yes		

Volumes

Name	Laurel Ln						Columbia Ave			Columbia Ave		
Base Volume Input [veh/h]	0	465	0	0	0	0	0	45	97	49	29	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 [%]	17.00	9.00	22.00	2.00	2.00	2.00	2.00	4.00	13.00	41.00	31.00	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
Total Hourly Volume [veh/h]	0	465	0	0	0	0	0	45	97	49	29	0
Peak Hour Factor	0.8400	0.7000	0.8400	1.0000	1.0000	1.0000	1.0000	0.7000	0.8400	0.7000	0.8400	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]	0	166	0	0	0	0	0	16	29	18	9	0
Total Analysis Volume [veh/h]	0	664	0	0	0	0	0	64	115	70	35	0
Pedestrian Volume [ped/h]	0			0			0			0		

Intersection Settings

Priority Scheme	Free	Free	Stop	Stop
Flared Lane				
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	0.00	0.01	0.00	0.00	0.00	0.00	0.00	0.17	0.00	0.27	0.00	0.00
d_M, Delay for Movement [s/veh]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	16.43	0.00	24.16	0.00	0.00
Movement LOS		A						C		C		
95th-Percentile Queue Length [veh/ln]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.60	0.00	1.07	0.00	0.00
95th-Percentile Queue Length [ft/ln]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	15.03	0.00	26.83	0.00	0.00
d_A, Approach Delay [s/veh]	0.00			0.00			16.43			24.16		
Approach LOS	A			A			C			C		
d_I, Intersection Delay [s/veh]	3.44											
Intersection LOS	C											

Intersection Level Of Service Report
Intersection 13: Laurel Ln/I-84 WB Ramp Terminal

Control Type:	Two-way stop	Delay (sec / veh):	18.1
Analysis Method:	HCM 7th Edition	Level Of Service:	C
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.073

Intersection Setup

Name	Laurel Ln			Laurel Ln			I-84 WB			I-84 WB		
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]	30.00			30.00			30.00			45.00		
Grade [%]	0.00			0.00			0.00			0.00		
Crosswalk	Yes			Yes			Yes			Yes		

Volumes

Name	Laurel Ln			Laurel Ln			I-84 WB			I-84 WB		
Base Volume Input [veh/h]	12	95	0	0	115	15	0	0	0	32	0	370
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 [%]	17.00	14.00	2.00	2.00	25.00	67.00	2.00	2.00	2.00	3.00	0.00	8.00
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]	12	95	0	0	115	15	0	0	0	32	0	370
Peak Hour Factor	0.7200	0.7200	1.0000	1.0000	0.7200	0.7200	1.0000	1.0000	1.0000	0.7200	0.7200	0.7200
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]	4	33	0	0	40	5	0	0	0	11	0	128
Total Analysis Volume [veh/h]	17	132	0	0	160	21	0	0	0	44	0	514
Pedestrian Volume [ped/h]	0			0			0			0		

Intersection Settings

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

Movement, Approach, & Intersection Results

V/C, Movement V/C Ratio	0.01	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.07	0.00	0.57
d_M, Delay for Movement [s/veh]	7.77	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	18.07	18.44	16.13
Movement LOS	A	A			A	A				C	C	C
95th-Percentile Queue Length [veh/ln]	0.03	0.03	0.00	0.00	0.00	0.00	0.00	0.00	0.00	4.80	4.80	4.80
95th-Percentile Queue Length [ft/ln]	0.71	0.71	0.00	0.00	0.00	0.00	0.00	0.00	0.00	120.03	120.03	120.03
d_A, Approach Delay [s/veh]	0.89			0.00			0.00			16.29		
Approach LOS	A			A			A			C		
d_I, Intersection Delay [s/veh]	10.38											
Intersection LOS	C											

Intersection Level Of Service Report
Intersection 14: Laurel Ln/I-84 EB Ramp Terminal

Control Type:	Two-way stop	Delay (sec / veh):	12.7
Analysis Method:	HCM 7th Edition	Level Of Service:	B
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.093

Intersection Setup

Name	Laurel Ln			Laurel Ln			I-84 EB					
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]	30.00			30.00			45.00			30.00		
Grade [%]	0.00			0.00			0.00			0.00		
Crosswalk	Yes			Yes			Yes			Yes		

Volumes

Name	Laurel Ln			Laurel Ln			I-84 EB					
Base Volume Input [veh/h]	0	65	18	94	53	0	42	0	6	0	0	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	9.00	11.00	29.00	4.00	2.00	21.00	0.00	17.00	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
Total Hourly Volume [veh/h]	0	65	18	94	53	0	42	0	6	0	0	0
Peak Hour Factor	1.0000	0.8800	0.8800	0.8800	0.8800	1.0000	0.8800	0.8800	0.8800	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]	0	18	5	27	15	0	12	0	2	0	0	0
Total Analysis Volume [veh/h]	0	74	20	107	60	0	48	0	7	0	0	0
Pedestrian Volume [ped/h]	0			0			0			0		

Intersection Settings

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

Movement, Approach, & Intersection Results

V/C, Movement V/C Ratio	0.00	0.00	0.00	0.08	0.00	0.00	0.09	0.00	0.01	0.00	0.00	0.00
d_M, Delay for Movement [s/veh]	0.00	0.00	0.00	7.80	0.00	0.00	12.69	12.68	9.46	0.00	0.00	0.00
Movement LOS		A	A	A	A		B	B	A			
95th-Percentile Queue Length [veh/ln]	0.00	0.00	0.00	0.19	0.19	0.00	0.33	0.33	0.33	0.00	0.00	0.00
95th-Percentile Queue Length [ft/ln]	0.00	0.00	0.00	4.74	4.74	0.00	8.29	8.29	8.29	0.00	0.00	0.00
d_A, Approach Delay [s/veh]	0.00			5.00			12.28			0.00		
Approach LOS	A			A			B			A		
d_I, Intersection Delay [s/veh]	4.78											
Intersection LOS	B											

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Scenario 2 EX PM
4/18/2025

Intersection Analysis Summary

ID	Intersection Name	Control Type	Method	Worst Mvmt	V/C	Delay (s/veh)	LOS
2	Main St/Columbia Ave	Two-way stop	HCM 7th Edition	WB Thru	0.026	12.2	B
3	Main St/Boardman Ave	Two-way stop	HCM 7th Edition	WB Left	0.144	22.8	C
4	Main St/Front St NE	Two-way stop	HCM 7th Edition	WB Left	0.435	43.9	E
5	Main St/I-84 WB Ramp Terminal	Two-way stop	HCM 7th Edition	WB Left	0.931	78.6	F
6	Main St/I-84 EB Ramp Terminal	Two-way stop	HCM 7th Edition	EB Left	0.637	81.0	F
7	Main St/Front St SE	Two-way stop	HCM 7th Edition	WB Left	0.180	35.5	E
8	Main St/Oregon Trail Blvd	Two-way stop	HCM 7th Edition	WB Left	0.030	18.9	C
9	Main St/Kinkade Rd	Two-way stop	HCM 7th Edition	EB Left	0.253	16.9	C
10	Main St/Wilson Ln	All-way stop	HCM 7th Edition	SB Right	0.397	9.7	A
11	Olson Rd/Columbia Ave	Two-way stop	HCM 7th Edition	SB Left	0.011	11.6	B
12	Laurel Ln/Columbia Ave	Two-way stop	HCM 7th Edition	WB Left	0.190	10.8	B
13	Laurel Ln/I-84 WB Ramp Terminal	Two-way stop	HCM 7th Edition	WB Thru	0.002	12.0	B
14	Laurel Ln/I-84 EB Ramp Terminal	Two-way stop	HCM 7th Edition	EB Left	0.095	16.3	C

V/C, Delay, LOS: For two-way stop, these values are taken from the movement with the worst (highest) delay value. For all other control types, they are taken for the whole intersection.

Intersection Level Of Service Report
Intersection 2: Main St/Columbia Ave

Control Type:	Two-way stop	Delay (sec / veh):	12.2
Analysis Method:	HCM 7th Edition	Level Of Service:	B
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.026

Intersection Setup

Name	Main St			Main St			Columbia Ave			Columbia Ave		
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]	850.00	100.00	100.00	150.00	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]	20.00			20.00			25.00			35.00		
Grade [%]	0.00			0.00			0.00			0.00		
Crosswalk	Yes			Yes			Yes			Yes		

Volumes

Name	Main St			Main St			Columbia Ave			Columbia Ave		
Base Volume Input [veh/h]	12	36	83	7	41	1	5	10	15	154	15	6
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	4.00	0.00	2.00	0.00	20.00	10.00	0.00	1.00	7.00	17.00
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]	12	36	83	7	41	1	5	10	15	154	15	6
Peak Hour Factor	0.8500	0.8500	0.8500	0.8500	0.8500	0.8500	0.8500	0.8500	0.8500	0.8500	0.8500	0.8500
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]	4	11	24	2	12	0	1	3	4	45	4	2
Total Analysis Volume [veh/h]	14	42	98	8	48	1	6	12	18	181	18	7
Pedestrian Volume [ped/h]	0			0			1			1		

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	0.01	0.00	0.00	0.01	0.00	0.00	0.01	0.02	0.02	0.25	0.03	0.01
d_M, Delay for Movement [s/veh]	7.32	0.00	0.00	7.49	0.00	0.00	10.43	10.82	8.73	11.94	12.19	10.85
Movement LOS	A	A	A	A	A	A	B	B	A	B	B	B
95th-Percentile Queue Length [veh/ln]	0.03	0.00	0.00	0.02	0.00	0.00	0.14	0.14	0.14	1.17	1.17	1.17
95th-Percentile Queue Length [ft/ln]	0.68	0.00	0.00	0.42	0.00	0.00	3.53	3.53	3.53	29.24	29.24	29.24
d_A, Approach Delay [s/veh]	0.67			1.05			9.71			11.92		
Approach LOS	A			A			A			B		
d_I, Intersection Delay [s/veh]	6.55											
Intersection LOS	B											

Intersection Level Of Service Report
Intersection 3: Main St/Boardman Ave

Control Type:	Two-way stop	Delay (sec / veh):	22.8
Analysis Method:	HCM 7th Edition	Level Of Service:	C
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.144

Intersection Setup

Name	Main St			Main St			Boardman Ave			Boardman Ave		
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]	20.00			20.00			25.00			20.00		
Grade [%]	0.00			0.00			0.00			0.00		
Crosswalk	Yes			Yes			Yes			Yes		

Volumes

Name	Main St			Main St			Boardman Ave			Boardman Ave		
Base Volume Input [veh/h]	115	151	42	12	242	29	12	2	83	33	11	8
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 [%]	3.00	2.00	17.00	10.00	2.00	0.00	0.00	0.00	3.00	0.00	11.00	14.00
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]	115	151	42	12	242	29	12	2	83	33	11	8
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]	31	41	11	3	65	8	3	1	22	9	3	2
Total Analysis Volume [veh/h]	124	162	45	13	260	31	13	2	89	35	12	9
Pedestrian Volume [ped/h]	1			0			0			5		

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	0.10	0.00	0.00	0.01	0.00	0.00	0.05	0.01	0.12	0.14	0.04	0.01
d_M, Delay for Movement [s/veh]	8.15	0.00	0.00	7.78	0.00	0.00	18.91	18.21	10.94	22.83	20.41	12.44
Movement LOS	A	A	A	A	A	A	C	C	B	C	C	B
95th-Percentile Queue Length [veh/ln]	0.33	0.00	0.00	0.03	0.00	0.00	0.61	0.61	0.61	0.71	0.71	0.71
95th-Percentile Queue Length [ft/ln]	8.13	0.00	0.00	0.75	0.00	0.00	15.20	15.20	15.20	17.84	17.84	17.84
d_A, Approach Delay [s/veh]	3.05			0.33			12.08			20.65		
Approach LOS	A			A			B			C		
d_I, Intersection Delay [s/veh]	4.43											
Intersection LOS	C											

Intersection Level Of Service Report
Intersection 4: Main St/Front St NE

Control Type:	Two-way stop	Delay (sec / veh):	43.9
Analysis Method:	HCM 7th Edition	Level Of Service:	E
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.435

Intersection Setup

Name	Main St			Main St			Front St NE			Front St NE		
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]	50.00	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			25.00			25.00		
Grade [%]	0.00			0.00			0.00			0.00		
Crosswalk	Yes			Yes			Yes			Yes		

Volumes

Name	Main St			Main St			Front St NE			Front St NE		
Base Volume Input [veh/h]	65	336	78	6	393	8	7	0	83	65	5	6
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 [%]	4.00	4.00	3.00	0.00	2.00	0.00	0.00	0.00	3.00	4.00	0.00	40.00
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]	65	336	78	6	393	8	7	0	83	65	5	6
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]	18	91	21	2	107	2	2	0	23	18	1	2
Total Analysis Volume [veh/h]	71	365	85	7	427	9	8	0	90	71	5	7
Pedestrian Volume [ped/h]	0			5			0			3		

Intersection Settings

Priority Scheme	Free	Free	Stop	Stop
Flared Lane				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	0.06	0.00	0.00	0.01	0.00	0.00	0.04	0.00	0.14	0.44	0.02	0.01
d_M, Delay for Movement [s/veh]	8.45	0.00	0.00	8.25	0.00	0.00	23.90	22.49	11.77	43.95	37.77	28.32
Movement LOS	A	A	A	A	A	A	C	C	B	E	E	D
95th-Percentile Queue Length [veh/ln]	0.20	0.00	0.00	0.02	0.00	0.00	0.13	0.13	0.50	2.23	2.23	2.23
95th-Percentile Queue Length [ft/ln]	5.10	0.00	0.00	0.47	0.00	0.00	3.13	3.13	12.60	55.84	55.84	55.84
d_A, Approach Delay [s/veh]	1.15			0.13			12.76			42.26		
Approach LOS	A			A			B			E		
d_I, Intersection Delay [s/veh]	4.73											
Intersection LOS	E											

Intersection Level Of Service Report
Intersection 5: Main St/I-84 WB Ramp Terminal

Control Type:	Two-way stop	Delay (sec / veh):	78.6
Analysis Method:	HCM 7th Edition	Level Of Service:	F
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.931

Intersection Setup

Name	Main St			Main St						I-84 WB		
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]	30.00			30.00			30.00			45.00		
Grade [%]	0.00			0.00			0.00			0.00		
Crosswalk	Yes			Yes			Yes			Yes		

Volumes

Name	Main St			Main St						I-84 WB		
Base Volume Input [veh/h]	20	355	0	0	495	46	0	0	0	183	0	124
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 [%]	6.00	3.00	2.00	2.00	2.00	8.00	2.00	2.00	2.00	4.00	0.00	5.00
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]	20	355	0	0	495	46	0	0	0	183	0	124
Peak Hour Factor	0.9200	0.9200	1.0000	1.0000	0.9200	0.9200	1.0000	1.0000	1.0000	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]	5	96	0	0	135	13	0	0	0	50	0	34
Total Analysis Volume [veh/h]	22	386	0	0	538	50	0	0	0	199	0	135
Pedestrian Volume [ped/h]	0			0			0			4		

Intersection Settings

Priority Scheme	Free	Free	Stop	Stop
Flared Lane				Yes
Storage Area [veh]	0	0	0	1
Two-Stage Gap Acceptance				No
Number of Storage Spaces in Median	0	0	0	0

Movement, Approach, & Intersection Results

V/C, Movement V/C Ratio	0.02	0.00	0.00	0.00	0.01	0.00	0.00	0.00	0.00	0.93	0.00	0.21
d_M, Delay for Movement [s/veh]	8.74	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	78.63	77.44	67.34
Movement LOS	A	A			A	A				F	F	F
95th-Percentile Queue Length [veh/ln]	0.04	0.04	0.00	0.00	0.00	0.00	0.00	0.00	0.00	10.22	10.22	10.22
95th-Percentile Queue Length [ft/ln]	0.93	0.93	0.00	0.00	0.00	0.00	0.00	0.00	0.00	255.56	255.56	255.56
d_A, Approach Delay [s/veh]	0.47			0.00			0.00			74.07		
Approach LOS	A			A			A			F		
d_I, Intersection Delay [s/veh]	18.75											
Intersection LOS	F											

Intersection Level Of Service Report
Intersection 6: Main St/I-84 EB Ramp Terminal

Control Type:	Two-way stop	Delay (sec / veh):	81.0
Analysis Method:	HCM 7th Edition	Level Of Service:	F
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.637

Intersection Setup

Name	Main St			Main St			I-84 EB					
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]	30.00			30.00			45.00			30.00		
Grade [%]	0.00			0.00			0.00			0.00		
Crosswalk	Yes			Yes			Yes			Yes		

Volumes

Name	Main St			Main St			I-84 EB					
Base Volume Input [veh/h]	0	302	176	106	572	0	73	0	67	0	0	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	3.00	3.00	2.00	2.00	2.00	7.00	0.00	9.00	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
Total Hourly Volume [veh/h]	0	302	176	106	572	0	73	0	67	0	0	0
Peak Hour Factor	1.0000	0.9400	0.9400	0.9400	0.9400	1.0000	0.9400	0.9400	0.9400	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]	0	80	47	28	152	0	19	0	18	0	0	0
Total Analysis Volume [veh/h]	0	321	187	113	609	0	78	0	71	0	0	0
Pedestrian Volume [ped/h]	0			0			0			4		

Intersection Settings

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

Movement, Approach, & Intersection Results

V/C, Movement V/C Ratio	0.00	0.00	0.00	0.11	0.01	0.00	0.64	0.00	0.15	0.00	0.00	0.00
d_M, Delay for Movement [s/veh]	0.00	0.00	0.00	8.56	0.00	0.00	81.01	79.90	59.06	0.00	0.00	0.00
Movement LOS		A	A	A	A		F	F	F			
95th-Percentile Queue Length [veh/ln]	0.00	0.00	0.00	0.20	0.20	0.00	5.34	5.34	5.34	0.00	0.00	0.00
95th-Percentile Queue Length [ft/ln]	0.00	0.00	0.00	5.02	5.02	0.00	133.55	133.55	133.55	0.00	0.00	0.00
d_A, Approach Delay [s/veh]	0.00			1.34			70.55			0.00		
Approach LOS	A			A			F			A		
d_I, Intersection Delay [s/veh]	8.32											
Intersection LOS	F											

Intersection Level Of Service Report
Intersection 7: Main St/Front St SE

Control Type:	Two-way stop	Delay (sec / veh):	35.5
Analysis Method:	HCM 7th Edition	Level Of Service:	E
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.180

Intersection Setup

Name	Main St			Main St			Front St SE			Front St SE		
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	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			25.00			25.00		
Grade [%]	0.00			0.00			0.00			0.00		
Crosswalk	Yes			Yes			Yes			Yes		

Volumes

Name	Main St			Main St			Front St SE			Front St SE		
Base Volume Input [veh/h]	5	430	32	50	574	15	6	2	2	24	1	42
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	12.00	2.00	8.00	0.00	0.00	0.00	0.00	0.00	9.00
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]	5	430	32	50	574	15	6	2	2	24	1	42
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]	1	116	9	13	154	4	2	1	1	6	0	11
Total Analysis Volume [veh/h]	5	462	34	54	617	16	6	2	2	26	1	45
Pedestrian Volume [ped/h]	0			0			0			4		

Intersection Settings

Priority Scheme	Free	Free	Stop	Stop
Flared Lane			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	0.01	0.00	0.00	0.05	0.01	0.00	0.05	0.01	0.00	0.18	0.01	0.08
d_M, Delay for Movement [s/veh]	8.77	0.00	0.00	8.76	0.00	0.00	33.90	28.27	13.84	35.51	32.12	11.89
Movement LOS	A	A	A	A	A	A	D	D	B	E	D	B
95th-Percentile Queue Length [veh/ln]	0.02	0.00	0.00	0.17	0.00	0.00	0.20	0.20	0.20	0.66	0.66	0.26
95th-Percentile Queue Length [ft/ln]	0.39	0.00	0.00	4.23	0.00	0.00	4.90	4.90	4.90	16.41	16.41	6.44
d_A, Approach Delay [s/veh]	0.09			0.69			28.76			20.70		
Approach LOS	A			A			D			C		
d_I, Intersection Delay [s/veh]	1.81											
Intersection LOS	E											

Intersection Level Of Service Report
Intersection 8: Main St/Oregon Trail Blvd

Control Type:	Two-way stop	Delay (sec / veh):	18.9
Analysis Method:	HCM 7th Edition	Level Of Service:	C
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.030

Intersection Setup

Name	Main St		Main St		Oregon Trail Blvd	
Approach	Northbound		Southbound		Westbound	
Lane Configuration						
Turning Movement	Thru	Right	Left	Thru	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		25.00	
Grade [%]	0.00		0.00		0.00	
Crosswalk	Yes		Yes		Yes	

Volumes

Name	Main St		Main St		Oregon Trail Blvd	
Base Volume Input [veh/h]	368	11	46	451	8	25
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	2.00	9.00	0.00	2.00	0.00	4.00
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]	368	11	46	451	8	25
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]	97	3	12	119	2	7
Total Analysis Volume [veh/h]	387	12	48	475	8	26
Pedestrian Volume [ped/h]	0		0		0	

Intersection Settings

Priority Scheme	Free	Free	Stop
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	0.00	0.00	0.04	0.00	0.03	0.04
d_M, Delay for Movement [s/veh]	0.00	0.00	8.13	0.00	18.90	11.08
Movement LOS	A	A	A	A	C	B
95th-Percentile Queue Length [veh/ln]	0.00	0.00	0.08	0.08	0.22	0.22
95th-Percentile Queue Length [ft/ln]	0.00	0.00	2.05	2.05	5.59	5.59
d_A, Approach Delay [s/veh]	0.00		0.75		12.92	
Approach LOS	A		A		B	
d_I, Intersection Delay [s/veh]	0.87					
Intersection LOS	C					

Intersection Level Of Service Report
Intersection 9: Main St/Kinkade Rd

Control Type:	Two-way stop	Delay (sec / veh):	16.9
Analysis Method:	HCM 7th Edition	Level Of Service:	C
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.253

Intersection Setup

Name	Main St		Main St		Kinkade Rd	
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		25.00	
Grade [%]	0.00		0.00		0.00	
Crosswalk	Yes		Yes		Yes	

Volumes

Name	Main St		Main St		Kinkade Rd	
Base Volume Input [veh/h]	17	239	294	88	100	34
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	6.00	2.00	2.00	3.00	4.00	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]	17	239	294	88	100	34
Peak Hour Factor	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
Total 15-Minute Volume [veh/h]	5	64	78	23	27	9
Total Analysis Volume [veh/h]	18	254	313	94	106	36
Pedestrian Volume [ped/h]	0		0		3	

Intersection Settings

Priority Scheme	Free	Free	Stop
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	0.02	0.00	0.00	0.00	0.25	0.05
d_M, Delay for Movement [s/veh]	8.22	0.00	0.00	0.00	16.94	13.62
Movement LOS	A	A	A	A	C	B
95th-Percentile Queue Length [veh/ln]	0.03	0.03	0.00	0.00	1.28	1.28
95th-Percentile Queue Length [ft/ln]	0.76	0.76	0.00	0.00	31.93	31.93
d_A, Approach Delay [s/veh]	0.54		0.00		16.10	
Approach LOS	A		A		C	
d_I, Intersection Delay [s/veh]	2.96					
Intersection LOS	C					

Intersection Level Of Service Report
Intersection 10: Main St/Wilson Ln

Control Type:	All-way stop	Delay (sec / veh):	9.7
Analysis Method:	HCM 7th Edition	Level Of Service:	A
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.397

Intersection Setup

Name	Main St			Main St			Wilson Ln			Wilson 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]	35.00			30.00			20.00			30.00		
Grade [%]	0.00			0.00			0.00			0.00		
Crosswalk	Yes			Yes			Yes			Yes		

Volumes

Name	Main St			Main St			Wilson Ln			Wilson Ln		
Base Volume Input [veh/h]	2	44	10	47	96	152	116	27	4	15	31	63
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	20.00	2.00	6.00	1.00	2.00	4.00	0.00	0.00	0.00	5.00
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]	2	44	10	47	96	152	116	27	4	15	31	63
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]	1	12	3	13	26	41	32	7	1	4	8	17
Total Analysis Volume [veh/h]	2	48	11	51	104	165	126	29	4	16	34	68
Pedestrian Volume [ped/h]	0			0			0			0		

Intersection Settings

Lanes

Capacity per Entry Lane [veh/h]	724	806	699	755
Degree of Utilization, x	0.08	0.40	0.23	0.16

Movement, Approach, & Intersection Results

95th-Percentile Queue Length [veh]	0.28	1.91	0.87	0.55
95th-Percentile Queue Length [ft]	6.88	47.86	21.80	13.80
Approach Delay [s/veh]	8.43	10.37	9.66	8.65
Approach LOS	A	B	A	A
Intersection Delay [s/veh]	9.71			
Intersection LOS	A			

Intersection Level Of Service Report
Intersection 11: Olson Rd/Columbia Ave

Control Type:	Two-way stop	Delay (sec / veh):	11.6
Analysis Method:	HCM 7th Edition	Level Of Service:	B
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.011

Intersection Setup

Name	Olson Rd			Olson Rd			Columbia Ave			Columbia Ave		
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	1	0	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	150.00	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			40.00			40.00		
Grade [%]	0.00			0.00			0.00			0.00		
Crosswalk	Yes			Yes			Yes			Yes		

Volumes

Name	Olson Rd			Olson Rd			Columbia Ave			Columbia Ave		
Base Volume Input [veh/h]	14	1	21	5	0	0	1	38	8	19	155	5
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	5.00	40.00	0.00	0.00	100.00	3.00	0.00	11.00	2.00	60.00
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]	14	1	21	5	0	0	1	38	8	19	155	5
Peak Hour Factor	0.8100	0.8100	0.8100	0.8100	0.8100	0.8100	0.8100	0.8100	0.8100	0.8100	0.8100	0.8100
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]	4	0	6	2	0	0	0	12	2	6	48	2
Total Analysis Volume [veh/h]	17	1	26	6	0	0	1	47	10	23	191	6
Pedestrian Volume [ped/h]	1			0			1			0		

Intersection Settings

Priority Scheme	Stop	Stop	Free	Free
Flared Lane		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	0.03	0.00	0.03	0.01	0.00	0.00	0.00	0.00	0.00	0.02	0.00	0.00
d_M, Delay for Movement [s/veh]	10.67	11.05	8.65	11.59	11.02	9.30	8.77	0.00	0.00	7.46	0.00	0.00
Movement LOS	B	B	A	B	B	A	A	A	A	A	A	A
95th-Percentile Queue Length [veh/ln]	0.09	0.09	0.08	0.03	0.03	0.03	0.00	0.00	0.00	0.05	0.00	0.00
95th-Percentile Queue Length [ft/ln]	2.13	2.13	1.98	0.82	0.82	0.82	0.08	0.00	0.00	1.18	0.00	0.00
d_A, Approach Delay [s/veh]	9.49			11.59			0.15			0.78		
Approach LOS	A			B			A			A		
d_I, Intersection Delay [s/veh]	2.03											
Intersection LOS	B											

Intersection Level Of Service Report
Intersection 12: Laurel Ln/Columbia Ave

Control Type:	Two-way stop	Delay (sec / veh):	10.8
Analysis Method:	HCM 7th Edition	Level Of Service:	B
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.190

Intersection Setup

Name	Laurel Ln						Columbia Ave			Columbia Ave		
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]	30.00			30.00			40.00			40.00		
Grade [%]	0.00			0.00			0.00			0.00		
Crosswalk	Yes			No			Yes			Yes		

Volumes

Name	Laurel Ln						Columbia Ave			Columbia Ave		
Base Volume Input [veh/h]	0	133	0	0	0	0	0	22	117	128	81	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 [%]	18.00	19.00	20.00	2.00	2.00	2.00	2.00	9.00	4.00	10.00	4.00	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
Total Hourly Volume [veh/h]	0	133	0	0	0	0	0	22	117	128	81	0
Peak Hour Factor	0.8900	0.8900	0.8900	1.0000	1.0000	1.0000	1.0000	0.8900	0.8900	0.8900	0.8900	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]	0	37	0	0	0	0	0	6	33	36	23	0
Total Analysis Volume [veh/h]	0	149	0	0	0	0	0	25	131	144	91	0
Pedestrian Volume [ped/h]	0			0			0			0		

Intersection Settings

Priority Scheme	Free	Free	Stop	Stop
Flared Lane				
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	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.03	0.00	0.19	0.00	0.00
d_M, Delay for Movement [s/veh]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	10.11	0.00	10.85	0.00	0.00
Movement LOS		A						B		B		
95th-Percentile Queue Length [veh/ln]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.11	0.00	0.70	0.00	0.00
95th-Percentile Queue Length [ft/ln]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	2.66	0.00	17.40	0.00	0.00
d_A, Approach Delay [s/veh]	0.00			0.00			10.11			10.85		
Approach LOS	A			A			B			B		
d_I, Intersection Delay [s/veh]	5.71											
Intersection LOS	B											

Intersection Level Of Service Report
Intersection 13: Laurel Ln/I-84 WB Ramp Terminal

Control Type:	Two-way stop	Delay (sec / veh):	12.0
Analysis Method:	HCM 7th Edition	Level Of Service:	B
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.002

Intersection Setup

Name	Laurel Ln			Laurel Ln			I-84 WB			I-84 WB		
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]	30.00			30.00			30.00			45.00		
Grade [%]	0.00			0.00			0.00			0.00		
Crosswalk	Yes			Yes			Yes			Yes		

Volumes

Name	Laurel Ln			Laurel Ln			I-84 WB			I-84 WB		
Base Volume Input [veh/h]	3	50	0	0	212	34	0	0	0	14	1	83
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 [%]	67.00	28.00	2.00	2.00	6.00	21.00	2.00	2.00	2.00	21.00	0.00	13.00
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]	3	50	0	0	212	34	0	0	0	14	1	83
Peak Hour Factor	0.8400	0.8400	1.0000	1.0000	0.8400	0.8400	1.0000	1.0000	1.0000	0.8400	0.8400	0.8400
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]	1	15	0	0	63	10	0	0	0	4	0	25
Total Analysis Volume [veh/h]	4	60	0	0	252	40	0	0	0	17	1	99
Pedestrian Volume [ped/h]	0			0			0			0		

Intersection Settings

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

Movement, Approach, & Intersection Results

V/C, Movement V/C Ratio	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.03	0.00	0.10
d_M, Delay for Movement [s/veh]	8.70	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	11.86	11.97	9.32
Movement LOS	A	A			A	A				B	B	A
95th-Percentile Queue Length [veh/ln]	0.01	0.01	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.46	0.46	0.46
95th-Percentile Queue Length [ft/ln]	0.17	0.17	0.00	0.00	0.00	0.00	0.00	0.00	0.00	11.42	11.42	11.42
d_A, Approach Delay [s/veh]	0.54			0.00			0.00			9.71		
Approach LOS	A			A			A			A		
d_I, Intersection Delay [s/veh]	2.47											
Intersection LOS	B											

Intersection Level Of Service Report
Intersection 14: Laurel Ln/I-84 EB Ramp Terminal

Control Type:	Two-way stop	Delay (sec / veh):	16.3
Analysis Method:	HCM 7th Edition	Level Of Service:	C
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.095

Intersection Setup

Name	Laurel Ln			Laurel Ln			I-84 EB					
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]	30.00			30.00			45.00			30.00		
Grade [%]	0.00			0.00			0.00			0.00		
Crosswalk	Yes			Yes			Yes			Yes		

Volumes

Name	Laurel Ln			Laurel Ln			I-84 EB					
Base Volume Input [veh/h]	0	26	41	175	51	0	27	0	10	0	0	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	31.00	15.00	4.00	16.00	2.00	30.00	0.00	10.00	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
Total Hourly Volume [veh/h]	0	26	41	175	51	0	27	0	10	0	0	0
Peak Hour Factor	1.0000	0.8200	0.8200	0.8200	0.8200	1.0000	0.8200	0.8200	0.8200	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]	0	8	13	53	16	0	8	0	3	0	0	0
Total Analysis Volume [veh/h]	0	32	50	213	62	0	33	0	12	0	0	0
Pedestrian Volume [ped/h]	0			0			0			0		

Intersection Settings

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

Movement, Approach, & Intersection Results

V/C, Movement V/C Ratio	0.00	0.00	0.00	0.14	0.00	0.00	0.09	0.00	0.01	0.00	0.00	0.00
d_M, Delay for Movement [s/veh]	0.00	0.00	0.00	7.66	0.00	0.00	16.34	15.74	9.69	0.00	0.00	0.00
Movement LOS		A	A	A	A		C	C	A			
95th-Percentile Queue Length [veh/ln]	0.00	0.00	0.00	0.40	0.40	0.00	0.36	0.36	0.36	0.00	0.00	0.00
95th-Percentile Queue Length [ft/ln]	0.00	0.00	0.00	10.05	10.05	0.00	8.91	8.91	8.91	0.00	0.00	0.00
d_A, Approach Delay [s/veh]	0.00			5.94			14.57			0.00		
Approach LOS	A			A			B			A		
d_I, Intersection Delay [s/veh]	5.69											
Intersection LOS	C											

Attachment C – ODOT Crash Data

OREGON.. DEPARTMENT OF TRANSPORTATION - TRANSPORTATION DEVELOPMENT DIVISION
TRANSPORTATION DATA SECTION - CRASH ANAYLYSIS AND REPORTING UNIT
URBAN NON-SYSTEM CRASH LISTING

CITY OF BOARDMAN, MORROW COUNTY

N MAIN ST at MARINE DR, City of Boardman, Morrow County, ALL Crashes Severity, ALL Crashes Circumstance, 01/01/2018 to 12/31/2022

SER# / INVEST / RD DPT / UNLOC?	S P E D	A L C	D R U G S	J U N V	S I H L	W C O R K	DATE / DAY / TIME / LAT	CLASS / DIST / FROM / LONG	CITY STREET / FIRST STREET / SECOND STREET / LRS	RD CHAR / DIRECT / LOCTN	INT-TYPE (MEDIAN) (#LANES)	INT-REL / TRAF- / CONTL	OFFRD / RNDBT / DRVWY	WTHR / SURF / LIGHT	CRASH / COLL / SVRTY	V#	SPCL USE / TRLR QTY / OWNER / TYPE	MOVE FROM / TO	P#	PRTC TYPE	INJ SVRTY	A G E	S E X	LICNS RES	PED LOC	ERROR	ACT	EVENT	CAUSE

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CITY OF BOARDMAN, MORROW COUNTY

N MAIN ST at MARINE DR, City of Boardman, Morrow County, ALL Crashes Severity, ALL Crashes Circumstance, 01/01/2018 to 12/31/2022

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OREGON.. DEPARTMENT OF TRANSPORTATION - TRANSPORTATION DEVELOPMENT DIVISION
TRANSPORTATION DATA SECTION - CRASH ANAYLYSIS AND REPORTING UNIT
URBAN NON-SYSTEM CRASH LISTING

CITY OF BOARDMAN, MORROW COUNTY

N MAIN ST at COLUMBIA AVE, City of Boardman, Morrow County, ALL Crashes Severity, ALL Crashes Circumstance, 01/01/2018 to 12/31/2022

1 - 2 of 2 Crash records shown.

SER# / INVEST / RD DPT / UNLOC?	S P E D	A L C	D M R U G	J I N V	S C H L	W O R K	DATE / DAY / TIME / LAT	CLASS / DIST / FROM / LONG	CITY STREET / FIRST STREET / SECOND STREET / LRS	RD CHAR / DIRECT / LOCTN	INT-TYPE (MEDIAN) / LEGS (#LANES)	INT-REL / TRAF- / CONTL	OFFRD / RNDBT / DRVWY	WTHR / SURF / LIGHT	CRASH / COLL / SVRTY	V#	SPCL USE / TRLR QTY / OWNER / TYPE	MOVE / FROM / TO	P#	PRTC / INJ / SVRTY	A G E	S E X	LICNS / RES	PED LOC	ERROR	ACT	EVENT	CAUSE
00093	N	Y	N	N	Y	N	07/31/2022	07	COLUMBIA AVE	INTER	CROSS	N	Y	CLR	FIX OBJ	01	NONE 0	TURN-R									079,121	08
CITY				SU				0	N MAIN ST	CN		UNKNOWN	N	DRY	FIX		PRVTE	SE-NE								000	079,121	00
N				1A						04	0		N	DLIT	INJ		PSNGR CAR		01	DRVR	INJB	22	F	OR-Y		081	000		08
N				45 50 34.36				-119 42 6.88																OR<25					
00088	N	N	N	N	N	N	07/27/2022	07	COLUMBIA AVE	INTER	CROSS	N	N	CLR	ANGL-OTH	01	NONE 9	STRGHT										03,02
CITY				WE				0	N MAIN ST	CN		STOP SIGN	N	DRY	TURN		N/A	SW-NE								000		00
N				11P						03	0		N	DLIT	PDO		UNKNOWN		01	DRVR	NONE	00	Unk	UNK		000	000		00
N				45 50 34.36				-119 42 6.88																UNK					
																02	NONE 9	TURN-L										
																	N/A	SE-SW								000		00
																	PSNGR CAR		01	DRVR	NONE	00	Unk	UNK		000	000		00
																								UNK					

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CITY OF BOARDMAN, MORROW COUNTY

N MAIN ST at COLUMBIA AVE, City of Boardman, Morrow County, ALL Crashes Severity, ALL Crashes Circumstance, 01/01/2018 to 12/31/2022

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OREGON.. DEPARTMENT OF TRANSPORTATION - TRANSPORTATION DEVELOPMENT DIVISION
TRANSPORTATION DATA SECTION - CRASH ANAYLYSIS AND REPORTING UNIT
URBAN NON-SYSTEM CRASH LISTING

CITY OF BOARDMAN, MORROW COUNTY

N MAIN ST at BOARDMAN AVE, City of Boardman, Morrow County, ALL Crashes Severity, ALL Crashes Circumstance, 01/01/2018 to 12/31/2022

1 - 2 of 2 Crash records shown.

SER# / INVEST / RD DPT / UNLOC?	S P E D	A L C	D M R U G	J N S	S I H V	W C O R L	DATE / DAY / TIME / LAT	CLASS / DIST / FROM / LONG	CITY STREET / FIRST STREET / SECOND STREET / LRS	RD CHAR / DIRECT / LOCTN	INT-TYPE (MEDIAN) / LEGS (#LANES)	INT-REL / TRAF- / CONTL	OFFRD / RNDBT / DRVWY	WTHR / SURF / LIGHT	CRASH / COLL / SVRTY	V#	SPCL USE / TRLR QTY / TYPE / OWNER	MOVE / FROM / TO	P#	PRTC TYPE	INJ SVRTY	A G E	S E X	LICNS RES	PED LOC	ERROR	ACT EVENT	CAUSE
00118	N	N	N	N	Y	N	11/03/2021	07	BOARDMAN AVE	INTER	CROSS	N	N	CLR	O-1 L-TURN	01	NONE 0	STRGHT										02
CITY			WE					0	N MAIN ST	CN		STOP SIGN	N	DRY	TURN		PRVTE	W -E									000	00
N			7A							03	0		N	DAY	INJ		PSNGR CAR		01	DRVR	NONE	19	M	OR-Y		000	000	00
N			45 50 23.79				-119 42 5.98																	OR<25				
																02	NONE 0	TURN-L										
																	PRVTE	E -S									000	00
																	PSNGR CAR		01	DRVR	INJC	38	F	OR-Y		004	000	02
																								OR<25				
00108	N	N	N	N	N	N	10/22/2021	07	BOARDMAN AVE	INTER	CROSS	N	N	CLR	O-1 L-TURN	01	NONE 0	TURN-L										02,27
CITY			FR					0	N MAIN ST	CN		UNKNOWN	N	DRY	TURN		PRVTE	S -W									000	00
N			2P							01	0		N	DAY	INJ		PSNGR CAR		01	DRVR	NONE	16	M	NONE		028,016	038	02,27
N			45 50 23.79				-119 42 5.98																	OR<25				
																02	NONE 0	STRGHT										
																	PRVTE	N -S									000	00
																	PSNGR CAR		01	DRVR	INJC	20	F	OR-Y		000	000	00
																								OR<25				

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CITY OF BOARDMAN, MORROW COUNTY

N MAIN ST at BOARDMAN AVE, City of Boardman, Morrow County, ALL Crashes Severity, ALL Crashes Circumstance, 01/01/2018 to 12/31/2022

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OREGON.. DEPARTMENT OF TRANSPORTATION - TRANSPORTATION DEVELOPMENT DIVISION
TRANSPORTATION DATA SECTION - CRASH ANAYLYSIS AND REPORTING UNIT
URBAN NON-SYSTEM CRASH LISTING

CITY OF BOARDMAN, MORROW COUNTY

N MAIN ST at NW FRONT ST, City of Boardman, Morrow County, ALL Crashes Severity, ALL Crashes Circumstance, 01/01/2018 to 12/31/2022

1 - 2 of 2 Crash records shown.

SER# / INVEST / RD DPT / UNLOC?	S P E D	A L C	D M R U G S	J N S	I H V	C O R L	W K	DATE / DAY / TIME / LAT	CLASS / DIST / FROM / LONG	CITY STREET / FIRST STREET / SECOND STREET / LRS	RD CHAR / DIRECT / LOCTN	INT-TYPE (MEDIAN) / LEGS (#LANES)	INT-REL / TRAF- / CONTL	OFFRD / RNDBT / DRVWY	WTHR / SURF / LIGHT	CRASH / COLL / SVRTY	V#	SPCL USE / TRLR QTY / OWNER / TYPE	MOVE / FROM / TO	P#	PRTC TYPE	INJ SVRTY	A G E	S E X	LICNS RES / LICNS	PED LOC	ERROR	ACT EVENT	CAUSE
00127	N	N	N	N				11/20/2021	07	NW FRONT ST	INTER	CROSS	N	N	CLR	ANGL-OTH	01	NONE 9	STRGHT										02
NO RPT								SA		N MAIN ST	CN		STOP SIGN	N	DRY	ANGL		N/A	S -N									000	00
N								6P			04	0		N	DUSK	PDO		PSNGR CAR		01	DRVR	NONE	00	Unk	UNK		000	000	00
N								45 50 21.09	-119 42 5.49																UNK				
																	02	NONE 9	STRGHT										
																		N/A	W -E									000	00
																		PSNGR CAR		01	DRVR	NONE	00	Unk	UNK		000	000	00
																									UNK				
00069	N	N	N	N				08/10/2020	07	NW FRONT ST	INTER	CROSS	N	N	UNK	O-1 L-TURN	01	NONE 9	STRGHT										08,02
NO RPT								MO	0	N MAIN ST	CN		UNKNOWN	N	DRY	TURN		N/A	N -S									000	00
N								2P			01	0		N	DAY	PDO		PSNGR CAR		01	DRVR	NONE	00	Unk	UNK		000	000	00
N								45 50 21.1	-119 42 5.49																UNK				
																	02	NONE 9	TURN-L										
																		N/A	S -W									000	00
																		PSNGR CAR		01	DRVR	NONE	00	Unk	UNK		000	000	00
																									UNK				

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OREGON.. DEPARTMENT OF TRANSPORTATION - TRANSPORTATION DEVELOPMENT DIVISION
TRANSPORTATION DATA SECTION - CRASH ANAYLYSIS AND REPORTING UNIT
URBAN NON-SYSTEM CRASH LISTING

CITY OF BOARDMAN, MORROW COUNTY

N MAIN ST at NE FRONT ST, City of Boardman, Morrow County, ALL Crashes Severity, ALL Crashes Circumstance, 01/01/2018 to 12/31/2022

SER# / INVEST / RD DPT / UNLOC?	S P E D	A L C	D R U G S	M J I N V	S C H L	W O R K	DATE / DAY / TIME / LAT	CLASS / DIST / FROM / LONG	CITY STREET / FIRST STREET / SECOND STREET / LRS	RD CHAR / DIRECT / LOCTN	INT-TYPE (MEDIAN) (#LANES)	INT-REL / TRAF- / CONTL	OFFRD / RNDBT / DRVWY	WTHR / SURF / LIGHT	CRASH / COLL / SVRTY	V#	SPCL USE / TRLR QTY / OWNER / TYPE	MOVE / FROM / TO	P#	PRTC TYPE	INJ SVRTY	A G E	S E X	LICNS RES	PED LOC	ERROR	ACT	EVENT	CAUSE

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CITY OF BOARDMAN, MORROW COUNTY

N MAIN ST at NE FRONT ST, City of Boardman, Morrow County, ALL Crashes Severity, ALL Crashes Circumstance, 01/01/2018 to 12/31/2022

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CITY OF BOARDMAN, MORROW COUNTY

N MAIN ST at WB EX N. MAIN ST C4, City of Boardman, Morrow County, ALL Crashes Severity, ALL Crashes Circumstance, 01/01/2018 to 12/31/2022

1 - 5 of 5 Crash records shown.

SER# / INVEST / RD DPT / UNLOC?	S P E D	A L C	D M R U G	J N S	S H V	W O R K	DATE / DAY / TIME / LAT	CLASS / DIST / FROM / LONG	CITY STREET / FIRST STREET / SECOND STREET / LRS	RD CHAR / DIRECT / LOCTN	INT-TYPE (MEDIAN) / LEGS (#LANES)	INT-REL / TRAF- / CONTL	OFFRD / RNDBT / DRVWY	WTHR / SURF / LIGHT	CRASH / COLL / SVRTY	V#	SPCL USE / TRLR QTY / OWNER / TYPE	MOVE / FROM / TO	P#	PRTC TYPE	INJ SVRTY	A G E	S E X	LICNS RES	PED LOC	ERROR	ACT	EVENT	CAUSE
00075	N	N	N	N	N	N	07/07/2019	01	N MAIN ST	INTER	CROSS	N	N	CLR	S-1STOP	01	NONE 9	STRGHT										32,27,29
COUNTY			SU						WB EX N. MAIN ST C4	SE		STOP SIGN	N	DRY	REAR		N/A	SE-NW									000		00
N			5P							06	0		N	DAY	PDO		PSNGR CAR		01	DRVR	NONE	00	Unk	UNK		000	000		00
N			45 50 19.55		-119 42 5.2				0002GZ100S00															UNK					
																02	NONE 9	STOP											
																	N/A	SE-NW									011		00
																	PSNGR CAR		01	DRVR	NONE	00	Unk	UNK		000	000		00
																								UNK					
00054	N	N	N	N			06/26/2020	01	N MAIN ST	INTER	CROSS	N	N	CLR	S-1STOP	01	NONE 9	STRGHT											29
NO RPT			FR						WB EX N. MAIN ST C4	SE		UNKNOWN	N	DRY	REAR		N/A	SE-NW									006		00
N			9A							06	0		N	DAY	PDO		PSNGR CAR		01	DRVR	NONE	00	Unk	UNK		000	000		00
N			45 50 19.56		-119 42 5.19				0002GZ100S00															UNK					
																02	NONE 9	STOP											
																	N/A	SE-NW									011		00
																	PSNGR CAR		01	DRVR	NONE	00	Unk	UNK		000	000		00
																								UNK					
00042	N	N	N	N			05/22/2018	01	N MAIN ST	INTER	CROSS	N	N	CLR	ANGL-OTH	01	NONE 0	STRGHT											03,22
NO RPT			TU						WB EX N. MAIN ST C4	CN		STOP SIGN	N	DRY	ANGL		PRVTE	N -S									000		00
N			1P							01	0		N	DAY	INJ		PSNGR CAR		01	DRVR	INJB	63	F	OR-Y		000	000		00
N			45 50 19.55		-119 42 5.19				0002GZ100S00															OR<25					
																02	NONE 0	STRGHT											
																	PRVTE	SE-NW									000		22
																	MOTRHOME		01	DRVR	NONE	75	M	OR-Y		021	000		03
																								OR>25					
00023	N	N	N	N			02/10/2019	01	N MAIN ST	INTER	CROSS	N	N	SNOW	ANGL-OTH	01	NONE 9	TURN-L											03,08,02
NO RPT			SU						WB EX N. MAIN ST C4	CN		STOP SIGN	N	ICE	TURN		N/A	SE-S									015		00
N			9P							01	0		N	DLIT	PDO		PSNGR CAR		01	DRVR	NONE	00	Unk	UNK		000	000		00
N			45 50 19.56		-119 42 5.19				0002GZ100S00															UNK					
																02	NONE 9	STRGHT											
																	N/A	N -S									000		00
																	PSNGR CAR		01	DRVR	NONE	00	Unk	UNK		000	000		00
																								UNK					
00069	N	N	N	N			07/29/2021	01	N MAIN ST	INTER	CROSS	N	N	CLR	ANGL-OTH	01	NONE 9	STRGHT											03
CITY			TH						WB EX N. MAIN ST C4	CN		STOP SIGN	N	DRY	ANGL		N/A	E -W									000		00
N			10P							02	0		N	DLIT	PDO		PSNGR CAR		01	DRVR	NONE	00	Unk	UNK		000	000		00
N			45 50 19.55		-119 42 5.19				0002GZ100S00															UNK					
																02	NONE 9	STRGHT											
																	N/A	S -N									000		00
																	PSNGR CAR		01	DRVR	NONE	00	Unk	UNK		000	000		00
																								UNK					

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OREGON.. DEPARTMENT OF TRANSPORTATION - TRANSPORTATION DEVELOPMENT DIVISION
TRANSPORTATION DATA SECTION - CRASH ANAYLYSIS AND REPORTING UNIT
URBAN NON-SYSTEM CRASH LISTING

CITY OF BOARDMAN, MORROW COUNTY

N MAIN ST at WB EF N. MAIN ST C5, City of Boardman, Morrow County, ALL Crashes Severity, ALL Crashes Circumstance, 01/01/2018 to 12/31/2022

1 - 1 of 1 Crash records shown.

SER# / INVEST / RD DPT / UNLOC?	S P E D	A L C	D R U G S	M J I N V	S C H L	W O R K	DATE / DAY / TIME / LAT	CLASS / DIST / FROM / LONG	CITY STREET / FIRST STREET / SECOND STREET / LRS	RD CHAR / DIRECT / LOCTN	INT-TYPE (MEDIAN) / LEGS (#LANES)	INT-REL / TRAF-CONTL	OFFRD / RNDBT / DRVWY	WTHR / SURF / LIGHT	CRASH / COLL / SVRTY	V#	SPCL USE / TRLR QTY / OWNER / TYPE	MOVE / FROM / TO	P#	PRTC / INJ / SVRTY	A G E	S E X	LICNS / RES	PED LOC	ERROR	ACT EVENT	CAUSE
00006	N	N	N	N			01/28/2019	01	N MAIN ST	INTER	CROSS	N	N	CLR	ANGL-OTH	01	NONE 9	STRGHT									02
NO RPT							MO		WB EF N. MAIN ST C5	CN		STOP SIGN	N	DRY	ANGL		N/A	SE-NW								015	00
N							12P			01	0		N	DAY	PDO		PSNGR CAR		01	DRVR	NONE	00	Unk	UNK		000	000	00
N							45 50 19.56	-119 42 5.2	0002HA100S00															UNK				
																02	NONE 9	STRGHT									
																	N/A	N -S								000	00
																	PSNGR CAR		01	DRVR	NONE	00	Unk	UNK		000	000	00
																								UNK				

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OREGON.. DEPARTMENT OF TRANSPORTATION - TRANSPORTATION DEVELOPMENT DIVISION
TRANSPORTATION DATA SECTION - CRASH ANAYLYSIS AND REPORTING UNIT
URBAN NON-SYSTEM CRASH LISTING

CITY OF BOARDMAN, MORROW COUNTY

S MAIN ST at EB EX S. MAIN ST C1, City of Boardman, Morrow County, ALL Crashes Severity, ALL Crashes Circumstance, 01/01/2018 to 12/31/2022

1 - 1 of 1 Crash records shown.

SER# / INVEST / RD DPT / UNLOC?	S P E D	A L C	D M R U G S	J I N V	S C H L	W O R K	DATE / DAY / TIME / LAT	CLASS / DIST / FROM / LONG	CITY STREET / FIRST STREET / SECOND STREET / LRS	RD CHAR / DIRECT / LOCTN	INT-TYPE (MEDIAN) / LEGS (#LANES)	INT-REL / TRAF- / CONTL	OFFRD / RNDBT / DRVWY	WTHR / SURF / LIGHT	CRASH / COLL / SVRTY	V#	SPCL USE / TRLR QTY / OWNER / TYPE	MOVE / FROM / TO	P#	PRTC / INJ / SVRTY	A G E	S E X	LICNS / RES	PED LOC	ERROR	ACT EVENT	CAUSE
00135	N	Y	N	N		N	12/18/2021	01	EB EX S. MAIN ST C1	INTER	CROSS	N	N	RAIN	ANGL-OTH	01	NONE 9	STRGHT									03
CITY							SA		S MAIN ST	UN		STOP SIGN	N	WET	ANGL		N/A	N -S								000	00
N							5P			01	0		N	DLIT	PDO		PSNGR CAR		01	DRVR	NONE	00	Unk	UNK		000	000	00
N							45 50 13.87	-119 42 4.16	0002GW100S00															UNK				
																02	NONE 9	STRGHT									
																	N/A	W -E								000	00
																	PSNGR CAR		01	DRVR	NONE	00	Unk	UNK		000	000	00
																								UNK				

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OREGON.. DEPARTMENT OF TRANSPORTATION - TRANSPORTATION DEVELOPMENT DIVISION
TRANSPORTATION DATA SECTION - CRASH ANAYLYSIS AND REPORTING UNIT
URBAN NON-SYSTEM CRASH LISTING

CITY OF BOARDMAN, MORROW COUNTY

S MAIN ST at EB EF S. MAIN ST C3, City of Boardman, Morrow County, ALL Crashes Severity, ALL Crashes Circumstance, 01/01/2018 to 12/31/2022

1 - 1 of 1 Crash records shown.

SER# / INVEST / RD DPT / UNLOC?	S P E D	A L C	D R U G S	M J I N V	S C H L	W O R K	DATE / DAY / TIME / LAT	CLASS / DIST / FROM / LONG	CITY STREET / FIRST STREET / SECOND STREET / LRS	RD CHAR / DIRECT / LOCTN	INT-TYPE (MEDIAN) / LEGS (#LANES)	INT-REL / TRAF- / CONTL	OFFRD / RNDBT / DRVWY	WTHR / SURF / LIGHT	CRASH / COLL / SVRTY	V#	SPCL USE / TRLR QTY / OWNER / TYPE	MOVE / FROM / TO	P#	PRTC / INJ / SVRTY	A G E	S E X	LICNS / RES / UNK	PED LOC	ERROR	ACT EVENT	CAUSE
00032	N	N	N	N			04/09/2020	01	S MAIN ST	INTER	CROSS	N	N	CLR	ANGL-OTH	01	NONE 9	STRGHT									02
NO RPT							TH		EB EF S. MAIN ST C3	CN		STOP SIGN	N	DRY	ANGL		N/A	SW-NE								000	00
N							6P			04	0		N	DAY	PDO		PSNGR CAR		01	DRVR	NONE	00	Unk	UNK		000	000	00
N							45 50 13.87	-119 42 4.16	0002GY100S00															UNK				
																02	NONE 9	STRGHT									
																	N/A	S -N								000	00
																	PSNGR CAR		01	DRVR	NONE	00	Unk	UNK		000	000	00
																								UNK				

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OREGON.. DEPARTMENT OF TRANSPORTATION - TRANSPORTATION DEVELOPMENT DIVISION
TRANSPORTATION DATA SECTION - CRASH ANAYLYSIS AND REPORTING UNIT
URBAN NON-SYSTEM CRASH LISTING

CITY OF BOARDMAN, MORROW COUNTY

S MAIN ST at SW FRONT ST, City of Boardman, Morrow County, ALL Crashes Severity, ALL Crashes Circumstance, 01/01/2018 to 12/31/2022

SER# / INVEST / RD DPT / UNLOC?	S P E D	A L C	D R U G S	M J I N V	S C H L	W O R K	DATE / DAY / TIME / LAT	CLASS / DIST / FROM / LONG	CITY STREET / FIRST STREET / SECOND STREET / LRS	RD CHAR / DIRECT / LOCTN	INT-TYPE (MEDIAN) (#LANES)	INT-REL / TRAF- / CONTL	OFFRD / RNDBT / DRVWY	WTHR / SURF / LIGHT	CRASH / COLL / SVRTY	V#	SPCL USE / TRLR QTY / OWNER / TYPE	MOVE / FROM / TO	P#	PRTC TYPE	INJ SVRTY	A G E	S E X	LICNS RES	PED LOC	ERROR	ACT	EVENT	CAUSE

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OREGON.. DEPARTMENT OF TRANSPORTATION - TRANSPORTATION DEVELOPMENT DIVISION
TRANSPORTATION DATA SECTION - CRASH ANAYLYSIS AND REPORTING UNIT
URBAN NON-SYSTEM CRASH LISTING

CITY OF BOARDMAN, MORROW COUNTY

S MAIN ST at SE FRONT ST, City of Boardman, Morrow County, ALL Crashes Severity, ALL Crashes Circumstance, 01/01/2018 to 12/31/2022

SER# / INVEST / RD DPT / UNLOC?	S P E D	A L C	D R U G S	M J I N V	S C H L	W O R K	DATE / DAY / TIME / LAT	CLASS / DIST / FROM / LONG	CITY STREET / FIRST STREET / SECOND STREET / LRS	RD CHAR / DIRECT / LOCTN	INT-TYPE (MEDIAN) (#LANES)	INT-REL / TRAF- / CONTL	OFFRD / RNDBT / DRVWY	WTHR / SURF / LIGHT	CRASH / COLL / SVRTY	V#	SPCL USE / TRLR QTY / OWNER / TYPE	MOVE / FROM / TO	P#	PRTC TYPE	INJ SVRTY	A G E	S E X	LICNS RES	PED LOC	ERROR	ACT	EVENT	CAUSE

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OREGON.. DEPARTMENT OF TRANSPORTATION - TRANSPORTATION DEVELOPMENT DIVISION
TRANSPORTATION DATA SECTION - CRASH ANAYLYSIS AND REPORTING UNIT
URBAN NON-SYSTEM CRASH LISTING

CITY OF BOARDMAN, MORROW COUNTY

S MAIN ST at OREGON TRAIL BLVD, City of Boardman, Morrow County, ALL Crashes Severity, ALL Crashes Circumstance, 01/01/2018 to 12/31/2022

SER# / INVEST / RD DPT / UNLOC?	S P E D	A L C	D R U G S	M J I N V	S C H L	W O R K	DATE / DAY / TIME / LAT	CLASS / DIST / FROM / LONG	CITY STREET / FIRST STREET / SECOND STREET / LRS	RD CHAR / DIRECT / LOCTN	INT-TYPE (MEDIAN) (#LANES)	INT-REL / TRAF- / CONTL	OFFRD / RNDBT / DRVWY	WTHR / SURF / LIGHT	CRASH / COLL / SVRTY	V#	SPCL USE TRLR QTY / OWNER / TYPE	MOVE FROM / TO	P#	PRTC TYPE	INJ SVRTY	A G E	S E X	LICNS RES	PED LOC	ERROR	ACT	EVENT	CAUSE

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CITY OF BOARDMAN, MORROW COUNTY

S MAIN ST at OREGON TRAIL BLVD, City of Boardman, Morrow County, ALL Crashes Severity, ALL Crashes Circumstance, 01/01/2018 to 12/31/2022

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OREGON.. DEPARTMENT OF TRANSPORTATION - TRANSPORTATION DEVELOPMENT DIVISION
TRANSPORTATION DATA SECTION - CRASH ANAYLYSIS AND REPORTING UNIT
URBAN NON-SYSTEM CRASH LISTING

CITY OF BOARDMAN, MORROW COUNTY

S MAIN ST at KINKADE RD, City of Boardman, Morrow County, ALL Crashes Severity, ALL Crashes Circumstance, 01/01/2018 to 12/31/2022

SER# / INVEST / RD DPT / UNLOC?	S P E D	A L C	D R U G S	M J I N V	S C H L	W O R K	DATE / DAY / TIME / LAT	CLASS / DIST / FROM / LONG	CITY STREET / FIRST STREET / SECOND STREET / LRS	RD CHAR / DIRECT / LOCTN	INT-TYPE (MEDIAN) (#LANES)	INT-REL / TRAF- / CONTL	OFFRD / RNDBT / DRVWY	WTHR / SURF / LIGHT	CRASH / COLL / SVRTY	V#	SPCL USE / TRLR QTY / OWNER / TYPE	MOVE FROM / TO	P#	PRTC TYPE	INJ SVRTY	A G E	S E X	LICNS RES	PED LOC	ERROR	ACT	EVENT	CAUSE

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CITY OF BOARDMAN, MORROW COUNTY

S MAIN ST at WILSON RD, City of Boardman, Morrow County, ALL Crashes Severity, ALL Crashes Circumstance, 01/01/2018 to 12/31/2022

1 - 5 of 6 Crash records shown.

SER# / INVEST / RD DPT / UNLOC?	S P E D	A L C	D M R U G	J N S	I H V	C R L	S O W K	DATE / DAY / TIME / LAT	CLASS / DIST / FROM / LONG	CITY STREET / FIRST STREET / SECOND STREET / LRS	RD CHAR / DIRECT / LOCTN	INT-TYPE (MEDIAN) / LEGS (#LANES)	INT-REL / TRAF- / CONTL	OFFRD / RNDBT / DRVWY	WTHR / SURF / LIGHT	CRASH / COLL / SVRTY	V#	SPCL USE / TRLR QTY / OWNER / TYPE	MOVE / FROM / TO	P#	PRTC / TYPE	INJ / SVRTY	A G E	S E X	LICNS / RES	PED LOC	ERROR	ACT	EVENT	CAUSE
00007	N	N	N	N				01/19/2018	07	S MAIN ST	INTER	CROSS	N	N	CLR	ANGL-OTH	01	NONE 9	TURN-R										02,29
NO RPT								FR	0	WILSON RD	CN		STOP SIGN	N	DRY	ANGL		N/A	N -W								000		00
N								6P			01	0		N	DLIT	PDO		PSNGR CAR		01	DRVR	NONE	00	Unk	UNK		000	000		00
N								45 49 40.75	-119 42 1.74																UNK					
																	02	NONE 9	STRGHT											
																		N/A	E -W									015		00
																		PSNGR CAR		01	DRVR	NONE	00	Unk	UNK		000	000		00
																									UNK					
00010	N	N	N	N				02/04/2019	07	S MAIN ST	INTER	CROSS	N	N	SNOW	O-1 L-TURN	01	NONE 0	TURN-L									124	02
NONE								MO	0	WILSON RD	CN		STOP SIGN	N	ICE	TURN		PRVTE	W -N								015		00
N								6P			02	0		N	DLIT	INJ		PSNGR CAR		01	DRVR	INJC	48	F	OR-Y		000	000		00
N								45 49 40.75	-119 42 1.75																OR<25					
																	02	NONE 0	STRGHT											
																		PRVTE	E -W									000	124	00
																		PSNGR CAR		01	DRVR	NONE	32	M	OTH-Y		028	017		02
																									N-RES					
00093	N	N	N	N				08/07/2019	07	S MAIN ST	INTER	CROSS	N	N	CLR	ANGL-OTH	01	NONE 9	STRGHT										03,02
NO RPT								WE	0	WILSON RD	CN		STOP SIGN	N	DRY	ANGL		N/A	N -S								000		00
N								8P			01	0		N	DAY	PDO		MOTRHOME		01	DRVR	NONE	00	Unk	UNK		000	000		00
N								45 49 40.75	-119 42 1.74																UNK					
																	02	NONE 9	STRGHT											
																		N/A	E -W									015		00
																		PSNGR CAR		01	DRVR	NONE	00	Unk	UNK		000	000		00
																									UNK					
00073	N	N	N	N	N	N		08/10/2021	07	S MAIN ST	INTER	CROSS	N	N	CLR	ANGL-OTH	01	NONE 9	STRGHT									121	02
CITY								TU	0	WILSON RD	CN		STOP SIGN	N	DRY	ANGL		N/A	N -S								000		00
N								6P			03	0		N	DAY	PDO		PSNGR CAR		01	DRVR	NONE	00	Unk	UNK		000	000		00
N								45 49 40.75	-119 42 1.74																UNK					
																	02	NONE 9	STRGHT											
																		N/A	W -E									000		00
																		PSNGR CAR		01	DRVR	NONE	00	Unk	UNK		000	000		00
																									UNK					
00014	N	N	N	N				02/16/2021	07	S MAIN ST	INTER	CROSS	N	N	CLR	ANGL-OTH	01	NONE 9	TURN-R										03,08
NO RPT								TU	0	WILSON RD	CN		STOP SIGN	N	WET	TURN		N/A	E -N								000		00
N								6P			02	0		N	DLIT	PDO		PSNGR CAR		01	DRVR	NONE	00	Unk	UNK		000	000		00
N								45 49 40.75	-119 42 1.74																UNK					
																	02	NONE 9	TURN-R											
																		N/A	N -W									000		00
																		UNKNOWN		01	DRVR	NONE	00	Unk	UNK		000	000		00
																									UNK					

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CITY OF BOARDMAN, MORROW COUNTY

S MAIN ST at WILSON RD, City of Boardman, Morrow County, ALL Crashes Severity, ALL Crashes Circumstance, 01/01/2018 to 12/31/2022

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CITY OF BOARDMAN, MORROW COUNTY

S MAIN ST at WILSON RD, City of Boardman, Morrow County, ALL Crashes Severity, ALL Crashes Circumstance, 01/01/2018 to 12/31/2022

6 - 6 of 6 Crash records shown.

SER# / INVEST / RD DPT / UNLOC?	S P E D	A L C	D M R U G S	J I N V	S C H L	W O R K	DATE / DAY / TIME / LAT	CLASS / DIST / FROM / LONG	CITY STREET / FIRST STREET / SECOND STREET / LRS	RD CHAR / DIRECT / LOCTN	INT-TYPE (MEDIAN) / LEGS (#LANES)	INT-REL / TRAF- / CONTL	OFFRD / RNDBT / DRVWY	WTHR / SURF / LIGHT	CRASH / COLL / SVRTY	V#	SPCL USE TRLR QTY / OWNER / TYPE	MOVE / FROM / TO	P#	PRTC TYPE	INJ SVRTY	A G E	S E X	LICNS RES	PED LOC	ERROR	ACT	EVENT	CAUSE
00065	N	N	N	N	N	N	06/06/2022	07	S MAIN ST	INTER	CROSS	N	N	CLR	ANGL-OTH	01	NONE 0	STRGHT										093	03
CITY							MO	0	WILSON RD	CN		STOP SIGN	N	DRY	ANGL		PRVTE	N -S									000		00
N							7P			03	0		N	DAY	INJ		PSNGR CAR		01	DRVR	INJB	86	M	OR-Y		000	000		00
N							45 49 40.75	-119 42 1.74																OR<25					
																02	NONE 0	STRGHT											
																	PRVTE	W -E									000		00
																	PSNGR CAR		01	DRVR	NONE	44	M	OR-Y		003	000	093	03
																								OR<25					

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CITY OF BOARDMAN, MORROW COUNTY

S MAIN ST at WILSON RD, City of Boardman, Morrow County, ALL Crashes Severity, ALL Crashes Circumstance, 01/01/2018 to 12/31/2022

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OREGON.. DEPARTMENT OF TRANSPORTATION - TRANSPORTATION DEVELOPMENT DIVISION
TRANSPORTATION DATA SECTION - CRASH ANAYLYSIS AND REPORTING UNIT
URBAN NON-SYSTEM CRASH LISTING

CITY OF BOARDMAN, MORROW COUNTY

OLSON RD at COLUMBIA AVE, City of Boardman, Morrow County, ALL Crashes Severity, ALL Crashes Circumstance, 01/01/2018 to 12/31/2022

SER# / INVEST / RD DPT / UNLOC?	S P E D	A L C	D R U G S	J U N V	S I H L	W C O R K	DATE / DAY / TIME / LAT	CLASS / DIST / FROM / LONG	CITY STREET / FIRST STREET / SECOND STREET / LRS	RD CHAR / DIRECT / LOCTN	INT-TYPE (MEDIAN) (#LANES)	INT-REL / TRAF- / CONTL	OFFRD / RNDBT / DRVWY	WTHR / SURF / LIGHT	CRASH / COLL / SVRTY	SPCL USE / TRLR QTY / OWNER / V#	MOVE / FROM / TO	P#	PRTC TYPE	INJ SVRTY	A G E	S E X	LICNS RES	PED LOC	ERROR	ACT	EVENT	CAUSE
15	P		R	J	S	W	10/31/2022	CLASS	CITY STREET		INT-TYPE					SPCL USE											
INVEST	E	A	U	I	C	O	Monday	DIST	FIRST STREET	RD CHAR	(MEDIAN)	INT-REL	OFFRD	WTHR	CRASH	TRLR QTY	MOVE				A	S					
RD DPT	E	L	G	N	H	R	15:00	FROM	SECOND STREET	DIRECT	LEGS	TRAF-	RNDBT	SURF	COLL	OWNER	FROM		PRTC	INJ	G	E	LICNS	PED			
UNLOC?	D	C	S	V	L	K	45.82	LONG	LRS	LOCTN	(#LANES)	CONTL	DRVWY	LIGHT	SVRTY	V# TYPE	TO	P#	TYPE	SVRTY	E	X	RES	LOC	ERROR	ACT	EVENT	CAUSE
15	P		R	J	S	W	10/31/2022	CLASS	CITY STREET		INT-TYPE					SPCL USE											
INVEST	E	A	U	I	C	O	Monday	DIST	FIRST STREET	RD CHAR	(MEDIAN)	INT-REL	OFFRD	WTHR	CRASH	TRLR QTY	MOVE				A	S					
RD DPT	E	L	G	N	H	R	15:00	FROM	SECOND STREET	DIRECT	LEGS	TRAF-	RNDBT	SURF	COLL	OWNER	FROM		PRTC	INJ	G	E	LICNS	PED			
UNLOC?	D	C	S	V	L	K	45.82	LONG	LRS	LOCTN	(#LANES)	CONTL	DRVWY	LIGHT	SVRTY	V# TYPE	TO	P#	TYPE	SVRTY	E	X	RES	LOC	ERROR	ACT	EVENT	CAUSE

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OREGON.. DEPARTMENT OF TRANSPORTATION - TRANSPORTATION DEVELOPMENT DIVISION
TRANSPORTATION DATA SECTION - CRASH ANAYLYSIS AND REPORTING UNIT
URBAN NON-SYSTEM CRASH LISTING

CITY OF BOARDMAN, MORROW COUNTY

LAUREL LN at COLUMBIA AVE, City of Boardman, Morrow County, ALL Crashes Severity, ALL Crashes Circumstance, 01/01/2018 to 12/31/2022

SER# / INVEST / RD DPT / UNLOC?	S P E D	A L C	D M R U G S	J I N V	S C H L	W O R K	DATE / DAY / TIME / LAT	CLASS / DIST / FROM / LONG	CITY STREET / FIRST STREET / SECOND STREET / LRS	RD CHAR / DIRECT / LOCTN	INT-TYPE (MEDIAN) / LEGS (#LANES)	INT-REL / TRAF- / CONTL	OFFRD / RNDBT / DRVWY	WTHR / SURF / LIGHT	CRASH / COLL / SVRTY	V#	SPCL USE / TRLR QTY / OWNER / TYPE	MOVE / FROM / TO	P#	PRTC TYPE	INJ SVRTY	A G E	S E X	LICNS RES	PED LOC	ERROR	ACT	EVENT	CAUSE

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CITY OF BOARDMAN, MORROW COUNTY **WB ENFR PORT MORROW at PORT MORROW/LAUREL, City of Boardman, Morrow County, ALL Crashes Severity, ALL Crashes Circumstance, 01/01/2018 to 12/31/2022**

SER# / INVEST / RD DPT / UNLOC?	S P E D	A L C	D R U G S	J N V	S H L	W R K	DATE / DAY / TIME / LAT	CLASS / DIST / FROM / LONG	CITY STREET / FIRST STREET / SECOND STREET / LRS	RD CHAR / DIRECT / LOCTN	INT-TYPE (MEDIAN) / LEGS (#LANES)	INT-REL / TRAF- / CONTL	OFFRD / RNDBT / DRVWY	WTHR / SURF / LIGHT	CRASH / COLL / SVRTY	V#	SPCL USE / TRLR QTY / OWNER / TYPE	MOVE / FROM / TO	P#	PRTC TYPE	INJ SVRTY	A G E	S E X	LICNS RES	PED LOC	ERROR	ACT	EVENT	CAUSE

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CITY OF BOARDMAN, MORROW COUNTY

WB EXTO PORT MORROW at PORT MORROW/LAUREL, City of Boardman, Morrow County, ALL Crashes Severity, ALL Crashes Circumstance, 01/01/2018 to 12/31/2022

1 - 2 of 2 Crash records shown.

SER# / INVEST / RD DPT / UNLOC?	S P E D	A L C	D M R U G S	J N V	S H L	W O R K	DATE / DAY / TIME / LAT	CLASS / DIST / FROM / LONG	CITY STREET / FIRST STREET / SECOND STREET / LRS	RD CHAR / DIRECT / LOCTN	INT-TYPE (MEDIAN) / LEGS (#LANES)	INT-REL / TRAF- / CONTL	OFFRD / RNDBT / DRVWY	WTHR / SURF / LIGHT	CRASH / COLL / SVRTY	V#	SPCL USE / TRLR QTY / TYPE / OWNER	MOVE / FROM / TO	P#	PRTC TYPE	INJ SVRTY	A G E	S E X	LICNS RES	PED LOC	ERROR	ACT	EVENT	CAUSE
00012	N	N	N	N			02/11/2021	01	WB EXTO PORT MORROW	INTER	CROSS	N	N	SNOW	ANGL-OTH	01	NONE 9	STRGHT										124	
NO RPT							TH		PORT MORROW/LAUREL	CN		STOP SIGN	N	ICE	ANGL		N/A	N -S									000	00
N			4P							02	0		N	DAY	PDO		PSNGR CAR		01	DRVR	NONE	00	Unk	UNK		000	000	00
N			45 50 29.41	-119 40 5.96					0002HE100S00															UNK				
																02	NONE 9	TURN-R										
																	N/A	E -N									000	00
																	PSNGR CAR		01	DRVR	NONE	00	Unk	UNK		000	000	00
																								UNK				
00055	N	N	N	N			06/21/2021	01	PORT MORROW/LAUREL	INTER	CROSS	N	N	CLR	ANGL-OTH	01	NONE 9	STRGHT											03
NO RPT							MO		WB EXTO PORT MORROW	CN		STOP SIGN	N	DRY	ANGL		N/A	E -W									000	00
N			7A							01	0		N	DAY	PDO		PSNGR CAR		01	DRVR	NONE	00	Unk	UNK		000	000	00
N			45 50 29.41	-119 40 5.96					0002HE100S00															UNK				
																02	NONE 9	STRGHT										
																	N/A	N -S									000	00
																	PSNGR CAR		01	DRVR	NONE	00	Unk	UNK		000	000	00
																								UNK				

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CITY OF BOARDMAN, MORROW COUNTY

WB EXTO PORT MORROW at PORT MORROW/LAUREL, City of Boardman, Morrow County, ALL Crashes Severity, ALL Crashes Circumstance, 01/01/2018 to 12/31/2022

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CITY OF BOARDMAN, MORROW COUNTY **EB ENFR PORT MORROW at PORT MORROW/LAUREL, City of Boardman, Morrow County, ALL Crashes Severity, ALL Crashes Circumstance, 01/01/2018 to 12/31/2022**

SER# / INVEST / RD DPT / UNLOC?	S P E D	A L C	D R U G S	U N S	I H V	C R L	W O H K	DATE / DAY / TIME / LAT	CLASS / DIST / FROM / LONG	CITY STREET / FIRST STREET / SECOND STREET / LRS	RD CHAR / DIRECT / LOCTN	INT-TYPE (MEDIAN) / LEGS (#LANES)	INT-REL / TRAF- / CONTL	OFFRD / RNDBT / DRVWY	WTHR / SURF / LIGHT	CRASH / COLL / SVRTY	SPCL USE / TRLR QTY / OWNER / V#	MOVE / FROM / TO	P#	PRTC TYPE	INJ SVRTY	A G E	S E X	LICNS RES	PED LOC	ERROR	ACT	EVENT	CAUSE

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OREGON.. DEPARTMENT OF TRANSPORTATION - TRANSPORTATION DEVELOPMENT DIVISION
TRANSPORTATION DATA SECTION - CRASH ANAYLYSIS AND REPORTING UNIT
URBAN NON-SYSTEM CRASH LISTING

CITY OF BOARDMAN, MORROW COUNTY

EB EXTO PORT MORROW at PORT MORROW/LAUREL, City of Boardman, Morrow County, ALL Crashes Severity, ALL Crashes Circumstance, 01/01/2018 to 12/31/2022

1 - 1 of 1 Crash records shown.

SER# / INVEST / RD DPT / UNLOC?	S P E D	A L C	D R U G S	M J I N V	S C H L	W O R K	DATE / DAY / TIME / LAT	CLASS / DIST / FROM / LONG	CITY STREET / FIRST STREET / SECOND STREET / LRS	RD CHAR / DIRECT / LOCTN	INT-TYPE (MEDIAN) / LEGS (#LANES)	INT-REL / TRAF- / CONTL	OFFRD / RNDBT / DRVWY	WTHR / SURF / LIGHT	CRASH / COLL / SVRTY	V#	SPCL USE / TRLR QTY / OWNER / TYPE	MOVE / FROM / TO	P#	PRTC TYPE	INJ SVRTY	A G E	S E X	LICNS RES	PED LOC	ERROR	ACT EVENT	CAUSE
00073	N	N	N	N			07/01/2019	01	EB EXTO PORT MORROW	INTER	CROSS	N	N	CLR	S-1TURN	01	NONE 1	TURN-R										14,02
STATE							MO		PORT MORROW/LAUREL	W		STOP SIGN	N	DRY	TURN		PRVTE	NW-S									015	00
N							9A			06	0		N	DAY	INJ		SEMI TOW		01	DRVR	NONE	42	F	OR-Y		000	000	00
N							45 50 22.97	-119 40 6.66	0002HB100S00															OR<25				
																02	NONE 0	STOP										
																	PRVTE	NW-SE									011	00
																	PSNGR CAR		01	DRVR	INJB	41	F	OTH-Y		003,028	000	14,02
																								N-RES				

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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
055	SPRAY	BLINDED BY WATER SPRAY

ACTION CODE TRANSLATION LIST

ACTION CODE	SHORT DESCRIPTION	LONG DESCRIPTION
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	TURNED FROM WRONG LANE
007	TO WRONG	TURNED INTO WRONG LANE
008	ILLEG U	U-TURNED ILLEGALLY
009	IMP STOP	IMPROPERLY STOPPED IN TRAFFIC LANE
010	IMP SIG	IMPROPER SIGNAL OR FAILURE TO SIGNAL
011	IMP BACK	BACKING IMPROPERLY (NOT PARKING)
012	IMP PARK	IMPROPERLY PARKED
013	UNPARK	IMPROPER START LEAVING PARKED POSITION
014	IMP STRT	IMPROPER START FROM STOPPED POSITION
015	IMP LGHT	IMPROPER OR NO LIGHTS (VEHICLE IN TRAFFIC)
016	INATTENT	INATTENTION (FAILURE TO DIM LIGHTS PRIOR TO 4/1/97)
017	UNSF VEH	DRIVING UNSAFE VEHICLE (NO OTHER ERROR APPARENT)
018	OTH PARK	ENTERING/EXITING PARKED POSITION W/ INSUFFICIENT CLEARANCE; OTHER IMPROPER PARKING MANEUVER
019	DIS DRIV	DISREGARDED OTHER DRIVER'S SIGNAL
020	DIS SGNL	DISREGARDED TRAFFIC SIGNAL
021	RAN STOP	DISREGARDED STOP SIGN OR FLASHING RED
022	DIS SIGN	DISREGARDED WARNING SIGN, FLARES OR FLASHING AMBER
023	DIS OFCR	DISREGARDED POLICE OFFICER OR FLAGMAN
024	DIS EMER	DISREGARDED SIREN OR WARNING OF EMERGENCY VEHICLE
025	DIS RR	DISREGARDED RR SIGNAL, RR SIGN, OR RR FLAGMAN
026	REAR-END	FAILED TO AVOID STOPPED OR PARKED VEHICLE AHEAD OTHER THAN SCHOOL BUS
027	BIKE ROW	DID NOT HAVE RIGHT-OF-WAY OVER PEDALCYCLIST
028	NO ROW	DID NOT HAVE RIGHT-OF-WAY
029	PED ROW	FAILED TO YIELD RIGHT-OF-WAY TO PEDESTRIAN
030	PAS CURV	PASSING ON A CURVE
031	PAS WRNG	PASSING ON THE WRONG SIDE
032	PAS TANG	PASSING ON STRAIGHT ROAD UNDER UNSAFE CONDITIONS
033	PAS X-WK	PASSED VEHICLE STOPPED AT CROSSWALK FOR PEDESTRIAN
034	PAS INTR	PASSING AT INTERSECTION
035	PAS HILL	PASSING ON CREST OF HILL
036	N/PAS ZN	PASSING IN "NO PASSING" ZONE
037	PAS TRAF	PASSING IN FRONT OF ONCOMING TRAFFIC
038	CUT-IN	CUTTING IN (TWO LANES - TWO WAY ONLY)
039	WRNGSIDE	DRIVING ON WRONG SIDE OF THE ROAD (2-WAY UNDIVIDED ROADWAYS)
040	THRU MED	DRIVING THROUGH SAFETY ZONE OR OVER ISLAND
041	F/ST BUS	FAILED TO STOP FOR SCHOOL BUS

ERROR CODE TRANSLATION LIST

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

EVENT CODE TRANSLATION LIST

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

EVENT CODE TRANSLATION LIST

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

EVENT CODE TRANSLATION LIST

EVENT CODE	SHORT DESCRIPTION	LONG DESCRIPTION
118	EXPNSN JNT	EXPANSION JOINT
119	JERSEY BAR	JERSEY BARRIER
120	WIRE BAR	WIRE OR CABLE MEDIAN BARRIER
121	FENCE	FENCE
123	OBJ IN VEH	LOOSE OBJECT IN VEHICLE STRUCK OCCUPANT
124	SLIPPERY	SLIDING OR SWERVING DUE TO WET, ICY, SLIPPERY OR LOOSE SURFACE (NOT GRAVEL)
125	SHLDR	SHOULDER GAVE WAY
126	BOULDER	ROCK(S), BOULDER (NOT GRAVEL; NOT ROCK SLIDE)
127	LAND SLIDE	ROCK SLIDE OR LAND SLIDE
128	CURVE INV	CURVE PRESENT AT CRASH LOCATION
129	HILL INV	VERTICAL GRADE / HILL PRESENT AT CRASH LOCATION
130	CURVE HID	VIEW OBSCURED BY CURVE
131	HILL HID	VIEW OBSCURED BY VERTICAL GRADE / HILL
132	WINDOW HID	VIEW OBSCURED BY VEHICLE WINDOW CONDITIONS
133	SPRAY HID	VIEW OBSCURED BY WATER SPRAY
134	TORRENTIAL	TORRENTIAL RAIN (EXCEPTIONALLY HEAVY RAIN)

FUNCTIONAL CLASSIFICATION TRANSLATION LIST

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

HIGHWAY COMPONENT TRANSLATION LIST

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

INJURY SEVERITY CODE TRANSLATION LIST

CODE	SHORT DESC	LONG DESCRIPTION
1	KILL	FATAL INJURY
2	INJA	INCAPACITATING INJURY - BLEEDING, BROKEN BONES
3	INJB	NON-INCAPACITATING INJURY
4	INJC	POSSIBLE INJURY - COMPLAINT OF PAIN
5	PRI	DIED PRIOR TO CRASH
7	NO<5	NO INJURY - 0 TO 4 YEARS OF AGE
9	NONE	PARTICIPANT UNINJURED, OVER THE AGE OF 4

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 CONVEYA
5	PTOW	PEDESTRIAN TOWING OR TRAILERING AN OB
6	BIKE	PEDALCYCLIST
7	BTOW	PEDALCYCLIST TOWING OR TRAILERING AN
8	PRKD	OCCUPANT OF A PARKED MOTOR VEHICLE
9	UNK	UNKNOWN TYPE OF NON-MOTORIST

TRAFFIC CONTROL DEVICE CODE TRANSLATION LIST

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

VEHICLE TYPE CODE TRANSLATION LIST

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

WEATHER CONDITION CODE TRANSLATION LIST

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

Attachment D – Crash Analysis Worksheet

Intersection Crash History (January 1, 2018 through December 31, 2022)

Location		Collision Type								Severity			Total
		Angle	Turn	Rear End	Side Swipe	Backing	Fixed Object	Ped/Bike	Head-On	PDO[1]	Injury	Fatal	
1	N Main Street / Marine Drive												**0**
2	N Main Street / Columbia Avenue		1				1				1		**2**
3	N Main Street / Boardman Avenue		2								2		**2**
4	N Main Street / N Front Street	1	1							2			**2**
5	S Main Street / I-84 Westbound Ramp Terminal	3	1	2						5	1		**6**
6	S Main Street / I-84 Eastbound Ramp Terminal	2								2			**2**
7	S Main Street / S Front Street												**0**
8	S Main Street / Oregon Trail Boulevard												**0**
9	S Main Street / Kinkade Road												**0**
10	S Main Street / Wilson Lane	4	2							4	2		**6**
11	Olson Street / Columbia Avenue												**0**
12	Laurel Lane / Columbia Avenue									2			**0**
13	Laurel Lane / I-84 Westbound Ramp Terminal	2									1		**2**
14	Laurel Lane / I-84 Eastbound Ramp Terminal		1										**1**

2024 existing volumes

TEV AM	TEV PM	TEV Daily	N	Crash rate
	100	1,000	5	0.00
	385	3,850	5	0.28
	622	6,220	5	0.18
	882	8,820	5	0.12
	1,027	10,270	5	0.32
	1076	10,760	5	0.10
	986	9,860	5	0.00
	909	9,090	5	0.00
	772	7,720	5	0.00
	607	6,070	5	0.54
	267	2,670	5	0.00
	479	4,790	5	0.00
	395	3,950	5	0.28
	330	3,300	5	0.17

Intersection Crash Rate Assessment

	Location	Total Crashes	Observed Crash Rate	90th Percentile Crash Rate by Land Type and Traffic Control	Observed Crash Rate>Critical Crash Rate?
1	N Main Street / Marine Drive	0	0.00	0.293	No
2	N Main Street / Columbia Avenue	2	0.28	0.408	No
3	N Main Street / Boardman Avenue	2	0.18	0.408	No
4	N Main Street / N Front Street	2	0.12	0.408	No
5	S Main Street / I-84 Westbound Ramp Terminal	6	0.32	0.408	No
6	S Main Street / I-84 Eastbound Ramp Terminal	2	0.10	0.408	No
7	S Main Street / S Front Street	0	0.00	0.408	No
8	S Main Street / Oregon Trail Boulevard	0	0.00	0.293	No
9	S Main Street / Kinkade Road	0	0.00	0.293	No
10	**S Main Street / Wilson Lane**	**6**	**0.54**	**0.408**	**Yes**
11	Olson Street / Columbia Avenue	0	0.00	0.408	No
12	Laurel Lane / Columbia Avenue	0	0.00	0.293	No
13	Laurel Lane / I-84 Westbound Ramp Terminal	2	0.28	0.408	No
14	Laurel Lane / I-84 Eastbound Ramp Terminal	1	0.17	0.408	No

Attachment E – Detailed Pedestrian and Bike Level of Traffic Stress Results

Street	#	From	To	Side	Local Functional Classification	Posted Speed (mph)	Total Nuber of Vehicle Lanes	Illumination?	Sidewalk Width (feet)	Sidewalk Condition	Sidewalk Buffer Type	Buffer Width (feet)	Land Use	Bike Facility Width (feet)	PLTS Criteria				PLTS	BLTS
															Sidewalk Condition	Physical Buffer Width	Total Buffer Width	General Land Use		
Main St	1	Kunze Ln	City Limits	West	Arterial	35	2	No	0	No Sidewalk	No Buffer	5	Residential	0	4	3	2	1	4	1
	2	Kunze Ln	Wilson Ln	East	Arterial	35	2	No	0	No Sidewalk	No Buffer	5	Mixed Use	0	4	3	2	2	4	2
	3	City Limits	Rome St	West	Arterial	35	2	No	0	No Sidewalk	No Buffer	5	Residential	0	4	3	2	1	4	1
	4	Rome St	Wilson Ln	East	Arterial	35	2	Yes	0	No Sidewalk	No Buffer	5	Residential	0	4	3	2	1	4	1
	5	Wilson Ln	x Dwy	West	Arterial	30	2	Yes	10	Fair	Vertical	13	CBD	0	1	1	1	1	1	1
	6	Wilson Ln	Oregon Trail Blvd	East	Arterial	30	2	No	0	No Sidewalk	No Buffer	5	CBD	0	4	3	2	1	4	2
	7	Oregon Trail Blvd	x Dwy	East	Arterial	30	2	Yes	6	Good	No Buffer	5	CBD	5	1	3	2	1	3	2
	8	x Road	SW Front St	West	Arterial	25	2	Yes	6	Good	No Buffer	5	Auto-oriented commercial	5	1	2	2	2	2	2
	9	x Road	SW Front St	East	Arterial	25	2	Yes	6	Good	No Buffer	5	Auto-oriented commercial	5	1	2	2	2	2	2
	10	SW Front St	NW Front St	West	Arterial	25	2	Yes	6	Good	No Buffer	5	Freeway Interchanges	5	1	2	2	4	4	2
	11	SW Front St	NW Front St	East	Arterial	25	2	Yes	6	Good	No Buffer	5	Freeway Interchanges	5	1	2	2	4	4	2
	12	NE Front St	Boardman Avenue	West	Arterial	25	2	Yes	6	Good	No Buffer	5	Auto-oriented commercial	5	1	2	2	3	3	2
	13	NE Front St	Boardman Avenue	East	Arterial	25	2	Yes	6	Good	No Buffer	5	Auto-oriented commercial	5	1	2	2	3	3	2
	14	Boardman Avenue	Columbia Avenue	West	Arterial	25	2	Yes	6	Good	No Buffer	5	Residential	5	1	2	2	1	2	2
	15	Boardman Avenue	Columbia Avenue	East	Arterial	25	2	Yes	6	Good	No Buffer	5	Residential	5	1	2	2	1	2	2
	16	Columbia Avenue	Marine Dr	West	Minor Collector	25	2	No	0	No Sidewalk	No Buffer	5	Residential	5	4	2	2	1	4	2
	17	Columbia Avenue	Marine Dr	West	Minor Collector	25	2	No	0	No Sidewalk	No Buffer	5	Residential	5	4	2	2	1	4	2
Marine Dr	18	Marina Park	River Lodge Road	North	Minor Collector	25	2	No	0	No Sidewalk	No Buffer	1	Residential	0	4	2	2	1	4	1
	19	Marina Park	N Main Street	South	Minor Collector	25	2	No	0	No Sidewalk	No Buffer	4	Residential	0	4	2	2	1	4	1
	20	N Main Street	River Lodge Road	South	Minor Collector	25	2	Yes	0	No Sidewalk	No Buffer	1	Park	0	4	2	2	1	4	1
	21	River Lodge Road	Ullman Blvd	South	Minor Collector	40	2	No	6	Good	Vertical	3	Light Industrial	3	2	2	2	3	3	3
	22	River Lodge Road	Ullman Blvd	North	Minor Collector	40	2	No	6	Good	Solid surface	5	Light Industrial	5	2	2	2	3	3	3
Kunze Ln	23	Paul Smith Rd	Main St	South	Neighborhood Collector	45	2	No	0	No Sidewalk	No Buffer	5	Residential	0	4	4	2	1	4	3
	24	Paul Smith Rd	Main St	North	Neighborhood Collector	45	2	No	0	No Sidewalk	No Buffer	5	Residential	0	4	4	2	1	4	3
	25	Main St	Olson Rd	South	Neighborhood Collector	45	2	No	0	No Sidewalk	No Buffer	0	Mixed Use	0	4	4	2	1	4	3
	26	Main St	Olson Rd	North	Neighborhood Collector	45	2	No	0	No Sidewalk	No Buffer	0	Mixed Use	0	4	4	2	1	4	3
Paul Smith Rd	27	Kunze Ln	Wilson Rd	East	Neighborhood Collector	40	2	No	0	No Sidewalk	No Buffer	1	Residential	0	4	4	2	1	4	3
Wilson Rd	28	Paul Smith Rd	Faler Rd	South	Arterial	30	2	Yes	0	No Sidewalk	No Buffer	4	Residential	0	4	3	2	1	4	2
	29	Paul Smith Rd	Faler Rd	North	Arterial	30	2	Yes	0	No Sidewalk	No Buffer	4	Residential	0	4	3	2	1	4	1
	30	Faler Rd	Anthony Dr	South	Arterial	20	2	Yes	5	Good	No Buffer	8	Residential	0	2	2	2	1	2	1
	31	Faler Rd	Locust Rd	North	Arterial	20	2	Yes	10	Fair	Vertical	5	Residential	0	1	1	2	1	2	1
	32	Anthony Dr	Tatone St	South	Arterial	20	2	Yes	10	Good	Landscaped	18	Residential	0	1	1	1	1	1	1
	33	Locust Rd	Tatone St	North	Arterial	20	2	Yes	10	Fair	Vertical	5	Residential	0	1	1	2	1	2	1
	34	Tatone St	S Main St	South	Arterial	30	2	Yes	0	No Sidewalk	No Buffer	4	Residential	0	4	3	2	1	4	2
	35	Tatone St	S Main St	North	Arterial	30	2	Yes	10	Fair	Vertical	5	Residential	0	1	1	2	1	2	1
	36	S Main St	Anderson Rd	South	Arterial	30	2	No	0	No Sidewalk	No Buffer	3	Residential	0	4	3	2	1	4	2
	37	S Main St	Anderson Rd	North	Arterial	30	2	No	10	Fair	Vertical	5	Strip Commercial	0	2	1	2	2	2	1
	38	Anderson Ave	Olson Rd	South	Arterial	30	2	No	0	No Sidewalk	No Buffer	3	Residential	0	4	3	2	1	4	2
	39	Anderson Ave	Olson Rd	North	Arterial	30	2	No	0	No Sidewalk	No Buffer	3	Residential	0	4	3	2	1	4	2
Anderson Rd	40	Wilson Rd	Oregon Trail Blvd	West	Neighborhood Collector	25	2	Yes	0	No Sidewalk	No Buffer	0	Residential	0	4	2	2	1	4	1
	41	Wilson Rd	Oregon Trail Blvd	East	Neighborhood Collector	25	2	Yes	0	No Sidewalk	No Buffer	0	Residential	0	4	2	2	1	4	1
Paul Smith Rd	42	Wilson Rd	UGB	East	Neighborhood Collector	20	2	No	0	No Sidewalk	No Buffer	0	Residential	0	4	2	2	1	4	1
Oregon Trail Blvd	43	S Main St	1st St	North	Minor Collector	25	2	Yes	0	No Sidewalk	No Buffer	0	Strip Commercial	0	4	2	2	2	4	1
	44	S Main St	Anderson Rd	South	Minor Collector	25	2	Yes	0	No Sidewalk	No Buffer	0	Strip Commercial	0	4	2	2	2	4	1
	45	1st St	road end	North	Minor Collector	25	2	Yes	0	No Sidewalk	No Buffer	0	Residential	0	4	2	2	1	4	1
	46	Anderson Rd	road end	South	Minor Collector	25	2	Yes	6	Good	No Buffer	0	Residential	0	1	2	2	1	2	1
1st St	47	Oregon Trail Blvd	road end	West	Minor Collector	20	2	No	6	Good	No Buffer	5	Strip Commercial	5	2	2	2	2	2	2
	48	Oregon Trail Blvd	road end	East	Minor Collector	20	2	No	0	Good	No Buffer	0	Strip Commercial	5	3	2	2	2	3	2
Front St	49	1st St NE	2nd Ave NE	North	Minor Collector	25	2	No	0	No Sidewalk	No Buffer	10	Strip Commercial	0	4	2	1	2	4	1
	50	2nd Ave NE	Olson Rd	North	Minor Collector	25	2	Yes	0	No Sidewalk	No Buffer	10	Strip Commercial	0	4	2	1	2	4	1
Boardman Avenue	51	N Main Street	School Dwy	North	Neighborhood Collector	20	2	Yes	6	Good	No Buffer	0	Residential	0	1	2	2	1	2	1
	52	N Main Street	2nd Ave NE	South	Neighborhood Collector	20	2	Yes	0	No Sidewalk	No Buffer	0	Strip Commercial	0	4	2	2	2	4	1
	53	School Dwy	3rd St NE	North	Neighborhood Collector	20	2	Yes	0	No Sidewalk	No Buffer	0	Residential	0	4	2	2	1	4	1
	54	2nd Ave NE	3rd St NE	South	Neighborhood Collector	20	2	Yes	0	No Sidewalk	No Buffer	0	Residential	0	4	2	2	1	4	1
Olson Road	55	Front St	Columbia Ave	West	Arterial	25	3	Yes	0	No Sidewalk	No Buffer	1	Light Industrial	0	4	2	3	3	4	1
	56	Front St	Columbia Ave	East	Arterial	25	3	Yes	6	Good	No Buffer	4	Parks and Public Facilities	0	1	2	3	1	3	1
Columbia Avenue	57	N Main Street	Midblock Crossing	North	Arterial	35	2	Yes	0	No Sidewalk	No Buffer	7	Residential	0	4	3	2	1	4	2
	58	N Main Street	Midblock Crossing	South	Arterial	35	2	Yes	6	Good	Landscape with trees	8	Residential	0	1	1	2	1	2	2
	59	Midblock Crossing	Eldridge Ln	North	Arterial	35	2	Yes	6	Good	Solid surface	7	Residential	0	1	2	2	1	2	2
	60	Midblock Crossing	2nd St	South	Arterial	35	2	Yes	0	No Sidewalk	No Buffer	0	Residential	0	4	3	2	1	4	2
	61	Eldridge Ln	Olson Rd	North	Arterial	40	3	No	6	Good	Solid surface	12	Light Industrial	0	2	2	2	3	3	3

	62	2nd St	Olson Rd	South	Arterial	40	3	No	0	No Sidewalk	No Buffer	1	Light Industrial	0	4	4	3	3	4	3
	63	Olson Rd	Ullman Blvd	North	Arterial	40	4	No	0	No Sidewalk	No Buffer	10	Light Industrial	0	4	4	2	3	4	4
	64	Olson Rd	Ullman Blvd	South	Arterial	40	4	No	0	No Sidewalk	No Buffer	10	Light Industrial	0	4	4	2	3	4	4
	65	Ullman Blvd	UGB	North	Arterial	40	4	Yes	5	Good	Landscaped	10	Light Industrial	0	2	2	2	3	3	4
	66	Ullman Blvd	UGB	South	Arterial	40	4	Yes	0	No Sidewalk	No Buffer	10	Light Industrial	0	4	4	2	3	4	4
Laurel Ln	67	Columbia Blvd	I84 EB off ramp	West	Arterial	35	2	No	0	No Sidewalk	No Buffer	6	Freeway Interchanges	0	4	3	2	4	4	2
	68	Columbia Blvd	I84 EB off ramp	East	Arterial	35	2	No	0	No Sidewalk	No Buffer	6	Freeway Interchanges	0	4	3	2	4	4	2
	69	I84 EB off ramp	UGB	West	Minor Collector	35	2	No	0	No Sidewalk	No Buffer	2	Light Industrial	0	4	3	2	3	4	2
	70	I84 EB off ramp	UGB	East	Minor Collector	35	2	No	0	No Sidewalk	No Buffer	2	Light Industrial	0	4	3	2	3	4	2
Ulman Blvd	71	Marine Dr	Columbia Blvd	West	Minor Collector	30	2	Yes	0	No Sidewalk	No Buffer	1	Light Industrial	0	4	3	2	3	4	2
	72	Marine Dr	Columbia Blvd	East	Minor Collector	30	2	Yes	5	Good	Landscaped	8	Light Industrial	0	2	2	2	3	3	2
Olson Road	73	Eldridge Ln	Columbia Blvd	West	Arterial	25	2	Yes	0	No Sidewalk	No Buffer	1	Light Industrial	0	4	2	2	4	4	1
	74	Eldridge Ln	Columbia Blvd	East	Arterial	25	2	Yes	0	No Sidewalk	No Buffer	0	Light Industrial	0	4	2	2	4	4	1
Eldridge Ln	75	Columbia Blvd	Olson Road	North	Neighborhood Collector	20	2	No	0	No Sidewalk	No Buffer	0	Light Industrial	0	4	2	2	3	4	1
	76	Columbia Blvd	Olson Road	South	Neighborhood Collector	20	2	No	0	No Sidewalk	No Buffer	0	Light Industrial	0	4	2	2	3	4	1
x Road (riverfront)	77	Marine Dr	x Road	West	Local	20	3	Yes	0	No Sidewalk	No Buffer	1	Parks and Public Facilities	0	4	2	3	1	4	1
	78	Marine Dr	x Road	East	Local	20	3	Yes	0	Good	Landscaped	4	Residential	0	2	1	3	1	3	1
Faler Rd	79	Wilson Rd	Mt Hood Ave	West	Neighborhood Collector	20	2	No	0	No Sidewalk	No Buffer	0	Residential	0	4	2	2	1	4	1
	80	Wilson Rd	Mt Hood Ave	East	Neighborhood Collector	20	2	No	0	No Sidewalk	No Buffer	0	Residential	0	4	2	2	1	4	1
	81	Mt Hood Ave	End (North)	West	Neighborhood Collector	20	2	Yes	0	No Sidewalk	No Buffer	0	Residential	0	4	2	2	1	4	1
	82	Mt Hood Ave	End (North)	East	Neighborhood Collector	20	2	Yes	0	No Sidewalk	No Buffer	0	Residential	0	4	2	2	1	4	1
Mt Hood Ave	83	Faler Rd	Willow Fork Dr	North	Local	20	2	Yes	5	Good	Landscaped	0	Residential	0	2	1	2	1	2	1
	84	Faler Rd	Willow Fork Dr	South	Local	20	2	Yes	5	Good	Landscaped	0	Residential	0	2	1	2	1	2	1
Willow Fork Dr	85	Kinkade Rd	Locust Rd	South	Neighborhood Collector	25	2	Yes	5	Good	No Buffer	0	Residential	0	2	2	2	1	2	1
	86	Kinkade Rd	Locust Rd	North	Neighborhood Collector	25	2	Yes	5	Good	No Buffer	0	Residential	0	2	2	2	1	2	1
Kinkade Rd	87	Willow Fork Dr	Locust Rd	South	Neighborhood Collector	25	2	Yes	5	Good	No Buffer	0	Residential	0	2	2	2	1	2	1
	88	Willow Fork Dr	Main St	North	Neighborhood Collector	25	2	Yes	5	Good	No Buffer	0	Neighborhood commericial	0	2	2	2	1	2	1
Locust Rd	89	Willow Fork Dr	Wilson Rd	West	Neighborhood Collector	25	2	Yes	6	Good	No Buffer	0	Residential	0	1	2	2	1	2	1
	90	Willow Fork Dr	Wilson Rd	East	Neighborhood Collector	25	2	Yes	6	Good	No Buffer	0	Residential	0	1	2	2	1	2	1
	91	Willow Fork Dr	Kinkade Rd	West	Neighborhood Collector	25	2	Yes	6	Good	No Buffer	0	Residential	0	1	2	2	1	2	1
	92	Willow Fork Dr	Kinkade Rd	East	Neighborhood Collector	25	2	Yes	6	Good	No Buffer	0	Residential	0	1	2	2	1	2	1
Willow Fork Dr	93	Locust Rd	Main St	South	Neighborhood Collector	25	2	Yes	6	Good	No Buffer	0	Neighborhood commericial	0	1	2	2	1	2	1
	94	Locust Rd	Main St	North	Neighborhood Collector	25	2	Yes	6	Good	No Buffer	0	Neighborhood commericial	0	1	2	2	1	2	1
Kinkade Rd	95	Locust Rd	Main St	South	Neighborhood Collector	25	2	Yes	5	Good	No Buffer	0	Neighborhood commericial	0	2	2	2	1	2	1
Boardman Avenue	96	Main St	3rd St NW	North	Neighborhood Collector	25	2	Yes	4	Fair	No Buffer	10	Residential/Commercial/Park	0	2	2	1	1	2	1
	97	Main St	3rd St NW	South	Neighborhood Collector	25	2	Yes	4	Fair	No Buffer	10	Residential/Commercial	0	2	2	1	1	2	1
	98	3rd St NW	Allen Ct	West	Neighborhood Collector	25	2	Yes	0	No Sidewalk	No Buffer	6	Residential	6	4	2	2	1	4	3
	99	3rd St NW	Allen Ct	East	Neighborhood Collector	25	2	Yes	0	No Sidewalk	No Buffer	6	Residential	6	4	2	2	1	4	3
	100	Allen Ct	N Main St	North	Neighborhood Collector	25	2	Yes	5	Fair	No Buffer	0	Residential	0	2	2	2	1	2	1
	101	Allen Ct	N Main St	South	Neighborhood Collector	25	2	Yes	5	Fair	No Buffer	0	Residential	0	2	2	2	1	2	1
Tatone St SW	102	Willow Rd	City Center Dr	West	Minor Collector	20	2	No	6	Good	No Buffer	0	Neighborhood commericial	0	2	2	2	1	2	1
	103	Willow Rd	City Center Dr	East	Minor Collector	20	2	No	6	Good	No Buffer	0	Neighborhood commericial	0	2	2	2	1	2	1

Appendix G: Future Conditions Analysis

Technical Memorandum #5

Date:	July 30, 2025	Kittelson Project No: 30287
To:	Project Management Team (PMT)	
From:	Matt Hughart, AICP; Krista Purser, PE; and Eza Gaigalas	
Subject:	Future Conditions Analysis	

Introduction

This memorandum summarizes future (no-build) transportation system conditions in Boardman for the Boardman Transportation System Plan (TSP) update. The information provided in this memorandum is based on assumed new residential and commercial development and corresponding growth in multimodal traffic throughout the city. The future deficiencies identified in this memorandum will serve as the basis for developing transportation system alternatives and improvement projects for the TSP update.

The analysis assumes that the transportation system will serve the urban area's continued economic growth that is consistent with its Comprehensive Plan land use designations as well as regional needs. The TSP addresses transportation needs for people walking, rolling, taking transit, biking, and driving within the Urban Growth Boundary (UGB), namely, the study area, illustrated in Figure 1.

Figure 1

Study Area

Boardman STRATEGIC PLAN
CONNECTING COMMUNITIES
Making big dreams a reality.

- Study Intersection
- City Boundary
- Urban Growth Boundary
- Park
- Water

0 0.25 0.5 Mile

Columbia River
Marine Dr
Eldrige Dr
Columbia Ave
Ullman Blvd
Industrial Wy
Boardman Ave
Front St
84
1st St
Oregon Trail Blvd
Kinkade Rd
Willow Fork Dr
Mt Adams Ave
Faler Rd
River Ridge Dr
Anderson Rd
Olson Rd
Laurel Ln
Rippee Rd
Garrison Ln
Wilson Rd
Skoubo Rd
Main St
Miller Rd
Downey Rd
Kunze Ln
Paul Smith Rd
Hilltop Rd
Parkside Rd
Canal Ln

Future System Conditions Analysis

The future system conditions analysis assesses how the current transportation system in the Boardman urban area is anticipated to perform through the planning horizon year 2045 with assumed continued growth and if no changes occur to the existing transportation network other than what is currently planned and funded.

Future Travel Forecasts

Land use forecasting and the associated travel activity that occurs from development of vacant/underdeveloped lands is a key component in understanding how to plan for an efficient multimodal transportation system.

Consistent with a land use methodology initially created for the 2009 Main Street IAMP and expanded upon in the more recent 2023 Main Street Circulation Assessment, a larger land development assessment was performed for the entire city. This effort included identifying all vacant/underdeveloped parcels within the city, working with City staff to identify those parcels that are reasonably likely to develop over the next 20 years, reviewing the underlying zoning and development regulations for those parcels, and preparing future development assumptions for those parcels. *Attachment A contains figures that identify vacant lots, assumed future developments for these parcels, their Institute of Transportation Engineer's (ITE) land use code, and their trip generation estimates*.

From this land use forecast, a future trip generation profile was developed for each vacant parcel with anticipated weekday AM and PM peak hour trips distributed to/from the development and the various study intersections. This distribution was based on the type of land use (highway-oriented commercial/retail uses with a focus to/from the I-84 corridor, Boardman supporting commercial/retail uses with a focus to/from local residential neighborhoods, and residential uses with a commuting focus to/from local and regional employment centers). Attachment *B contains the total development-generated traffic volumes assigned to the study intersections for the weekday AM and PM peak hours*.

Planned Transportation Improvements

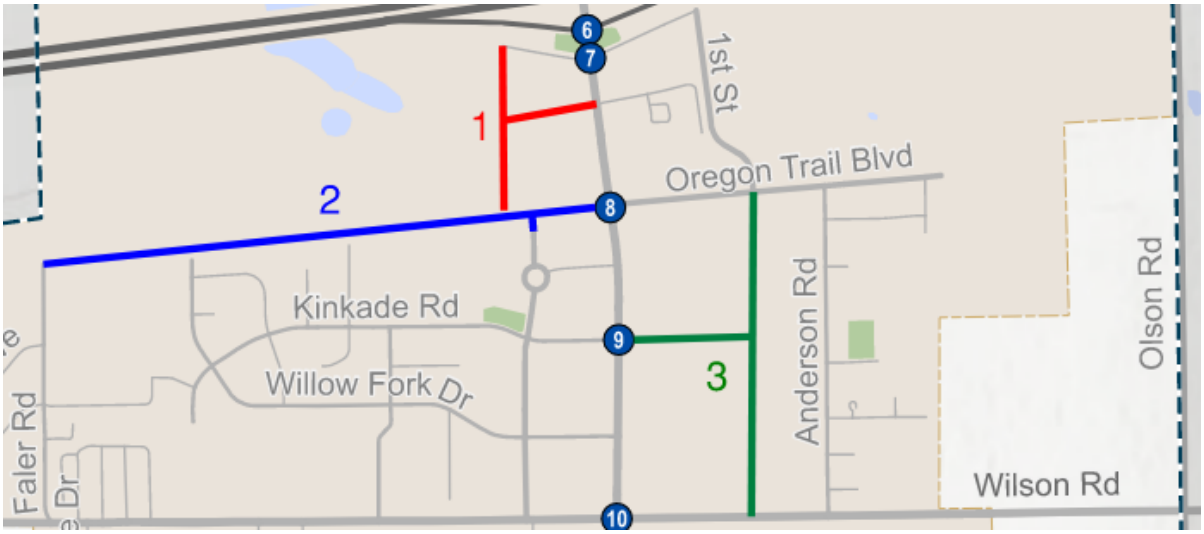
While the future system conditions analysis is essentially an assessment of conditions under the existing multimodal infrastructure, the analysis does take into consideration future improvements that are on the Boardman Capital Improvement Program (CIP) and future improvements that are reasonably likely to be implemented through other means such as expected private development projects. Based on discussions with City planning and engineering staff, the following roadway projects and connections were assumed to be included in the future no-build analysis as depicted in Exhibit 1.

1. A new backage road connection linking SW Front Street to a future westerly extension of Oregon Trail Boulevard and S Main Street. This roadway is expected to be designed according to collector standards from Boardman's Public Works Standards. This project is anticipated to be completed as part of near-term private developments on the underlying parcels.

2. A westerly extension of Oregon Trail Boulevard from S Main Street to Faler Road. This project is included on the City CIP and is expected to be completed through a combination of capital expenditures and near-term private development projects. This roadway is expected to be designed according to collector standards from Boardman's Public Works Standards.

3. A new local street on the east side of S Main Street connecting Oregon Trail Boulevard to S Main Street. This roadway is expected to be designed according to collector standards from Boardman's Public Works Standards.

Exhibit 1 – Assumed Future Roadway Network Projects Completed as Part of Capital Expenditures or Private Development



Future No-Build Traffic Operations

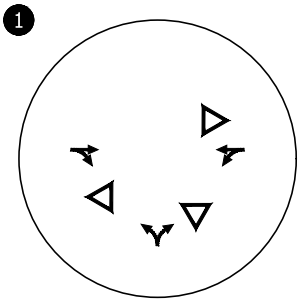
The traffic operations analysis helps identify study intersections that are expected to exceed applicable v/c and LOS thresholds in 2045. This analysis helps inform transportation projects, policies, and programs needed to support economic growth through the planning horizon.

Future Year 2045 No-Build weekday AM and PM peak hour traffic volumes were determined by applying the development-related trips to the existing traffic network. Future traffic volumes for Laurel Lane/Columbia Boulevard, Laurel Lane/I-84 WB Ramp, and Laurel Lane/I-84 EB Ramp were taken from the 2020 Port of Morrow IAMP update as this previous planning effort involved a much greater level of detail surrounding future Port of Morrow land development patterns. Assumed lane

configurations for the 2045 No-Build scenario are illustrated in Figure 2. Projected Year 2045 No-Build traffic volumes at the study intersections and the resultant v/c ratios, delay, and level of service (LOS) for the weekday AM and PM peak hour are shown in Figure 3 and Figure 4 respectively.

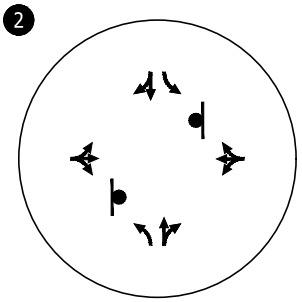
N Main Street / Marine Drive

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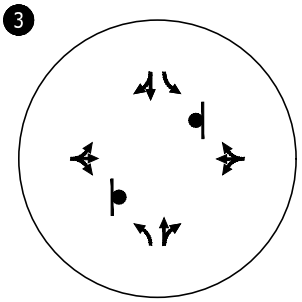
N Main Street / Columbia Avenue

2



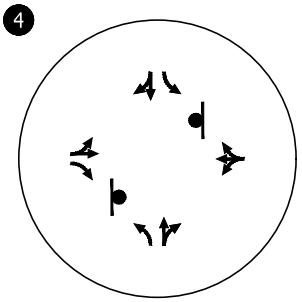
N Main Street / Boardman Avenue

3



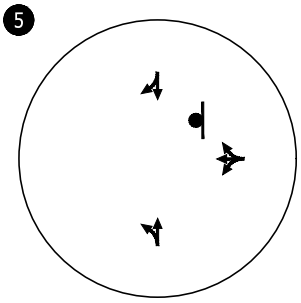
N Main Street / N Front Street

4



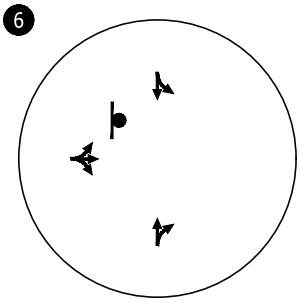
N Main Street / I-84 Westbound Ramp Terminal

5



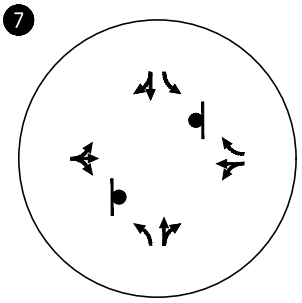
S Main Street / I-84 Eastbound Ramp Terminal

6



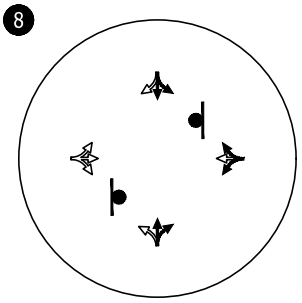
S Main Street / S Front Street

7



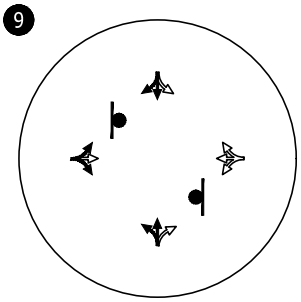
S Main Street / Oregon Trail Boulevard

8



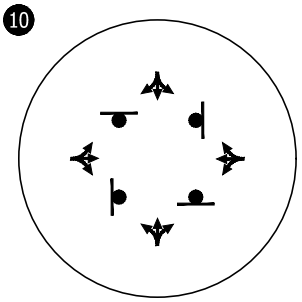
S Main Street / Kinkade Road

9



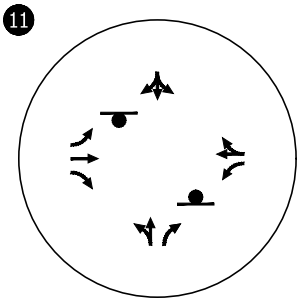
S Main Street / Wilson Lane

10



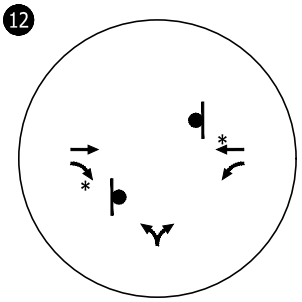
Olson Street / Columbia Avenue

11



Laurel Lane / Columbia Avenue

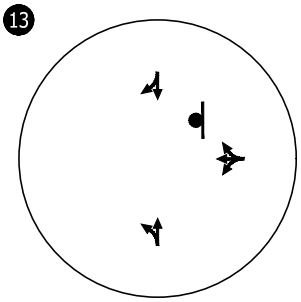
12



*Movement permitted without stopping

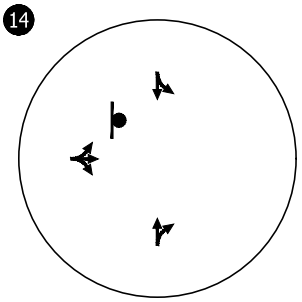
Laurel Lane / I-84 Westbound Ramp Terminal

13



Laurel Lane / I-84 Eastbound Ramp Terminal

14



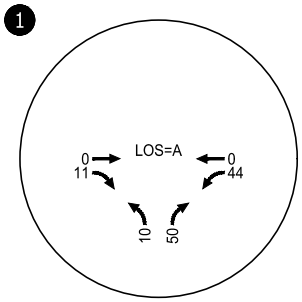
- Stop Sign
- Yield Sign
- Existing Lane Configuration
- Assumed Future Lane Configuration

Year 2045 Assumed Lane Configurations & Traffic Control Devices Boardman, Oregon

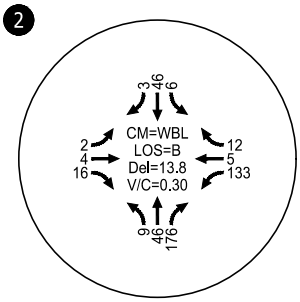
Figure 2

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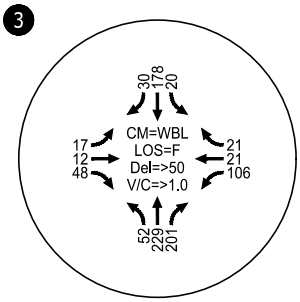
N Main Street / Marine Drive



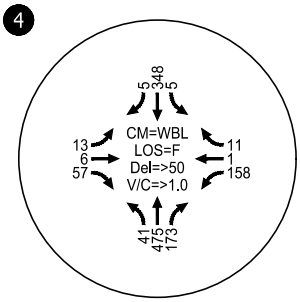
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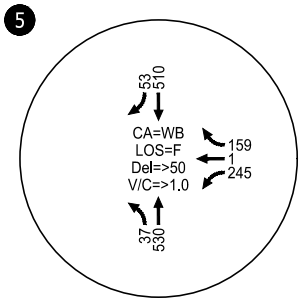
N Main Street / Boardman Avenue



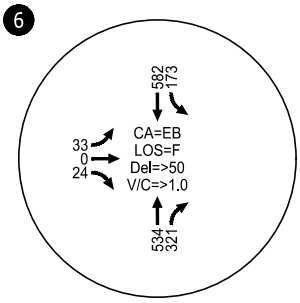
N Main Street / N Front Street



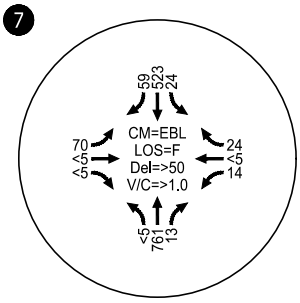
N Main Street / I-84 Westbound Ramp Terminal



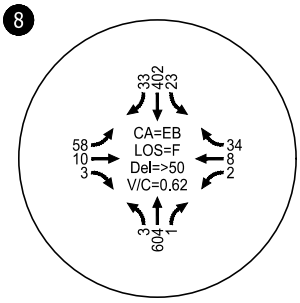
S Main Street / I-84 Eastbound Ramp Terminal



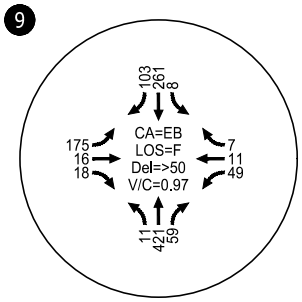
S Main Street / S Front Street



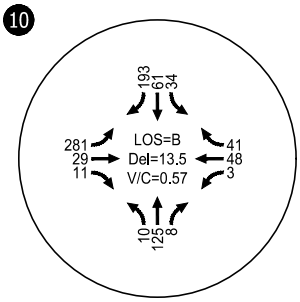
S Main Street / Oregon Trail Boulevard



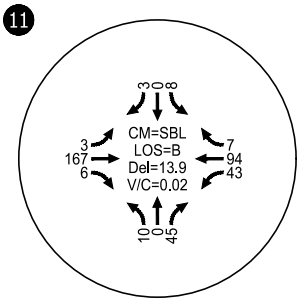
S Main Street / Kinkade Road



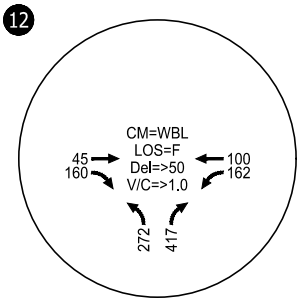
S Main Street / Wilson Lane



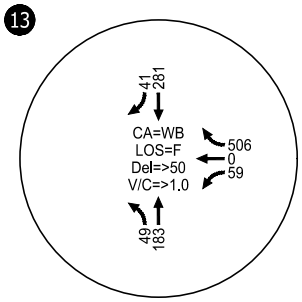
Olson Street / Columbia Avenue



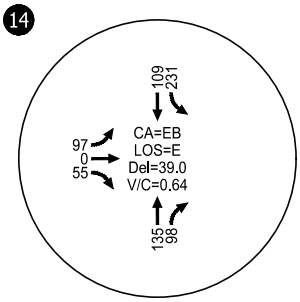
Laurel Lane / Columbia Avenue



Laurel Lane / I-84 Westbound Ramp Terminal



Laurel Lane / I-84 Eastbound Ramp Terminal

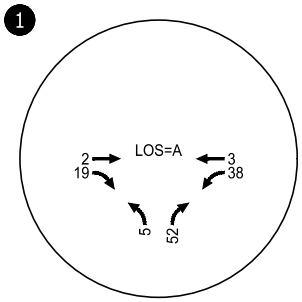


Year 2045 Traffic Conditions
Weekday AM Peak Hour
Boardman, Oregon

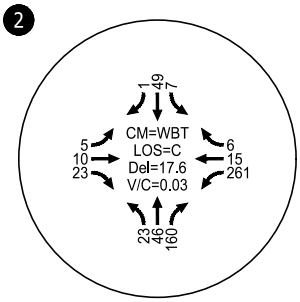
Figure 3

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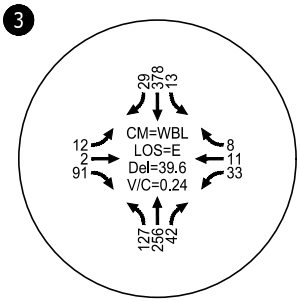
N Main Street / Marine Drive



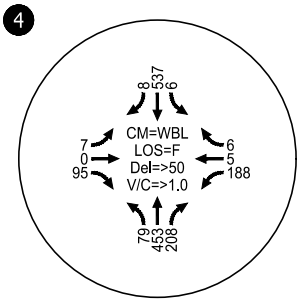
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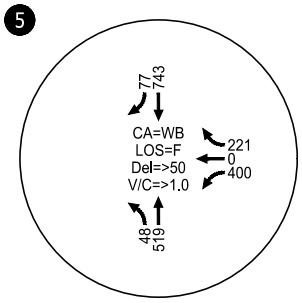
N Main Street / Boardman Avenue



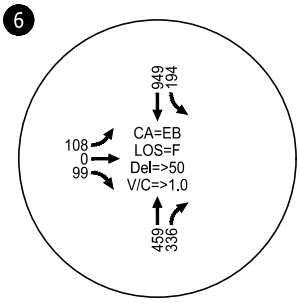
N Main Street / N Front Street



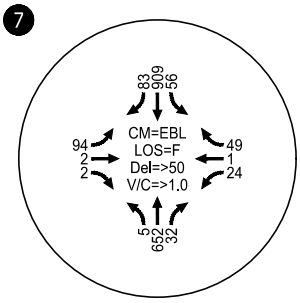
N Main Street / I-84 Westbound Ramp Terminal



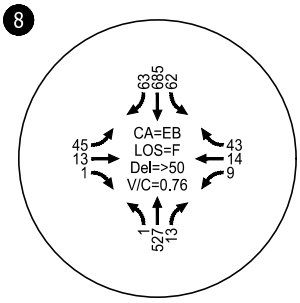
S Main Street / I-84 Eastbound Ramp Terminal



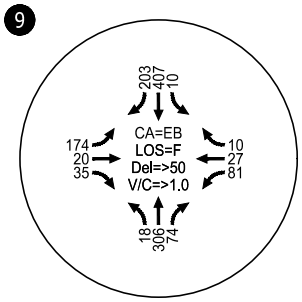
S Main Street / S Front Street



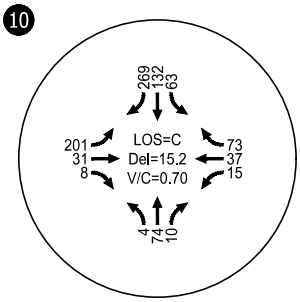
S Main Street / Oregon Trail Boulevard



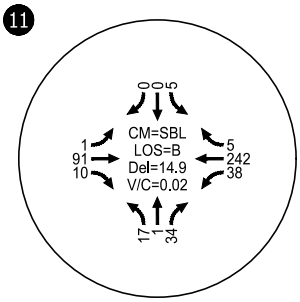
S Main Street / Kinkade Road



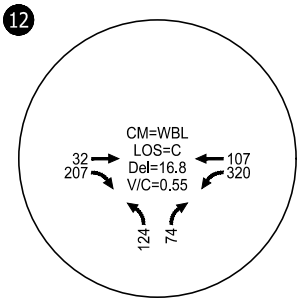
S Main Street / Wilson Lane



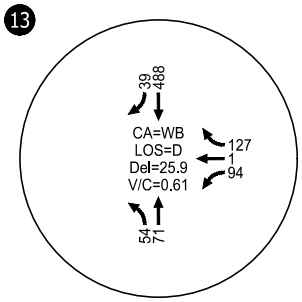
Olson Street / Columbia Avenue



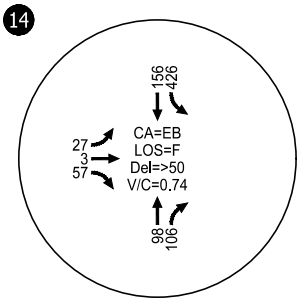
Laurel Lane / Columbia Avenue



Laurel Lane / I-84 Westbound Ramp Terminal



Laurel Lane / I-84 Eastbound Ramp Terminal



Year 2045 Traffic Conditions
Weekday PM Peak Hour
Boardman, Oregon

Figure
4

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Figure 5 and Figure 6 illustrate weekday AM and weekday PM operational results at the study intersections based on their respective performance thresholds.

Table 1 identifies the intersections from Figure 5 and Figure 6 that are exceeding their performance thresholds (mobility targets) in 20 years.

As shown, the results indicate that seven study intersections are forecast to exceed their performance thresholds during the weekday AM and PM peak hour. This includes N Main Street/Boardman Avenue (#3), N Main Street/Front Street (#4), N Main Street/I-84 WB (#5), S Main Street/I-84 EB Ramp(#6), S Main Street/Front Street (#7), S Main Street/ Oregon Trail Boulevard (#8), S Main Street /Kinkade Road (#9). The Laurel Lane/Columbia Avenue (#12) and Laurel Lane/I-84 Westbound Ramp Terminal intersection does not meet the City's operational standard in only the AM peak hour. The Laurel Lane/I-84 Eastbound Ramp Terminal intersection does not meet the City's operational standard in only the PM peak hour.

Attachment C contains the future traffic operations worksheets. Due to the unique traffic operations at the intersection of the intersection of N Main Street and Marine Drive (#1) it was assumed that this intersection operates at LOS A. Due to the unique traffic operations at the intersection of Laurel Lane and Columbia Avenue (#12) the Vistro reports only reflect certain movements.

Figure 5

Year 2045 Traffic Operations - Weekday AM Peak Hour

Boardman STRATEGIC PLAN
CONNECTING COMMUNITIES
Making big dreams a reality.

- Exceeds Mobility Target
- Meets Mobility Target
- City Boundary
- Urban Growth Boundary
- Park
- Water

0 0.25 0.5 Mile

Figure 6

Year 2045 Traffic Operations - Weekday PM Peak Hour

Boardman STRATEGIC PLAN
CONNECTING COMMUNITIES
Making big dreams a reality.

- Exceeds Mobility Target
- Meets Mobility Target
- City Boundary
- Urban Growth Boundary
- Park
- Water

0 0.25 0.5 Mile

Table 1. Study Intersection Performance Summary, Weekday AM Peak Hour

ID	Intersection	Owner	Operational Standard	Observed Operations	Exceeds Operational Standard?
1	N Main Street / Marine Drive	City	LOS C	LOS A	
2	N Main Street / Columbia Avenue	City	LOS C	LOS B	
3	N Main Street / Boardman Avenue	City	LOS C	LOS F	✓
4	N Main Street / N Front Street	City	LOS C	LOS F	✓
5	N Main Street / I-84 Westbound Ramp Terminal	ODOT	v/c = 0.65 for the 20-year design mobility standard	v/c = 3.81	✓
6	S Main Street / I-84 Eastbound Ramp Terminal	ODOT	v/c = 0.65 for the 20-year design mobility standard	v/c = 2.55	✓
7	S Main Street / S Front Street	City	LOS C	LOS F	✓
8	S Main Street / Oregon Trail Boulevard	City	LOS C	LOS F	✓
9	S Main Street / Kinkade Road	City	LOS C	LOS F	✓
10	S Main Street / Wilson Lane	City	LOS C	LOS B	
11	Olson Street / Columbia Avenue	City	LOS C	LOS B	
12	Laurel Lane / Columbia Avenue	City	LOS C	LOS F	✓
13	Laurel Lane / I-84 Westbound Ramp Terminal	ODOT	v/c = 0.65 for the 20-year design mobility standard	v/c = 1.21	✓
14	Laurel Lane / I-84 Eastbound Ramp Terminal	ODOT	v/c = 0.65 for the 20-year design mobility standard	v/c = 0.64	

Table 2. Study Intersection Performance Summary, Weekday PM Peak Hour

ID	Intersection	Owner	Operational Standard	Observed Operations	Exceeds Operational Standard?
1	N Main Street / Marine Drive	City	LOS C	LOS A	
2	N Main Street / Columbia Avenue	City	LOS C	LOS C	
3	N Main Street / Boardman Avenue	City	LOS C	LOS E	✓
4	N Main Street / N Front Street	City	LOS C	LOS F	✓
5	N Main Street / I-84 Westbound Ramp Terminal	ODOT	v/c = 0.65 for the 20-year design mobility standard	v/c = 5.54	✓
6	S Main Street / I-84 Eastbound Ramp Terminal	ODOT	v/c = 0.65 for the 20-year design mobility standard	v/c = 8.02	✓
7	S Main Street / S Front Street	City	LOS C	LOS F	✓
8	S Main Street / Oregon Trail Boulevard	City	LOS C	LOS F	✓
9	S Main Street / Kinkade Road	City	LOS C	LOS F	✓
10	S Main Street / Wilson Lane	City	LOS C	LOS C	
11	Olson Street / Columbia Avenue	City	LOS C	LOS B	
12	Laurel Lane / Columbia Avenue	City	LOS C	LOS C	
13	Laurel Lane / I-84 Westbound Ramp Terminal	ODOT	v/c = 0.65 for the 20-year design mobility standard	v/c = 0.61	
14	Laurel Lane / I-84 Eastbound Ramp Terminal	ODOT	v/c = 0.65 for the 20-year design mobility standard	v/c = 0.74	✓

Table 3. Study Intersection Performance Summary – Future Traffic Operations

ID	Intersection	Owner	Exceeds Operational Standard		
			Weekday AM Peak Hour	Weekday PM Peak Hour	Forecast Operational Challenge(s)
3	N Main Street / Boardman Avenue	City	✓	✓	Projected long-term growth in traffic demand along the Main Street corridor will increase vehicle delay for the Boardman Avenue approaches. During the weekday morning peak hour, the projected westbound left-turn demand will exceed its available capacity. Traffic control improvement options will need to be investigated in association with access restrictions at N Front Street (see below).
4	N Main Street / N Front Street	City	✓	✓	Anticipated highway-oriented development along the N Front Street corridor is forecast to generate a significant increase in traffic demand. The Main Street IAMP has previously identified the need for the N Front Street intersection approaches to N Main Street to be limited to right-in/right-out movements through median treatments.
5	N Main Street / I-84 Westbound Ramp Terminal	ODOT	✓	✓	The existing I-84/N Main Street interchange has limited capacity to serve anticipated long-term growth in local and freeway-oriented traffic demand. The Main Street IAMP has previously identified the need for ramp widening and traffic control improvements at the interchange ramp terminals.
6	S Main Street / I-84 Eastbound Ramp Terminal	ODOT	✓	✓	
7	S Main Street / S Front Street	City	✓	✓	Anticipated highway-oriented development along the S Front Street corridor is forecast to generate a significant increase in traffic demand. The Main Street IAMP has previously identified the need for the S Front Street intersection approaches to be limited to right-in/right-out movements through median treatments. The implementation of the access restricting medians is contingent upon the implementation of the local roadway improvements identified in Exhibit 1.
8	S Main Street / Oregon Trail Boulevard	City	✓	✓	The assumed westerly extension of Oregon Trail Boulevard west of S Main Street is forecast to accommodate a measurable amount of east-west traffic demand serving existing a new developments in southwest Boardman. This demand will necessitate lane widening and traffic control improvements at the S Main Street/Oregon Trail Boulevard intersection.
9	S Main Street / Kinkade Road	City	✓	✓	Anticipated residential and commercial growth in southwest Boardman is forecast to increase traffic demands along the Kinkade Road corridor. This demand will necessitate lane widening and potential traffic control improvements at the S Main Street/Kinkade Road intersection.

ID	Intersection	Owner	Exceeds Operational Standard		
			Weekday AM Peak Hour	Weekday PM Peak Hour	Forecast Operational Challenge(s)
12	Laurel Lane / Columbia Avenue	City	✓		Long-term growth from the City of Boardman and Port of Morrow is forecast to result in over capacity conditions at the Laurel Lane/Columbia Avenue intersection. The POM IAMP has identified the need for a roundabout at this intersection to better accommodate the anticipated increase in freight and peak period traffic demands generated by POM businesses.
13	Laurel Lane / I-84 Westbound Ramp Terminal	ODOT	✓		Long-term growth from the City of Boardman and Port of Morrow is forecast to result in over capacity conditions at the Laurel Lane / I-84 Westbound Ramp Terminal intersection. The POM IAMP has identified the need to lengthen the ramp to provide additional room for vehicles to decelerate when exiting the freeway.
14	Laurel Lane / I-84 Eastbound Ramp Terminal	ODOT		✓	Long-term growth from the City of Boardman and Port of Morrow is forecast to result in over capacity conditions at the Laurel Lane / I-84 Eastbound Ramp Terminal intersection. The POM IAMP has identified the need to lengthen the ramp to provide additional room for vehicles to decelerate when exiting the freeway.

Future Safety Conditions

The safety conditions summarized in the Existing Conditions Crash Analysis are expected to worsen over time if vehicular, pedestrian, and bicycle volumes increase and if no changes are made to the transportation system. The TSP Update will include site-specific countermeasures to address safety conditions. These treatments can be implemented as funding becomes available.

Future Multimodal Conditions

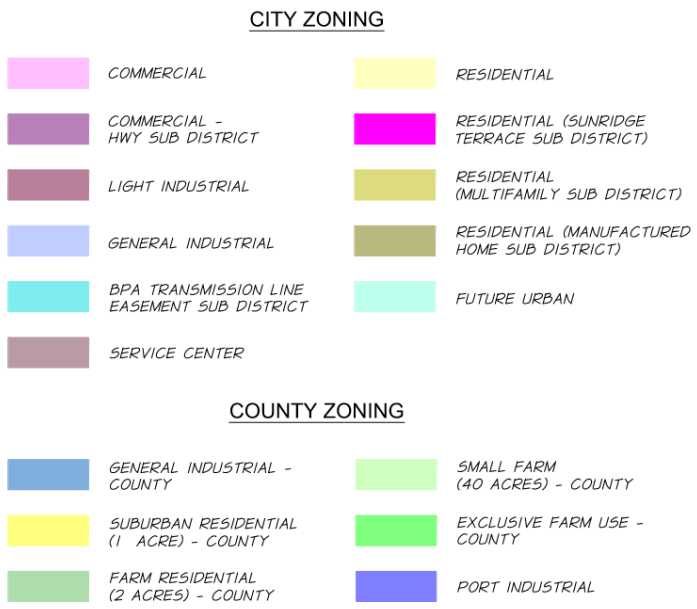
The Existing Transportation Conditions Inventory & Analysis Memorandum identified notable gaps in infrastructure for people walking and rolling. These gaps are expected to remain as vehicular, pedestrian, and bicycle volumes increase and if no changes are made to the transportation system. Even if volumes were to remain constant, the quality of multimodal facilities would degrade over time without maintenance and improvements.

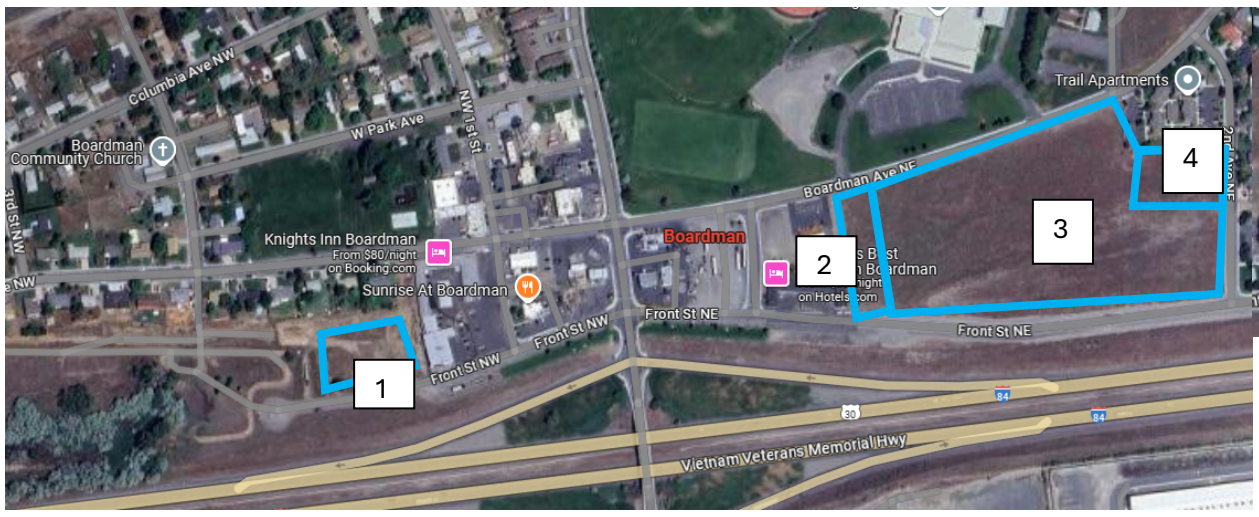
Improvements to the multimodal network should focus on the locations highlighted in the Pedestrian and Bicycle Level of Traffic Stress analysis from the Existing Transportation Conditions Inventory & Analysis Memorandum. This involves prioritizing areas for sidewalk and bike lanes.

Attachments

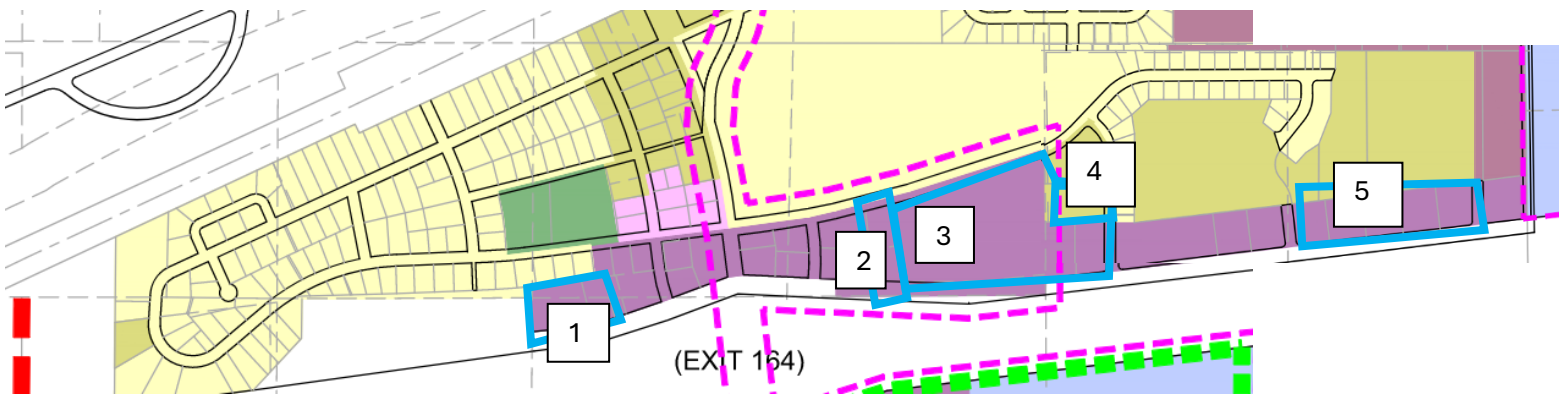
A. Land Use Projections and Trip Generation Estimate
B. Development Generated Volumes
C. Future Traffic Operations Worksheets

Attachment A – Land Use Projections and Trip Generation Estimate

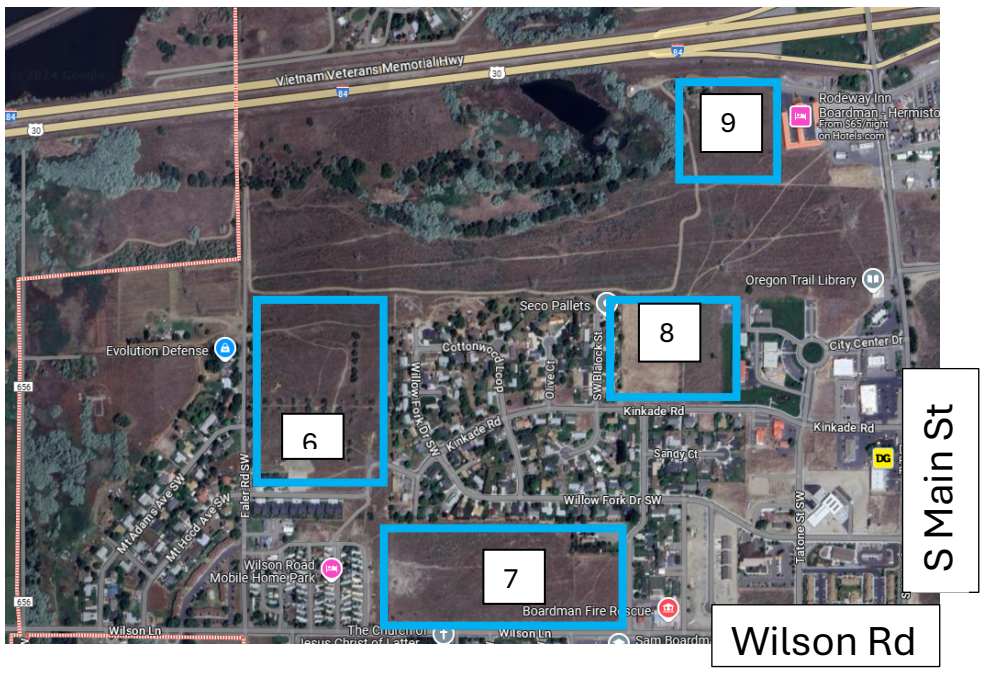


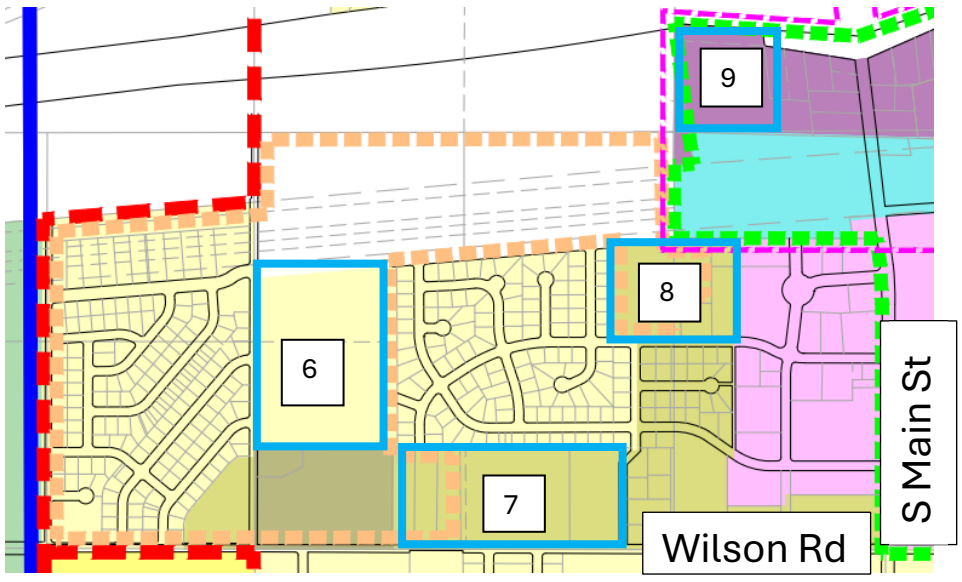




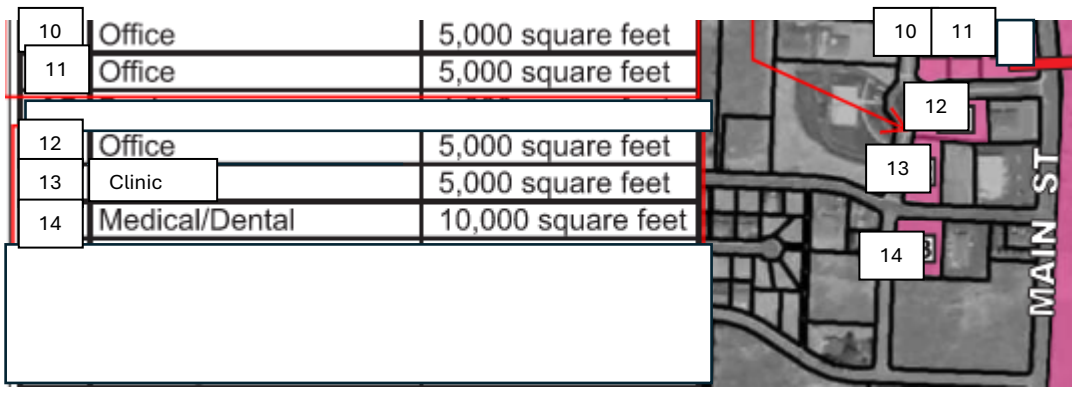


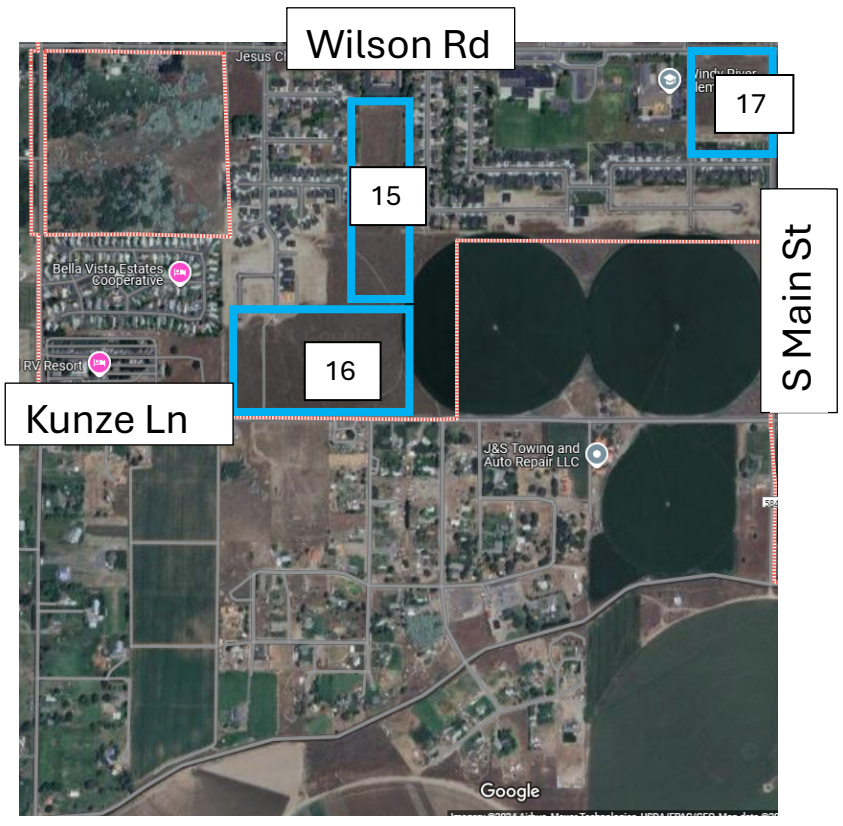
1- Motel – 60 rooms
2- Fast Food Restaurant – 3,000 SF
3- Fast Food Restaurant (High Turnover)– 5,000 SF
4- Multi-Family Residential – 25 units
5- Motel – 200 rooms

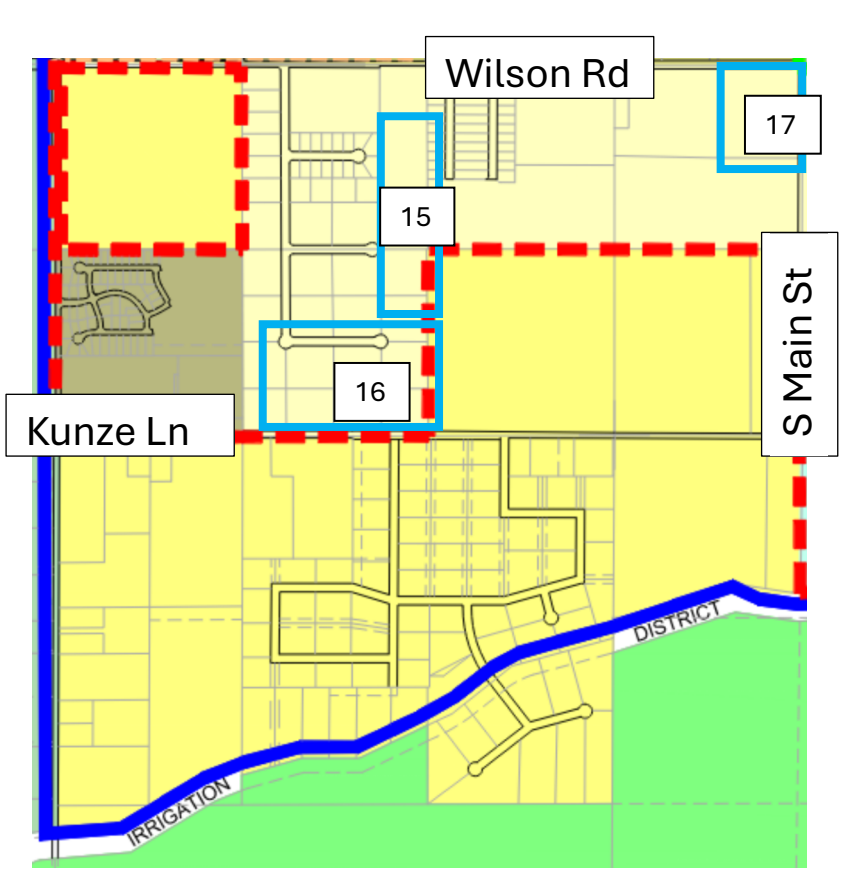




6- Single Family Residential – 64 units
7- Multi-Family Residential - 397 units
8- Multi-Family Residential – 165 units
9- Motel – 70 rooms
RV Park - 20 campsites
Restaurant – 15,000 SF

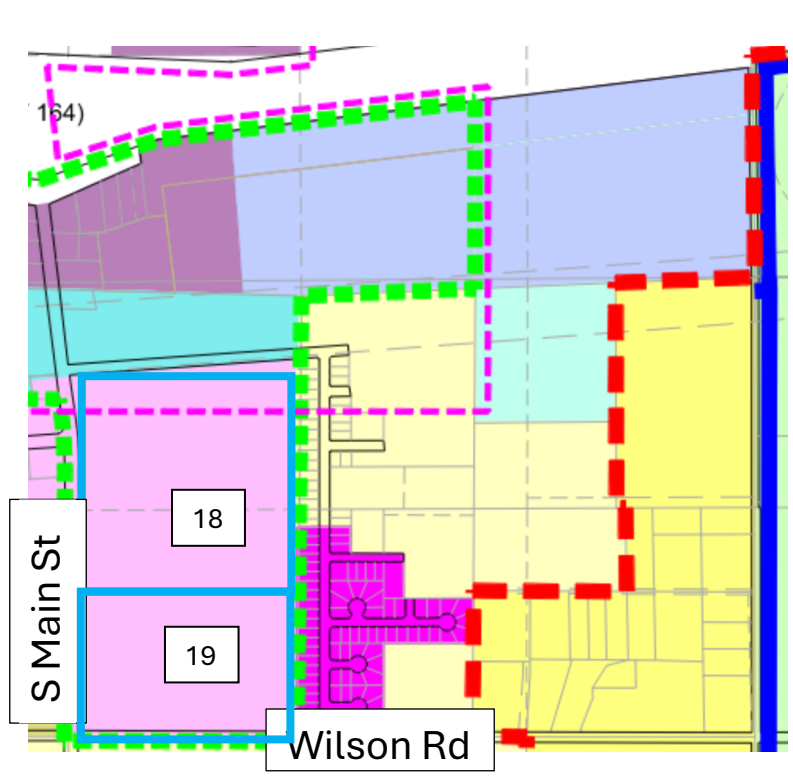






15- Single Family Residential – 31 units
16- Single Family Residential – 58 units
17- Single Family Residential – 22 units





18-Shopping Center – 40,000 S
19- Housing (Multi Family) – 120 Units

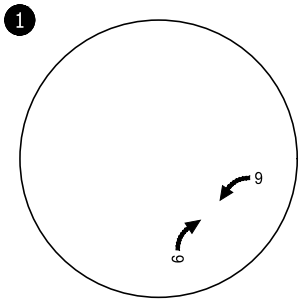
Lot Number	Land Use	ITE Code	Size (SF/units)	Daily Trips	Weekday AM Peak Hour			Weekday PM Peak Hour		
					Total	In	Out	Total	In	Out
1	Motel	320	60	188	24	10	14	25	14	11
2	Fast Food Restaurant with Drive through[1]	934	3000	1052	114	59	55	115	59	56
3	Fast Food Restaurant (High turnover)[1]	932	5,000	402	51	29	22	62	32	30
4	Multi Family Residential	220	25	236	37	9	28	45	28	17
5	Motel	320	200	695	80	33	47	82	45	37
6	Single Family Residential	210	64	669	53	14	39	69	44	25
7	Multi Family Residential	220	397	2620	167	40	127	202	125	77
8	Multi Family Residential	220	165	1133	86	21	65	104	64	40
9	Motel	320	70	224	28	11	17	29	16	13
	RV Park	416	20	-	7	3	4	8	5	3
	Fast Food Restaurant (High turnover)[1]	932	15,000	1206	154	88	66	184	94	90
10	Office	710	5,000	86	13	11	2	14	2	12
11	Office	710	5,000	86	13	11	2	14	2	12
12	Office	710	5,000	86	13	11	2	14	2	12
13	Clinic	630	5,000	214	29	17	12	34	16	18
14	Medical/Dental	720	10,000	322	38	22	16	43	17	26
15	Single Family Residential	210	31	344	29	8	21	35	22	13
16	Single Family Residential	210	58	611	48	12	36	63	40	23
17	Single Family Residential	210	22	251	23	6	17	25	16	9
18	Shopping Plaza[2]	821	40,000	2919	183	96	88	253	124	129
19	Multi Family Residential	220	120	845	70	17	53	85	53	32

[1]The number of trips was reduced by 25% to account for local trips.

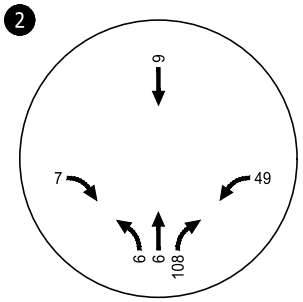
[2]The number of trips was reduced by 35% to account for local trips.

Attachment B – Development Generated Volumes

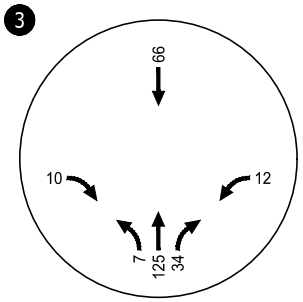
N Main Street / Marine Drive



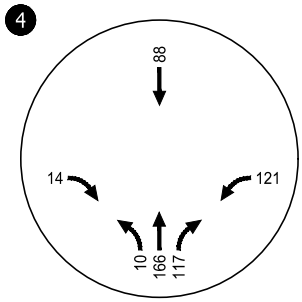
N Main Street / Columbia Avenue



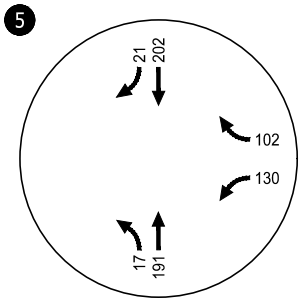
N Main Street / Boardman Avenue



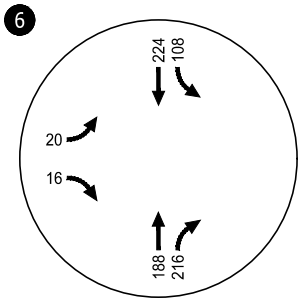
N Main Street / N Front Street



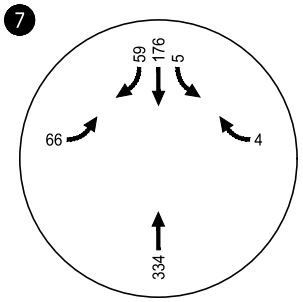
N Main Street / I-84 Westbound Ramp Terminal



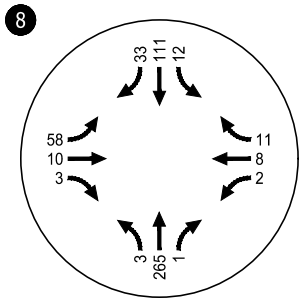
S Main Street / I-84 Eastbound Ramp Terminal



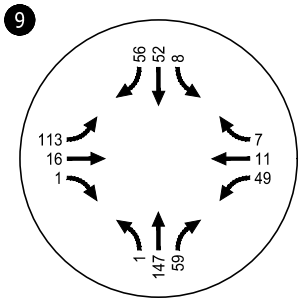
S Main Street / S Front Street



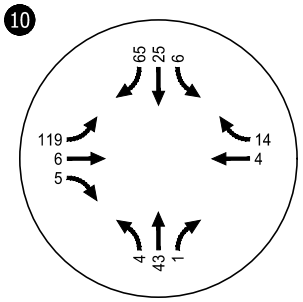
S Main Street / Oregon Trail Boulevard



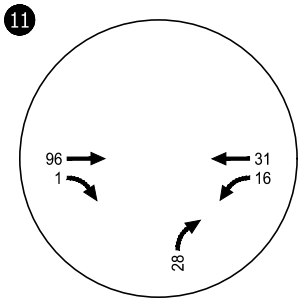
S Main Street / Kinkade Road



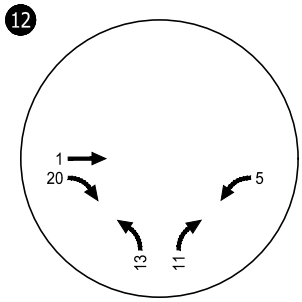
S Main Street / Wilson Lane



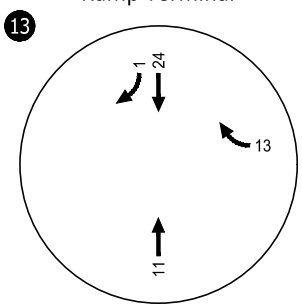
Olson Street / Columbia Avenue



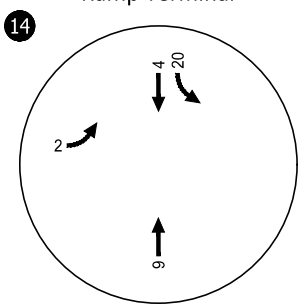
Laurel Lane / Columbia Avenue



Laurel Lane / I-84 Westbound Ramp Terminal



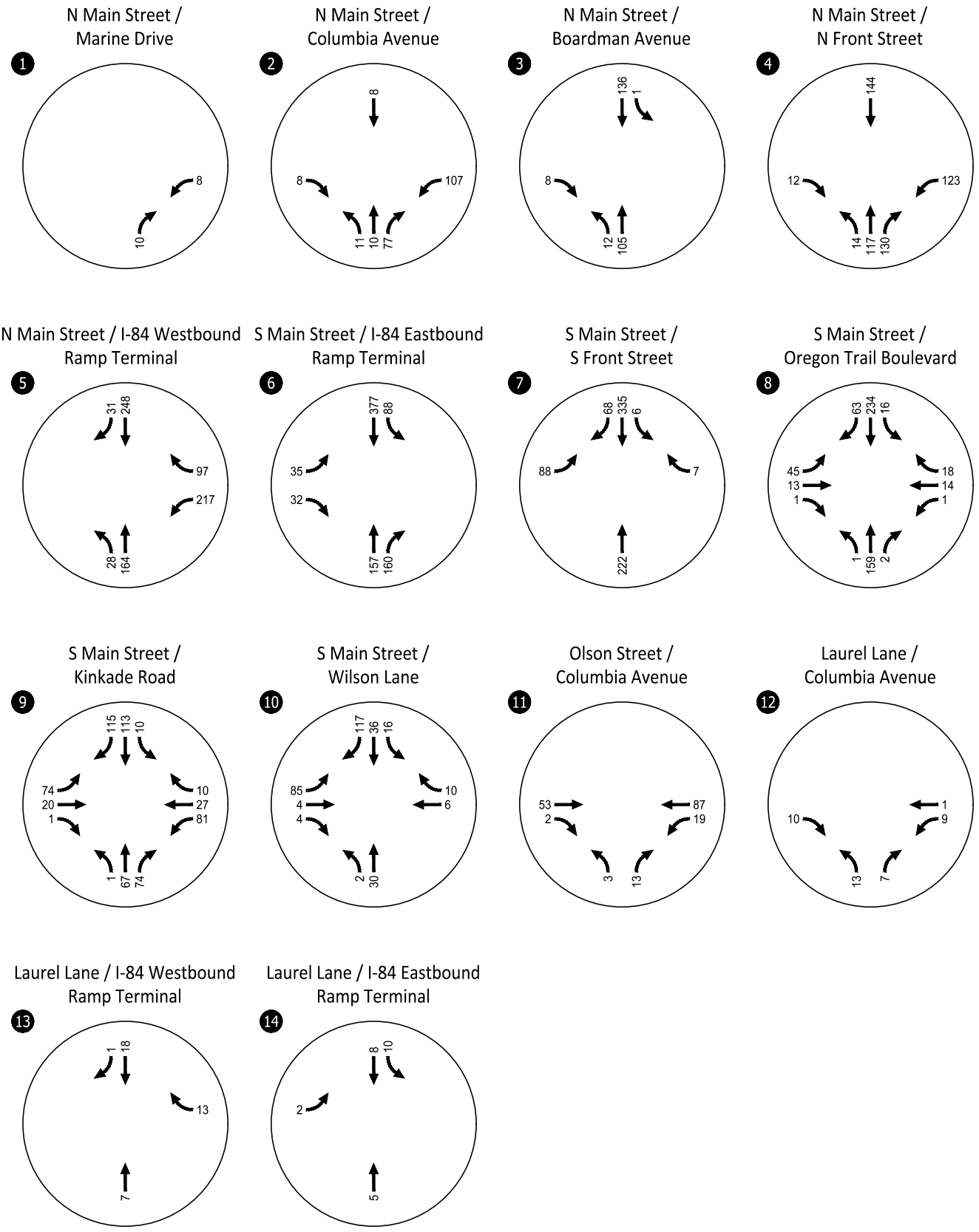
Laurel Lane / I-84 Eastbound Ramp Terminal



Year 2045 Trip Assignment
Weekday AM Peak Hour
Boardman, Oregon

Figure 1

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Year 2045 Trip Assignment
Weekday PM Peak Hour
Boardman, Oregon

Figure 2

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Attachment C – Future Traffic Operations Worksheet

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Report File: H:\...\2045 AM.pdf

Scenario 3 2045 AM
4/18/2025

Intersection Analysis Summary

ID	Intersection Name	Control Type	Method	Worst Mvmt	V/C	Delay (s/veh)	LOS
2	Main St/Columbia Ave	Two-way stop	HCM 7th Edition	WB Left	0.305	13.8	B
3	Main St/Boardman Ave	Two-way stop	HCM 7th Edition	WB Left	1.030	198.6	F
4	Main St/Front St NE	Two-way stop	HCM 7th Edition	WB Left	2.464	787.0	F
5	Main St/I-84 WB Ramp Terminal	Two-way stop	HCM 7th Edition	WB Left	3.318	1,137.9	F
6	Main St/I-84 EB Ramp Terminal	Two-way stop	HCM 7th Edition	EB Left	2.479	1,092.4	F
7	Main St/Front St SE	Two-way stop	HCM 7th Edition	EB Left	1.643	486.4	F
8	Main St/Oregon Trail Blvd	Two-way stop	HCM 7th Edition	EB Left	0.547	70.8	F
9	Main St/Kinkade Rd	Two-way stop	HCM 7th Edition	EB Left	0.870	94.5	F
10	Main St/Wilson Ln	All-way stop	HCM 7th Edition	EB Left	0.570	13.5	B
11	Olson Rd/Columbia Ave	Two-way stop	HCM 7th Edition	SB Left	0.022	13.9	B
12	Laurel Ln/Columbia Ave	Two-way stop	HCM 7th Edition	WB Left	1.699	400.9	F
13	Laurel Ln/I-84 WB Ramp Terminal	Two-way stop	HCM 7th Edition	WB Left	0.298	138.1	F
14	Laurel Ln/I-84 EB Ramp Terminal	Two-way stop	HCM 7th Edition	EB Left	0.567	44.3	E

V/C, Delay, LOS: For two-way stop, these values are taken from the movement with the worst (highest) delay value. For all other control types, they are taken for the whole intersection.

Intersection Level Of Service Report
Intersection 2: Main St/Columbia Ave

Control Type:	Two-way stop	Delay (sec / veh):	13.8
Analysis Method:	HCM 7th Edition	Level Of Service:	B
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.305

Intersection Setup

Name	Main St			Main St			Columbia Ave			Columbia Ave		
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]	850.00	100.00	100.00	150.00	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]	20.00			20.00			25.00			35.00		
Grade [%]	0.00			0.00			0.00			0.00		
Crosswalk	Yes			Yes			Yes			Yes		

Volumes

Name	Main St			Main St			Columbia Ave			Columbia Ave		
Base Volume Input [veh/h]	9	46	176	6	46	3	2	4	16	133	5	12
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	3.00	7.00	0.00	14.00	0.00	0.00	25.00	22.00	5.00	0.00	8.00
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]	9	46	176	6	46	3	2	4	16	133	5	12
Peak Hour Factor	0.7200	0.7200	0.7200	0.7200	0.7200	0.7200	0.7200	0.7200	0.7200	0.7200	0.7200	0.7200
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]	3	16	61	2	16	1	1	1	6	46	2	4
Total Analysis Volume [veh/h]	13	64	244	8	64	4	3	6	22	185	7	17
Pedestrian Volume [ped/h]	0			1			1			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	0.01	0.00	0.00	0.01	0.00	0.00	0.00	0.01	0.02	0.30	0.01	0.02
d_M, Delay for Movement [s/veh]	7.35	0.00	0.00	7.87	0.00	0.00	11.03	12.62	9.02	13.84	13.83	12.20
Movement LOS	A	A	A	A	A	A	B	B	A	B	B	B
95th-Percentile Queue Length [veh/ln]	0.03	0.00	0.00	0.02	0.00	0.00	0.13	0.13	0.13	1.48	1.48	1.48
95th-Percentile Queue Length [ft/ln]	0.64	0.00	0.00	0.48	0.00	0.00	3.17	3.17	3.17	36.98	36.98	36.98
d_A, Approach Delay [s/veh]	0.30			0.83			9.91			13.71		
Approach LOS	A			A			A			B		
d_I, Intersection Delay [s/veh]	5.23											
Intersection LOS	B											

Intersection Level Of Service Report
Intersection 3: Main St/Boardman Ave

Control Type:	Two-way stop	Delay (sec / veh):	198.6
Analysis Method:	HCM 7th Edition	Level Of Service:	F
Analysis Period:	15 minutes	Volume to Capacity (v/c):	1.030

Intersection Setup

Name	Main St			Main St			Boardman Ave			Boardman Ave		
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]	20.00			20.00			25.00			20.00		
Grade [%]	0.00			0.00			0.00			0.00		
Crosswalk	Yes			Yes			Yes			Yes		

Volumes

Name	Main St			Main St			Boardman Ave			Boardman Ave		
Base Volume Input [veh/h]	52	229	201	20	178	30	17	12	48	106	21	21
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 [%]	16.00	5.00	4.00	12.00	9.00	4.00	0.00	0.00	6.00	9.00	6.00	6.00
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]	52	229	201	20	178	30	17	12	48	106	21	21
Peak Hour Factor	0.6800	0.6800	0.6800	0.6800	0.6800	0.6800	0.6800	0.6800	0.6800	0.6800	0.6800	0.6800
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]	19	84	74	7	65	11	6	4	18	39	8	8
Total Analysis Volume [veh/h]	76	337	296	29	262	44	25	18	71	156	31	31
Pedestrian Volume [ped/h]	3			3			1			5		

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	0.06	0.00	0.00	0.03	0.00	0.00	0.15	0.10	0.10	1.03	0.15	0.05
d_M, Delay for Movement [s/veh]	8.27	0.00	0.00	9.16	0.00	0.00	33.04	30.33	15.65	198.56	191.68	181.19
Movement LOS	A	A	A	A	A	A	D	D	C	F	F	F
95th-Percentile Queue Length [veh/ln]	0.21	0.00	0.00	0.10	0.00	0.00	1.52	1.52	1.52	11.94	11.94	11.94
95th-Percentile Queue Length [ft/ln]	5.17	0.00	0.00	2.51	0.00	0.00	37.96	37.96	37.96	298.58	298.58	298.58
d_A, Approach Delay [s/veh]	0.89			0.79			21.78			195.11		
Approach LOS	A			A			C			F		
d_I, Intersection Delay [s/veh]	33.37											
Intersection LOS	F											

Intersection Level Of Service Report
Intersection 4: Main St/Front St NE

Control Type:	Two-way stop	Delay (sec / veh):	787.0
Analysis Method:	HCM 7th Edition	Level Of Service:	F
Analysis Period:	15 minutes	Volume to Capacity (v/c):	2.464

Intersection Setup

Name	Main St			Main St			Front St NE			Front St NE		
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]	50.00	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			25.00			25.00		
Grade [%]	0.00			0.00			0.00			0.00		
Crosswalk	Yes			Yes			Yes			Yes		

Volumes

Name	Main St			Main St			Front St NE			Front St NE		
Base Volume Input [veh/h]	41	475	173	5	348	5	13	6	57	158	1	11
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 [%]	8.00	6.00	6.00	25.00	8.00	0.00	0.00	0.00	8.00	16.00	0.00	11.00
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]	41	475	173	5	348	5	13	6	57	158	1	11
Peak Hour Factor	0.7500	0.7500	0.7500	0.7500	0.7500	0.7500	0.7500	0.7500	0.7500	0.7500	0.7500	0.7500
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]	14	158	58	2	116	2	4	2	19	53	0	4
Total Analysis Volume [veh/h]	55	633	231	7	464	7	17	8	76	211	1	15
Pedestrian Volume [ped/h]	0			2			1			3		

Intersection Settings

Priority Scheme	Free	Free	Stop	Stop
Flared Lane				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	0.05	0.01	0.00	0.01	0.00	0.00	0.15	0.07	0.13	2.46	0.01	0.04
d_M, Delay for Movement [s/veh]	8.59	0.00	0.00	10.31	0.00	0.00	44.57	42.80	12.11	787.02	770.32	754.13
Movement LOS	A	A	A	B	A	A	E	E	B	F	F	F
95th-Percentile Queue Length [veh/ln]	0.16	0.00	0.00	0.03	0.00	0.00	0.77	0.77	0.45	21.10	21.10	21.10
95th-Percentile Queue Length [ft/ln]	4.11	0.00	0.00	0.77	0.00	0.00	19.14	19.14	11.19	527.54	527.54	527.54
d_A, Approach Delay [s/veh]	0.51			0.15			20.01			784.77		
Approach LOS	A			A			C			F		
d_I, Intersection Delay [s/veh]	104.76											
Intersection LOS	F											

Intersection Level Of Service Report
Intersection 5: Main St/I-84 WB Ramp Terminal

Control Type:	Two-way stop	Delay (sec / veh):	1,137.9
Analysis Method:	HCM 7th Edition	Level Of Service:	F
Analysis Period:	15 minutes	Volume to Capacity (v/c):	3.318

Intersection Setup

Name	Main St			Main St						I-84 WB		
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]	30.00			30.00			30.00			45.00		
Grade [%]	0.00			0.00			0.00			0.00		
Crosswalk	Yes			Yes			Yes			Yes		

Volumes

Name	Main St			Main St						I-84 WB		
Base Volume Input [veh/h]	37	530	0	0	510	53	0	0	0	245	1	159
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 [%]	24.00	5.00	2.00	2.00	8.00	19.00	2.00	2.00	2.00	4.00	0.00	15.00
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]	37	530	0	0	510	53	0	0	0	245	1	159
Peak Hour Factor	0.7800	0.7800	1.0000	1.0000	0.7800	0.7800	1.0000	1.0000	1.0000	0.7800	0.7800	0.7800
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]	12	170	0	0	163	17	0	0	0	79	0	51
Total Analysis Volume [veh/h]	47	679	0	0	654	68	0	0	0	314	1	204
Pedestrian Volume [ped/h]	0			0			1			4		

Intersection Settings

Priority Scheme	Free	Free	Stop	Stop
Flared Lane				Yes
Storage Area [veh]	0	0	0	1
Two-Stage Gap Acceptance				No
Number of Storage Spaces in Median	0	0	0	0

Movement, Approach, & Intersection Results

V/C, Movement V/C Ratio	0.06	0.01	0.00	0.00	0.01	0.00	0.00	0.00	0.00	3.32	0.01	0.48
d_M, Delay for Movement [s/veh]	9.63	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	1137.92	1132.35	1108.33
Movement LOS	A	A			A	A				F	F	F
95th-Percentile Queue Length [veh/ln]	0.08	0.08	0.00	0.00	0.00	0.00	0.00	0.00	0.00	49.51	49.51	49.51
95th-Percentile Queue Length [ft/ln]	2.01	2.01	0.00	0.00	0.00	0.00	0.00	0.00	0.00	1237.67	1237.67	1237.67
d_A, Approach Delay [s/veh]	0.62			0.00			0.00			1126.28		
Approach LOS	A			A			A			F		
d_I, Intersection Delay [s/veh]	297.40											
Intersection LOS	F											

Intersection Level Of Service Report
Intersection 6: Main St/I-84 EB Ramp Terminal

Control Type:	Two-way stop	Delay (sec / veh):	1,092.4
Analysis Method:	HCM 7th Edition	Level Of Service:	F
Analysis Period:	15 minutes	Volume to Capacity (v/c):	2.479

Intersection Setup

Name	Main St			Main St			I-84 EB					
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]	30.00			30.00			45.00			30.00		
Grade [%]	0.00			0.00			0.00			0.00		
Crosswalk	Yes			Yes			Yes			Yes		

Volumes

Name	Main St			Main St			I-84 EB					
Base Volume Input [veh/h]	0	534	321	173	582	0	33	0	24	0	0	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	6.00	3.00	15.00	6.00	2.00	18.00	0.00	14.00	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
Total Hourly Volume [veh/h]	0	534	321	173	582	0	33	0	24	0	0	0
Peak Hour Factor	1.0000	0.8100	0.8100	0.8100	0.8100	1.0000	0.8100	0.8100	0.8100	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]	0	165	99	53	180	0	10	0	7	0	0	0
Total Analysis Volume [veh/h]	0	659	396	214	719	0	41	0	30	0	0	0
Pedestrian Volume [ped/h]	0			0			1			4		

Intersection Settings

Priority Scheme	Free	Free	Stop	Stop
Flared Lane			No	
Storage Area [veh]	0	0	0	0
Two-Stage Gap Acceptance			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	0.35	0.01	0.00	2.48	0.00	0.07	0.00	0.00	0.00
d_M, Delay for Movement [s/veh]	0.00	0.00	0.00	11.27	0.00	0.00	1092.35	1069.18	883.49	0.00	0.00	0.00
Movement LOS		A	A	B	A		F	F	F			
95th-Percentile Queue Length [veh/ln]	0.00	0.00	0.00	0.46	0.46	0.00	8.52	8.52	8.52	0.00	0.00	0.00
95th-Percentile Queue Length [ft/ln]	0.00	0.00	0.00	11.61	11.61	0.00	213.06	213.06	213.06	0.00	0.00	0.00
d_A, Approach Delay [s/veh]	0.00			2.58			1004.10			0.00		
Approach LOS	A			A			F			A		
d_I, Intersection Delay [s/veh]	35.80											
Intersection LOS	F											

Intersection Level Of Service Report
Intersection 7: Main St/Front St SE

Control Type:	Two-way stop	Delay (sec / veh):	486.4
Analysis Method:	HCM 7th Edition	Level Of Service:	F
Analysis Period:	15 minutes	Volume to Capacity (v/c):	1.643

Intersection Setup

Name	Main St			Main St			Front St SE			Front St SE		
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	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			25.00			25.00		
Grade [%]	0.00			0.00			0.00			0.00		
Crosswalk	Yes			Yes			Yes			Yes		

Volumes

Name	Main St			Main St			Front St SE			Front St SE		
Base Volume Input [veh/h]	0	761	13	24	523	59	70	0	0	14	0	24
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	5.00	0.00	0.00	6.00	0.00	33.00	0.00	0.00	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]	0	761	13	24	523	59	70	0	0	14	0	24
Peak Hour Factor	0.8100	0.8100	0.8100	0.8100	0.8100	0.8100	0.8100	0.8100	0.8100	0.8100	0.8100	0.8100
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	235	4	7	161	18	22	0	0	4	0	7
Total Analysis Volume [veh/h]	0	940	16	30	646	73	86	0	0	17	0	30
Pedestrian Volume [ped/h]	0			0			1			4		

Intersection Settings

Priority Scheme	Free	Free	Stop	Stop
Flared Lane			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	0.00	0.01	0.00	0.04	0.01	0.00	1.64	0.00	0.00	0.24	0.00	0.09
d_M, Delay for Movement [s/veh]	9.04	0.00	0.00	10.20	0.00	0.00	486.44	458.43	425.63	71.15	62.80	17.58
Movement LOS	A	A	A	B	A	A	F	F	F	F	F	C
95th-Percentile Queue Length [veh/ln]	0.00	0.00	0.00	0.13	0.00	0.00	8.16	8.16	8.16	0.84	0.84	0.31
95th-Percentile Queue Length [ft/ln]	0.00	0.00	0.00	3.25	0.00	0.00	204.00	204.00	204.00	21.04	21.04	7.80
d_A, Approach Delay [s/veh]	0.00			0.41			486.44			36.95		
Approach LOS	A			A			F			E		
d_I, Intersection Delay [s/veh]	23.87											
Intersection LOS	F											

Intersection Level Of Service Report
Intersection 8: Main St/Oregon Trail Blvd

Control Type:	Two-way stop	Delay (sec / veh):	70.8
Analysis Method:	HCM 7th Edition	Level Of Service:	F
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.547

Intersection Setup

Name	Main St			Main St			Oregon Trail Blvd			Oregon Trail Blvd		
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]	30.00			30.00			30.00			25.00		
Grade [%]	0.00			0.00			0.00			0.00		
Crosswalk	Yes			Yes			Yes			Yes		

Volumes

Name	Main St			Main St			Oregon Trail Blvd			Oregon Trail Blvd		
Base Volume Input [veh/h]	3	604	1	23	402	33	58	10	3	2	8	34
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	4.00	0.00	18.00	5.00	0.00	0.00	0.00	0.00	0.00	0.00	9.00
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]	3	604	1	23	402	33	58	10	3	2	8	34
Peak Hour Factor	0.8700	0.8700	0.8700	0.8700	0.8700	0.8700	0.8700	0.8700	0.8700	0.8700	0.8700	0.8700
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]	1	174	0	7	116	9	17	3	1	1	2	10
Total Analysis Volume [veh/h]	3	694	1	26	462	38	67	11	3	2	9	39
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	0.00	0.01	0.00	0.03	0.00	0.00	0.55	0.06	0.01	0.01	0.05	0.09
d_M, Delay for Movement [s/veh]	8.35	0.00	0.00	9.36	0.00	0.00	70.81	62.65	47.54	33.60	28.94	15.53
Movement LOS	A	A	A	A	A	A	F	F	E	D	D	C
95th-Percentile Queue Length [veh/ln]	0.01	0.01	0.01	0.04	0.04	0.04	3.20	3.20	3.20	0.56	0.56	0.56
95th-Percentile Queue Length [ft/ln]	0.13	0.13	0.13	1.12	1.12	1.12	80.01	80.01	80.01	14.01	14.01	14.01
d_A, Approach Delay [s/veh]	0.04			0.46			68.84			18.67		
Approach LOS	A			A			F			C		
d_I, Intersection Delay [s/veh]	5.00											
Intersection LOS	F											

Intersection Level Of Service Report
Intersection 9: Main St/Kinkade Rd

Control Type:	Two-way stop	Delay (sec / veh):	94.5
Analysis Method:	HCM 7th Edition	Level Of Service:	F
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.870

Intersection Setup

Name	Main St			Main St			Kinkade Rd			Kinkade Rd		
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]	30.00			30.00			25.00			30.00		
Grade [%]	0.00			0.00			0.00			0.00		
Crosswalk	Yes			Yes			Yes			Yes		

Volumes

Name	Main St			Main St			Kinkade Rd			Kinkade Rd		
Base Volume Input [veh/h]	11	421	59	8	261	103	175	16	18	49	11	7
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 [%]	10.00	5.00	0.00	0.00	5.00	4.00	0.00	0.00	6.00	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]	11	421	59	8	261	103	175	16	18	49	11	7
Peak Hour Factor	0.8800	0.8800	0.8800	0.8800	0.8800	0.8800	0.8800	0.8800	0.8800	0.8800	0.8800	0.8800
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]	3	120	17	2	74	29	50	5	5	14	3	2
Total Analysis Volume [veh/h]	13	478	67	9	297	117	199	18	20	56	13	8
Pedestrian Volume [ped/h]	0			0			2			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	0.01	0.00	0.00	0.01	0.00	0.00	0.87	0.07	0.03	0.26	0.05	0.01
d_M, Delay for Movement [s/veh]	8.29	0.00	0.00	8.49	0.00	0.00	94.48	92.84	84.06	28.42	26.58	18.36
Movement LOS	A	A	A	A	A	A	F	F	F	D	D	C
95th-Percentile Queue Length [veh/ln]	0.02	0.02	0.02	0.02	0.02	0.02	8.98	8.98	8.98	1.34	1.34	1.34
95th-Percentile Queue Length [ft/ln]	0.56	0.56	0.56	0.40	0.40	0.40	224.53	224.53	224.53	33.45	33.45	33.45
d_A, Approach Delay [s/veh]	0.19			0.18			93.48			27.07		
Approach LOS	A			A			F			D		
d_I, Intersection Delay [s/veh]	18.86											
Intersection LOS	F											

Intersection Level Of Service Report
Intersection 10: Main St/Wilson Ln

Control Type:	All-way stop	Delay (sec / veh):	13.5
Analysis Method:	HCM 7th Edition	Level Of Service:	B
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.570

Intersection Setup

Name	Main St			Main St			Wilson Ln			Wilson 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]	35.00			30.00			20.00			30.00		
Grade [%]	0.00			0.00			0.00			0.00		
Crosswalk	Yes			Yes			Yes			Yes		

Volumes

Name	Main St			Main St			Wilson Ln			Wilson Ln		
Base Volume Input [veh/h]	10	125	8	34	61	193	281	29	11	3	48	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 [%]	50.00	4.00	0.00	11.00	14.00	4.00	5.00	0.00	0.00	0.00	2.00	7.00
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]	10	125	8	34	61	193	281	29	11	3	48	41
Peak Hour Factor	0.8900	0.8900	0.8900	0.8900	0.8900	0.8900	0.8900	0.8900	0.8900	0.8900	0.8900	0.8900
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]	3	35	2	10	17	54	79	8	3	1	13	12
Total Analysis Volume [veh/h]	11	140	9	38	69	217	316	33	12	3	54	46
Pedestrian Volume [ped/h]	0			2			0			0		

Intersection Settings

Lanes

Capacity per Entry Lane [veh/h]	606	678	634	625
Degree of Utilization, x	0.26	0.48	0.57	0.17

Movement, Approach, & Intersection Results

95th-Percentile Queue Length [veh]	1.06	2.59	3.59	0.59
95th-Percentile Queue Length [ft]	26.40	64.87	89.85	14.69
Approach Delay [s/veh]	11.06	13.08	15.94	9.91
Approach LOS	B	B	C	A
Intersection Delay [s/veh]	13.48			
Intersection LOS	B			

Intersection Level Of Service Report
Intersection 11: Olson Rd/Columbia Ave

Control Type:	Two-way stop	Delay (sec / veh):	13.9
Analysis Method:	HCM 7th Edition	Level Of Service:	B
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.022

Intersection Setup

Name	Olson Rd			Olson Rd			Columbia Ave			Columbia Ave		
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	1	0	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	150.00	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			40.00			40.00		
Grade [%]	0.00			0.00			0.00			0.00		
Crosswalk	Yes			Yes			Yes			Yes		

Volumes

Name	Olson Rd			Olson Rd			Columbia Ave			Columbia Ave		
Base Volume Input [veh/h]	10	0	45	8	0	3	3	167	6	43	94	7
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 [%]	20.00	0.00	12.00	62.00	0.00	0.00	0.00	4.00	0.00	7.00	8.00	57.00
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]	10	0	45	8	0	3	3	167	6	43	94	7
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]	3	0	12	2	0	1	1	45	2	12	26	2
Total Analysis Volume [veh/h]	11	0	49	9	0	3	3	182	7	47	102	8
Pedestrian Volume [ped/h]	0			0			0			0		

Intersection Settings

Priority Scheme	Stop	Stop	Free	Free
Flared Lane		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	0.02	0.00	0.06	0.02	0.00	0.00	0.00	0.00	0.00	0.03	0.00	0.00
d_M, Delay for Movement [s/veh]	12.11	11.98	9.58	13.91	12.05	8.97	7.42	0.00	0.00	7.75	0.00	0.00
Movement LOS	B	B	A	B	B	A	A	A	A	A	A	A
95th-Percentile Queue Length [veh/ln]	0.07	0.07	0.19	0.08	0.08	0.08	0.01	0.00	0.00	0.11	0.00	0.00
95th-Percentile Queue Length [ft/ln]	1.63	1.63	4.66	1.92	1.92	1.92	0.15	0.00	0.00	2.69	0.00	0.00
d_A, Approach Delay [s/veh]	10.04			12.67			0.12			2.32		
Approach LOS	B			B			A			A		
d_I, Intersection Delay [s/veh]	2.71											
Intersection LOS	B											

Intersection Level Of Service Report
Intersection 12: Laurel Ln/Columbia Ave

Control Type:	Two-way stop	Delay (sec / veh):	400.9
Analysis Method:	HCM 7th Edition	Level Of Service:	F
Analysis Period:	15 minutes	Volume to Capacity (v/c):	1.699

Intersection Setup

Name	Laurel Ln						Columbia Ave			Columbia Ave		
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]	30.00			30.00			40.00			40.00		
Grade [%]	0.00			0.00			0.00			0.00		
Crosswalk	Yes			No			Yes			Yes		

Volumes

Name	Laurel Ln						Columbia Ave			Columbia Ave		
Base Volume Input [veh/h]	0	689	0	0	0	0	0	45	97	162	29	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 [%]	17.00	9.00	22.00	2.00	2.00	2.00	2.00	4.00	13.00	41.00	31.00	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
Total Hourly Volume [veh/h]	0	689	0	0	0	0	0	45	97	162	29	0
Peak Hour Factor	0.8400	0.7000	0.8400	1.0000	1.0000	1.0000	1.0000	0.7000	0.8400	0.7000	0.8400	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]	0	246	0	0	0	0	0	16	29	58	9	0
Total Analysis Volume [veh/h]	0	984	0	0	0	0	0	64	115	231	35	0
Pedestrian Volume [ped/h]	0			0			0			0		

Intersection Settings

Priority Scheme	Free	Free	Stop	Stop
Flared Lane				
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	0.00	0.01	0.00	0.00	0.00	0.00	0.00	0.26	0.00	1.70	0.00	0.00
d_M, Delay for Movement [s/veh]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	24.65	0.00	400.89	0.00	0.00
Movement LOS		A						C		F		
95th-Percentile Queue Length [veh/ln]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	1.01	0.00	16.98	0.00	0.00
95th-Percentile Queue Length [ft/ln]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	25.19	0.00	424.55	0.00	0.00
d_A, Approach Delay [s/veh]	0.00			0.00			24.65			400.89		
Approach LOS	A			A			C			F		
d_I, Intersection Delay [s/veh]	73.64											
Intersection LOS	F											

Intersection Level Of Service Report
Intersection 13: Laurel Ln/I-84 WB Ramp Terminal

Control Type:	Two-way stop	Delay (sec / veh):	138.1
Analysis Method:	HCM 7th Edition	Level Of Service:	F
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.298

Intersection Setup

Name	Laurel Ln			Laurel Ln			I-84 WB			I-84 WB		
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]	30.00			30.00			30.00			45.00		
Grade [%]	0.00			0.00			0.00			0.00		
Crosswalk	Yes			Yes			Yes			Yes		

Volumes

Name	Laurel Ln			Laurel Ln			I-84 WB			I-84 WB		
Base Volume Input [veh/h]	49	183	0	0	281	41	0	0	0	59	0	506
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 [%]	17.00	14.00	2.00	2.00	25.00	67.00	2.00	2.00	2.00	3.00	0.00	8.00
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]	49	183	0	0	281	41	0	0	0	59	0	506
Peak Hour Factor	0.7200	0.7200	1.0000	1.0000	0.7200	0.7200	1.0000	1.0000	1.0000	0.7200	0.7200	0.7200
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]	17	64	0	0	98	14	0	0	0	20	0	176
Total Analysis Volume [veh/h]	68	254	0	0	390	57	0	0	0	82	0	703
Pedestrian Volume [ped/h]	0			0			0			0		

Intersection Settings

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

Movement, Approach, & Intersection Results

V/C, Movement V/C Ratio	0.07	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.30	0.00	0.91
d_M, Delay for Movement [s/veh]	8.55	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	138.06	137.76	129.66
Movement LOS	A	A			A	A				F	F	F
95th-Percentile Queue Length [veh/ln]	0.12	0.12	0.00	0.00	0.00	0.00	0.00	0.00	0.00	27.70	27.70	27.70
95th-Percentile Queue Length [ft/ln]	2.94	2.94	0.00	0.00	0.00	0.00	0.00	0.00	0.00	692.47	692.47	692.47
d_A, Approach Delay [s/veh]	1.80			0.00			0.00			130.54		
Approach LOS	A			A			A			F		
d_I, Intersection Delay [s/veh]	66.31											
Intersection LOS	F											

Intersection Level Of Service Report
Intersection 14: Laurel Ln/I-84 EB Ramp Terminal

Control Type:	Two-way stop	Delay (sec / veh):	44.3
Analysis Method:	HCM 7th Edition	Level Of Service:	E
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.567

Intersection Setup

Name	Laurel Ln			Laurel Ln			I-84 EB					
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]	30.00			30.00			45.00			30.00		
Grade [%]	0.00			0.00			0.00			0.00		
Crosswalk	Yes			Yes			Yes			Yes		

Volumes

Name	Laurel Ln			Laurel Ln			I-84 EB					
Base Volume Input [veh/h]	0	135	98	231	109	0	97	0	55	0	0	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	9.00	11.00	29.00	4.00	2.00	21.00	0.00	17.00	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
Total Hourly Volume [veh/h]	0	135	98	231	109	0	97	0	55	0	0	0
Peak Hour Factor	1.0000	0.8800	0.8800	0.8800	0.8800	1.0000	0.8800	0.8800	0.8800	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]	0	38	28	66	31	0	28	0	16	0	0	0
Total Analysis Volume [veh/h]	0	153	111	263	124	0	110	0	63	0	0	0
Pedestrian Volume [ped/h]	0			0			0			0		

Intersection Settings

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

Movement, Approach, & Intersection Results

V/C, Movement V/C Ratio	0.00	0.00	0.00	0.23	0.00	0.00	0.57	0.00	0.07	0.00	0.00	0.00
d_M, Delay for Movement [s/veh]	0.00	0.00	0.00	8.56	0.00	0.00	44.26	43.01	29.77	0.00	0.00	0.00
Movement LOS		A	A	A	A		E	E	D			
95th-Percentile Queue Length [veh/ln]	0.00	0.00	0.00	0.59	0.59	0.00	3.99	3.99	3.99	0.00	0.00	0.00
95th-Percentile Queue Length [ft/ln]	0.00	0.00	0.00	14.84	14.84	0.00	99.64	99.64	99.64	0.00	0.00	0.00
d_A, Approach Delay [s/veh]	0.00			5.81			38.98			0.00		
Approach LOS	A			A			E			A		
d_I, Intersection Delay [s/veh]	10.91											
Intersection LOS	E											

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Report File: H:\...\2045 PM.pdf

Scenario 4 2045 PM
4/18/2025

Intersection Analysis Summary

ID	Intersection Name	Control Type	Method	Worst Mvmt	V/C	Delay (s/veh)	LOS
2	Main St/Columbia Ave	Two-way stop	HCM 7th Edition	WB Thru	0.030	17.6	C
3	Main St/Boardman Ave	Two-way stop	HCM 7th Edition	WB Left	0.245	39.6	E
4	Main St/Front St NE	Two-way stop	HCM 7th Edition	WB Left	2.576	849.6	F
5	Main St/I-84 WB Ramp Terminal	Two-way stop	HCM 7th Edition	WB Left	5.071	1,921.6	F
6	Main St/I-84 EB Ramp Terminal	Two-way stop	HCM 7th Edition	EB Left	7.648	3,546.9	F
7	Main St/Front St SE	Two-way stop	HCM 7th Edition	EB Left	2.393	853.3	F
8	Main St/Oregon Trail Blvd	Two-way stop	HCM 7th Edition	EB Left	0.641	136.0	F
9	Main St/Kinkade Rd	Two-way stop	HCM 7th Edition	EB Left	1.015	167.4	F
10	Main St/Wilson Ln	All-way stop	HCM 7th Edition	SB Right	0.696	15.2	C
11	Olson Rd/Columbia Ave	Two-way stop	HCM 7th Edition	SB Left	0.016	14.9	B
12	Laurel Ln/Columbia Ave	Two-way stop	HCM 7th Edition	WB Left	0.546	16.8	C
13	Laurel Ln/I-84 WB Ramp Terminal	Two-way stop	HCM 7th Edition	WB Left	0.451	32.0	D
14	Laurel Ln/I-84 EB Ramp Terminal	Two-way stop	HCM 7th Edition	EB Left	0.595	118.9	F

V/C, Delay, LOS: For two-way stop, these values are taken from the movement with the worst (highest) delay value. For all other control types, they are taken for the whole intersection.

Intersection Level Of Service Report
Intersection 2: Main St/Columbia Ave

Control Type:	Two-way stop	Delay (sec / veh):	17.6
Analysis Method:	HCM 7th Edition	Level Of Service:	C
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.030

Intersection Setup

Name	Main St			Main St			Columbia Ave			Columbia Ave		
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]	850.00	100.00	100.00	150.00	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]	20.00			20.00			25.00			35.00		
Grade [%]	0.00			0.00			0.00			0.00		
Crosswalk	Yes			Yes			Yes			Yes		

Volumes

Name	Main St			Main St			Columbia Ave			Columbia Ave		
Base Volume Input [veh/h]	23	46	160	7	49	1	5	10	23	261	15	6
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	4.00	0.00	2.00	0.00	20.00	10.00	0.00	1.00	7.00	17.00
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]	23	46	160	7	49	1	5	10	23	261	15	6
Peak Hour Factor	0.8500	0.8500	0.8500	0.8500	0.8500	0.8500	0.8500	0.8500	0.8500	0.8500	0.8500	0.8500
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	14	47	2	14	0	1	3	7	77	4	2
Total Analysis Volume [veh/h]	27	54	188	8	58	1	6	12	27	307	18	7
Pedestrian Volume [ped/h]	0			0			1			1		

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	0.02	0.00	0.00	0.01	0.00	0.00	0.01	0.02	0.03	0.50	0.03	0.01
d_M, Delay for Movement [s/veh]	7.36	0.00	0.00	7.72	0.00	0.00	11.40	12.07	8.86	17.59	17.64	15.88
Movement LOS	A	A	A	A	A	A	B	B	A	C	C	C
95th-Percentile Queue Length [veh/ln]	0.05	0.00	0.00	0.02	0.00	0.00	0.19	0.19	0.19	3.24	3.24	3.24
95th-Percentile Queue Length [ft/ln]	1.32	0.00	0.00	0.45	0.00	0.00	4.73	4.73	4.73	80.90	80.90	80.90
d_A, Approach Delay [s/veh]	0.74			0.92			10.06			17.55		
Approach LOS	A			A			B			C		
d_I, Intersection Delay [s/veh]	9.17											
Intersection LOS	C											

Intersection Level Of Service Report
Intersection 3: Main St/Boardman Ave

Control Type:	Two-way stop	Delay (sec / veh):	39.6
Analysis Method:	HCM 7th Edition	Level Of Service:	E
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.245

Intersection Setup

Name	Main St			Main St			Boardman Ave			Boardman Ave		
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]	20.00			20.00			25.00			20.00		
Grade [%]	0.00			0.00			0.00			0.00		
Crosswalk	Yes			Yes			Yes			Yes		

Volumes

Name	Main St			Main St			Boardman Ave			Boardman Ave		
Base Volume Input [veh/h]	127	256	42	13	378	29	12	2	91	33	11	8
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 [%]	3.00	2.00	17.00	10.00	2.00	0.00	0.00	0.00	3.00	0.00	11.00	14.00
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]	127	256	42	13	378	29	12	2	91	33	11	8
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]	34	69	11	3	102	8	3	1	24	9	3	2
Total Analysis Volume [veh/h]	137	275	45	14	406	31	13	2	98	35	12	9
Pedestrian Volume [ped/h]	1			0			0			5		

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	0.12	0.00	0.00	0.01	0.00	0.00	0.08	0.01	0.16	0.24	0.06	0.01
d_M, Delay for Movement [s/veh]	8.67	0.00	0.00	8.07	0.00	0.00	28.32	25.61	13.16	39.56	33.23	19.50
Movement LOS	A	A	A	A	A	A	D	D	B	E	D	C
95th-Percentile Queue Length [veh/ln]	0.42	0.00	0.00	0.04	0.00	0.00	0.94	0.94	0.94	1.30	1.30	1.30
95th-Percentile Queue Length [ft/ln]	10.44	0.00	0.00	0.90	0.00	0.00	23.38	23.38	23.38	32.48	32.48	32.48
d_A, Approach Delay [s/veh]	2.60			0.25			15.12			34.98		
Approach LOS	A			A			C			D		
d_I, Intersection Delay [s/veh]	4.61											
Intersection LOS	E											

Intersection Level Of Service Report
Intersection 4: Main St/Front St NE

Control Type:	Two-way stop	Delay (sec / veh):	849.6
Analysis Method:	HCM 7th Edition	Level Of Service:	F
Analysis Period:	15 minutes	Volume to Capacity (v/c):	2.576

Intersection Setup

Name	Main St			Main St			Front St NE			Front St NE		
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]	50.00	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			25.00			25.00		
Grade [%]	0.00			0.00			0.00			0.00		
Crosswalk	Yes			Yes			Yes			Yes		

Volumes

Name	Main St			Main St			Front St NE			Front St NE		
Base Volume Input [veh/h]	79	453	208	6	537	8	7	0	95	188	5	6
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 [%]	4.00	4.00	3.00	0.00	2.00	0.00	0.00	0.00	3.00	4.00	0.00	40.00
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]	79	453	208	6	537	8	7	0	95	188	5	6
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]	21	123	57	2	146	2	2	0	26	51	1	2
Total Analysis Volume [veh/h]	86	492	226	7	584	9	8	0	103	204	5	7
Pedestrian Volume [ped/h]	0			5			0			3		

Intersection Settings

Priority Scheme	Free	Free	Stop	Stop
Flared Lane				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	0.09	0.00	0.00	0.01	0.01	0.00	0.08	0.00	0.20	2.58	0.04	0.02
d_M, Delay for Movement [s/veh]	9.06	0.00	0.00	9.09	0.00	0.00	42.86	40.18	13.91	849.56	831.83	812.54
Movement LOS	A	A	A	A	A	A	E	E	B	F	F	F
95th-Percentile Queue Length [veh/ln]	0.29	0.00	0.00	0.02	0.00	0.00	0.25	0.25	0.75	20.66	20.66	20.66
95th-Percentile Queue Length [ft/ln]	7.25	0.00	0.00	0.60	0.00	0.00	6.19	6.19	18.86	516.50	516.50	516.50
d_A, Approach Delay [s/veh]	0.97			0.11			16.00			847.95		
Approach LOS	A			A			C			F		
d_I, Intersection Delay [s/veh]	107.32											
Intersection LOS	F											

Intersection Level Of Service Report
Intersection 5: Main St/I-84 WB Ramp Terminal

Control Type:	Two-way stop	Delay (sec / veh):	1,921.6
Analysis Method:	HCM 7th Edition	Level Of Service:	F
Analysis Period:	15 minutes	Volume to Capacity (v/c):	5.071

Intersection Setup

Name	Main St			Main St						I-84 WB		
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]	30.00			30.00			30.00			45.00		
Grade [%]	0.00			0.00			0.00			0.00		
Crosswalk	Yes			Yes			Yes			Yes		

Volumes

Name	Main St			Main St						I-84 WB		
Base Volume Input [veh/h]	48	519	0	0	743	77	0	0	0	400	0	221
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 [%]	6.00	3.00	2.00	2.00	2.00	8.00	2.00	2.00	2.00	4.00	0.00	5.00
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]	48	519	0	0	743	77	0	0	0	400	0	221
Peak Hour Factor	0.9200	0.9200	1.0000	1.0000	0.9200	0.9200	1.0000	1.0000	1.0000	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]	13	141	0	0	202	21	0	0	0	109	0	60
Total Analysis Volume [veh/h]	52	564	0	0	808	84	0	0	0	435	0	240
Pedestrian Volume [ped/h]	0			0			0			4		

Intersection Settings

Priority Scheme	Free	Free	Stop	Stop
Flared Lane				Yes
Storage Area [veh]	0	0	0	1
Two-Stage Gap Acceptance				No
Number of Storage Spaces in Median	0	0	0	0

Movement, Approach, & Intersection Results

V/C, Movement V/C Ratio	0.07	0.01	0.00	0.00	0.01	0.00	0.00	0.00	0.00	5.07	0.00	0.47
d_M, Delay for Movement [s/veh]	9.90	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	1921.61	1915.35	1886.64
Movement LOS	A	A			A	A				F	F	F
95th-Percentile Queue Length [veh/ln]	0.09	0.09	0.00	0.00	0.00	0.00	0.00	0.00	0.00	71.35	71.35	71.35
95th-Percentile Queue Length [ft/ln]	2.23	2.23	0.00	0.00	0.00	0.00	0.00	0.00	0.00	1783.82	1783.82	1783.82
d_A, Approach Delay [s/veh]	0.84			0.00			0.00			1909.18		
Approach LOS	A			A			A			F		
d_I, Intersection Delay [s/veh]	590.57											
Intersection LOS	F											

Intersection Level Of Service Report
Intersection 6: Main St/I-84 EB Ramp Terminal

Control Type:	Two-way stop	Delay (sec / veh):	3,546.9
Analysis Method:	HCM 7th Edition	Level Of Service:	F
Analysis Period:	15 minutes	Volume to Capacity (v/c):	7.648

Intersection Setup

Name	Main St			Main St			I-84 EB					
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]	30.00			30.00			45.00			30.00		
Grade [%]	0.00			0.00			0.00			0.00		
Crosswalk	Yes			Yes			Yes			Yes		

Volumes

Name	Main St			Main St			I-84 EB					
Base Volume Input [veh/h]	0	459	336	194	949	0	108	0	99	0	0	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	3.00	3.00	2.00	2.00	2.00	7.00	0.00	9.00	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
Total Hourly Volume [veh/h]	0	459	336	194	949	0	108	0	99	0	0	0
Peak Hour Factor	1.0000	0.9400	0.9400	0.9400	0.9400	1.0000	0.9400	0.9400	0.9400	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]	0	122	89	52	252	0	29	0	26	0	0	0
Total Analysis Volume [veh/h]	0	488	357	206	1010	0	115	0	105	0	0	0
Pedestrian Volume [ped/h]	0			0			0			4		

Intersection Settings

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

Movement, Approach, & Intersection Results

V/C, Movement V/C Ratio	0.00	0.00	0.00	0.26	0.01	0.00	7.65	0.00	0.37	0.00	0.00	0.00
d_M, Delay for Movement [s/veh]	0.00	0.00	0.00	9.84	0.00	0.00	3546.88	3526.84	3320.22	0.00	0.00	0.00
Movement LOS		A	A	A	A		F	F	F			
95th-Percentile Queue Length [veh/ln]	0.00	0.00	0.00	0.39	0.39	0.00	27.11	27.11	27.11	0.00	0.00	0.00
95th-Percentile Queue Length [ft/ln]	0.00	0.00	0.00	9.67	9.67	0.00	677.85	677.85	677.85	0.00	0.00	0.00
d_A, Approach Delay [s/veh]	0.00			1.67			3438.70			0.00		
Approach LOS	A			A			F			A		
d_I, Intersection Delay [s/veh]	332.55											
Intersection LOS	F											

Intersection Level Of Service Report
Intersection 7: Main St/Front St SE

Control Type:	Two-way stop	Delay (sec / veh):	853.3
Analysis Method:	HCM 7th Edition	Level Of Service:	F
Analysis Period:	15 minutes	Volume to Capacity (v/c):	2.393

Intersection Setup

Name	Main St			Main St			Front St SE			Front St SE		
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	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			25.00			25.00		
Grade [%]	0.00			0.00			0.00			0.00		
Crosswalk	Yes			Yes			Yes			Yes		

Volumes

Name	Main St			Main St			Front St SE			Front St SE		
Base Volume Input [veh/h]	5	652	32	56	909	83	94	2	2	24	1	49
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	12.00	2.00	8.00	0.00	0.00	0.00	0.00	0.00	9.00
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]	5	652	32	56	909	83	94	2	2	24	1	49
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]	1	175	9	15	244	22	25	1	1	6	0	13
Total Analysis Volume [veh/h]	5	701	34	60	977	89	101	2	2	26	1	53
Pedestrian Volume [ped/h]	0			0			0			4		

Intersection Settings

Priority Scheme	Free	Free	Stop	Stop
Flared Lane			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	0.01	0.01	0.00	0.07	0.01	0.00	2.39	0.03	0.01	0.53	0.02	0.13
d_M, Delay for Movement [s/veh]	10.48	0.00	0.00	9.73	0.00	0.00	853.33	823.51	780.49	145.35	129.39	14.98
Movement LOS	B	A	A	A	A	A	F	F	F	F	F	B
95th-Percentile Queue Length [veh/ln]	0.02	0.00	0.00	0.24	0.00	0.00	11.23	11.23	11.23	2.08	2.08	0.44
95th-Percentile Queue Length [ft/ln]	0.57	0.00	0.00	5.90	0.00	0.00	280.76	280.76	280.76	52.03	52.03	10.91
d_A, Approach Delay [s/veh]	0.07			0.52			851.37			58.78		
Approach LOS	A			A			F			F		
d_I, Intersection Delay [s/veh]	46.19											
Intersection LOS	F											

Intersection Level Of Service Report
Intersection 8: Main St/Oregon Trail Blvd

Control Type:	Two-way stop	Delay (sec / veh):	136.0
Analysis Method:	HCM 7th Edition	Level Of Service:	F
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.641

Intersection Setup

Name	Main St			Main St			Oregon Trail Blvd			Oregon Trail Blvd		
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]	30.00			30.00			30.00			25.00		
Grade [%]	0.00			0.00			0.00			0.00		
Crosswalk	Yes			Yes			Yes			Yes		

Volumes

Name	Main St			Main St			Oregon Trail Blvd			Oregon Trail Blvd		
Base Volume Input [veh/h]	1	527	13	62	685	63	45	13	1	9	14	43
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	9.00	0.00	2.00	0.00	0.00	0.00	0.00	0.00	0.00	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
Total Hourly Volume [veh/h]	1	527	13	62	685	63	45	13	1	9	14	43
Peak Hour Factor	0.9500	0.9500	0.9500	0.9500	0.9500	0.9500	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	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	0	139	3	16	180	17	12	3	0	2	4	11
Total Analysis Volume [veh/h]	1	555	14	65	721	66	47	14	1	9	15	45
Pedestrian Volume [ped/h]	0			0			6			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	0.00	0.01	0.00	0.06	0.01	0.00	0.64	0.12	0.00	0.11	0.14	0.09
d_M, Delay for Movement [s/veh]	9.33	0.00	0.00	8.63	0.00	0.00	136.02	118.43	95.77	55.25	45.78	20.00
Movement LOS	A	A	A	A	A	A	F	F	F	F	E	C
95th-Percentile Queue Length [veh/ln]	0.00	0.00	0.00	0.11	0.11	0.11	3.78	3.78	3.78	1.36	1.36	1.36
95th-Percentile Queue Length [ft/ln]	0.04	0.04	0.04	2.86	2.86	2.86	94.54	94.54	94.54	33.94	33.94	33.94
d_A, Approach Delay [s/veh]	0.02			0.66			131.40			30.20		
Approach LOS	A			A			F			D		
d_I, Intersection Delay [s/veh]	6.95											
Intersection LOS	F											

Intersection Level Of Service Report
Intersection 9: Main St/Kinkade Rd

Control Type:	Two-way stop	Delay (sec / veh):	167.4
Analysis Method:	HCM 7th Edition	Level Of Service:	F
Analysis Period:	15 minutes	Volume to Capacity (v/c):	1.015

Intersection Setup

Name	Main St			Main St			Kinkade Rd			Kinkade Rd		
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]	30.00			30.00			25.00			30.00		
Grade [%]	0.00			0.00			0.00			0.00		
Crosswalk	Yes			Yes			Yes			Yes		

Volumes

Name	Main St			Main St			Kinkade Rd			Kinkade Rd		
Base Volume Input [veh/h]	18	306	74	10	407	203	174	20	35	81	27	10
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 [%]	6.00	2.00	0.00	0.00	2.00	3.00	4.00	0.00	0.00	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]	18	306	74	10	407	203	174	20	35	81	27	10
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]	5	81	20	3	108	54	46	5	9	22	7	3
Total Analysis Volume [veh/h]	19	326	79	11	433	216	185	21	37	86	29	11
Pedestrian Volume [ped/h]	0			0			3			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	0.02	0.00	0.00	0.01	0.00	0.00	1.01	0.09	0.07	0.47	0.14	0.02
d_M, Delay for Movement [s/veh]	8.97	0.00	0.00	8.11	0.00	0.00	167.38	163.20	154.29	50.07	47.54	35.72
Movement LOS	A	A	A	A	A	A	F	F	F	F	E	E
95th-Percentile Queue Length [veh/ln]	0.03	0.03	0.03	0.02	0.02	0.02	12.06	12.06	12.06	3.59	3.59	3.59
95th-Percentile Queue Length [ft/ln]	0.83	0.83	0.83	0.49	0.49	0.49	301.42	301.42	301.42	89.79	89.79	89.79
d_A, Approach Delay [s/veh]	0.40			0.14			165.03			48.24		
Approach LOS	A			A			F			E		
d_I, Intersection Delay [s/veh]	31.96											
Intersection LOS	F											

Intersection Level Of Service Report
Intersection 10: Main St/Wilson Ln

Control Type:	All-way stop	Delay (sec / veh):	15.2
Analysis Method:	HCM 7th Edition	Level Of Service:	C
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.696

Intersection Setup

Name	Main St			Main St			Wilson Ln			Wilson 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]	35.00			30.00			20.00			30.00		
Grade [%]	0.00			0.00			0.00			0.00		
Crosswalk	Yes			Yes			Yes			Yes		

Volumes

Name	Main St			Main St			Wilson Ln			Wilson Ln		
Base Volume Input [veh/h]	4	74	10	63	132	269	201	31	8	15	37	73
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	20.00	2.00	6.00	1.00	2.00	4.00	0.00	0.00	0.00	5.00
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]	4	74	10	63	132	269	201	31	8	15	37	73
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]	1	20	3	17	36	73	55	8	2	4	10	20
Total Analysis Volume [veh/h]	4	80	11	68	143	292	218	34	9	16	40	79
Pedestrian Volume [ped/h]	0			0			0			0		

Intersection Settings

Lanes

Capacity per Entry Lane [veh/h]	612	723	607	627
Degree of Utilization, x	0.16	0.70	0.43	0.22

Movement, Approach, & Intersection Results

95th-Percentile Queue Length [veh]	0.55	5.69	2.15	0.81
95th-Percentile Queue Length [ft]	13.68	142.27	53.87	20.30
Approach Delay [s/veh]	9.97	18.57	13.33	10.31
Approach LOS	A	C	B	B
Intersection Delay [s/veh]	15.25			
Intersection LOS	C			

Intersection Level Of Service Report
Intersection 11: Olson Rd/Columbia Ave

Control Type:	Two-way stop	Delay (sec / veh):	14.9
Analysis Method:	HCM 7th Edition	Level Of Service:	B
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.016

Intersection Setup

Name	Olson Rd			Olson Rd			Columbia Ave			Columbia Ave		
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	1	0	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	150.00	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			40.00			40.00		
Grade [%]	0.00			0.00			0.00			0.00		
Crosswalk	Yes			Yes			Yes			Yes		

Volumes

Name	Olson Rd			Olson Rd			Columbia Ave			Columbia Ave		
Base Volume Input [veh/h]	17	1	34	5	0	0	1	91	10	38	242	5
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	5.00	40.00	0.00	0.00	100.00	3.00	0.00	11.00	2.00	60.00
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]	17	1	34	5	0	0	1	91	10	38	242	5
Peak Hour Factor	0.8100	0.8100	0.8100	0.8100	0.8100	0.8100	0.8100	0.8100	0.8100	0.8100	0.8100	0.8100
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]	5	0	10	2	0	0	0	28	3	12	75	2
Total Analysis Volume [veh/h]	21	1	42	6	0	0	1	112	12	47	299	6
Pedestrian Volume [ped/h]	1			0			1			0		

Intersection Settings

Priority Scheme	Stop	Stop	Free	Free
Flared Lane		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	0.05	0.00	0.05	0.02	0.00	0.00	0.00	0.00	0.00	0.03	0.00	0.00
d_M, Delay for Movement [s/veh]	13.25	13.39	9.05	14.93	13.25	10.02	9.20	0.00	0.00	7.65	0.00	0.00
Movement LOS	B	B	A	B	B	B	A	A	A	A	A	A
95th-Percentile Queue Length [veh/ln]	0.15	0.15	0.14	0.05	0.05	0.05	0.00	0.00	0.00	0.10	0.00	0.00
95th-Percentile Queue Length [ft/ln]	3.77	3.77	3.54	1.24	1.24	1.24	0.09	0.00	0.00	2.59	0.00	0.00
d_A, Approach Delay [s/veh]	10.50			14.93			0.07			1.02		
Approach LOS	B			B			A			A		
d_I, Intersection Delay [s/veh]	2.07											
Intersection LOS	B											

Intersection Level Of Service Report
Intersection 12: Laurel Ln/Columbia Ave

Control Type:	Two-way stop	Delay (sec / veh):	16.8
Analysis Method:	HCM 7th Edition	Level Of Service:	C
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.546

Intersection Setup

Name	Laurel Ln						Columbia Ave			Columbia Ave		
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]	30.00			30.00			40.00			40.00		
Grade [%]	0.00			0.00			0.00			0.00		
Crosswalk	Yes			No			Yes			Yes		

Volumes

Name	Laurel Ln						Columbia Ave			Columbia Ave		
Base Volume Input [veh/h]	0	198	0	0	0	0	0	32	117	320	81	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 [%]	18.00	19.00	20.00	2.00	2.00	2.00	2.00	9.00	4.00	10.00	4.00	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
Total Hourly Volume [veh/h]	0	198	0	0	0	0	0	32	117	320	81	0
Peak Hour Factor	0.8900	0.8900	0.8900	1.0000	1.0000	1.0000	1.0000	0.8900	0.8900	0.8900	0.8900	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]	0	56	0	0	0	0	0	9	33	90	23	0
Total Analysis Volume [veh/h]	0	222	0	0	0	0	0	36	131	360	91	0
Pedestrian Volume [ped/h]	0			0			0			0		

Intersection Settings

Priority Scheme	Free	Free	Stop	Stop
Flared Lane				
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	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.05	0.00	0.55	0.00	0.00
d_M, Delay for Movement [s/veh]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	10.73	0.00	16.81	0.00	0.00
Movement LOS		A						B		C		
95th-Percentile Queue Length [veh/ln]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.17	0.00	3.31	0.00	0.00
95th-Percentile Queue Length [ft/ln]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	4.29	0.00	82.72	0.00	0.00
d_A, Approach Delay [s/veh]	0.00			0.00			10.73			16.81		
Approach LOS	A			A			B			C		
d_I, Intersection Delay [s/veh]	10.41											
Intersection LOS	C											

Intersection Level Of Service Report
Intersection 13: Laurel Ln/I-84 WB Ramp Terminal

Control Type:	Two-way stop	Delay (sec / veh):	32.0
Analysis Method:	HCM 7th Edition	Level Of Service:	D
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.451

Intersection Setup

Name	Laurel Ln			Laurel Ln			I-84 WB			I-84 WB		
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]	30.00			30.00			30.00			45.00		
Grade [%]	0.00			0.00			0.00			0.00		
Crosswalk	Yes			Yes			Yes			Yes		

Volumes

Name	Laurel Ln			Laurel Ln			I-84 WB			I-84 WB		
Base Volume Input [veh/h]	54	71	0	0	488	39	0	0	0	94	1	127
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 [%]	67.00	28.00	2.00	2.00	6.00	21.00	2.00	2.00	2.00	21.00	0.00	13.00
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]	54	71	0	0	488	39	0	0	0	94	1	127
Peak Hour Factor	0.8400	0.8400	1.0000	1.0000	0.8400	0.8400	1.0000	1.0000	1.0000	0.8400	0.8400	0.8400
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]	16	21	0	0	145	12	0	0	0	28	0	38
Total Analysis Volume [veh/h]	64	85	0	0	581	46	0	0	0	112	1	151
Pedestrian Volume [ped/h]	0			0			0			0		

Intersection Settings

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

Movement, Approach, & Intersection Results

V/C, Movement V/C Ratio	0.09	0.00	0.00	0.00	0.01	0.00	0.00	0.00	0.00	0.45	0.00	0.16
d_M, Delay for Movement [s/veh]	10.19	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	31.99	30.58	21.30
Movement LOS	B	A			A	A				D	D	C
95th-Percentile Queue Length [veh/ln]	0.13	0.13	0.00	0.00	0.00	0.00	0.00	0.00	0.00	4.01	4.01	4.01
95th-Percentile Queue Length [ft/ln]	3.19	3.19	0.00	0.00	0.00	0.00	0.00	0.00	0.00	100.26	100.26	100.26
d_A, Approach Delay [s/veh]	4.38			0.00			0.00			25.87		
Approach LOS	A			A			A			D		
d_I, Intersection Delay [s/veh]	7.19											
Intersection LOS	D											

Intersection Level Of Service Report
Intersection 14: Laurel Ln/I-84 EB Ramp Terminal

Control Type:	Two-way stop	Delay (sec / veh):	118.9
Analysis Method:	HCM 7th Edition	Level Of Service:	F
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.595

Intersection Setup

Name	Laurel Ln			Laurel Ln			I-84 EB					
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]	30.00			30.00			45.00			30.00		
Grade [%]	0.00			0.00			0.00			0.00		
Crosswalk	Yes			Yes			Yes			Yes		

Volumes

Name	Laurel Ln			Laurel Ln			I-84 EB					
Base Volume Input [veh/h]	0	98	106	426	156	0	27	3	57	0	0	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	31.00	15.00	4.00	16.00	2.00	30.00	0.00	10.00	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
Total Hourly Volume [veh/h]	0	98	106	426	156	0	27	3	57	0	0	0
Peak Hour Factor	1.0000	0.8200	0.8200	0.8200	0.8200	1.0000	0.8200	0.8200	0.8200	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]	0	30	32	130	48	0	8	1	17	0	0	0
Total Analysis Volume [veh/h]	0	120	129	520	190	0	33	4	70	0	0	0
Pedestrian Volume [ped/h]	0			0			0			0		

Intersection Settings

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

Movement, Approach, & Intersection Results

V/C, Movement V/C Ratio	0.00	0.00	0.00	0.40	0.00	0.00	0.60	0.06	0.08	0.00	0.00	0.00
d_M, Delay for Movement [s/veh]	0.00	0.00	0.00	8.85	0.00	0.00	118.90	105.11	58.29	0.00	0.00	0.00
Movement LOS		A	A	A	A		F	F	F			
95th-Percentile Queue Length [veh/ln]	0.00	0.00	0.00	1.44	1.44	0.00	4.38	4.38	4.38	0.00	0.00	0.00
95th-Percentile Queue Length [ft/ln]	0.00	0.00	0.00	35.94	35.94	0.00	109.42	109.42	109.42	0.00	0.00	0.00
d_A, Approach Delay [s/veh]	0.00			6.48			78.74			0.00		
Approach LOS	A			A			F			A		
d_I, Intersection Delay [s/veh]	12.22											
Intersection LOS	F											

Appendix H: Proposed Solutions

Technical Memorandum #6

Date:	July 24, 2025	Kittelson Project No: 30287
To:	Project Management Team (PMT)	
From:	Matt Hughart, AICP; Krista Purser, PE; and Eza Gaigalas	
Subject:	Proposed Solutions	

Introduction

The Boardman Transportation System Plan (TSP) will present a coordinated set of multimodal policies, projects, and studies that address transportation needs within the city's Urban Growth Boundary (UGB) over the next 20 years.

This memorandum summarizes an initial list of proposed transportation system projects and changes that will address the existing or future circulation needs identified through the existing and future conditions analyses (previously summarized in Technical Memorandums #4 and #5) as well as input from City staff, the Project Management Team (PMT), the Project Advisory Committee (PAC), Planning Commission, City Council, and the community as a whole. These transportation system projects recognize the need for a balanced system that provides a range of transportation choices for people traveling in, around, and through Boardman.

The proposed transportation projects are generally organized by travel mode and are summarized in tables and their locations/extents illustrated in reference maps. Each project includes an assessment, initial priority, a planning-level cost estimate, and potential funding sources to support the funding program for the TSP.

Several proposed projects are identified on or along ODOT facilities. It is important to note that in all such cases further coordination with ODOT will be required, including refinement of design elements through preliminary and final design processes, and are subject to future ODOT approvals by the State Roadway Traffic Engineer, pursuant with the *ODOT Traffic Manual*.

The resultant 20-year list of solutions is intended to address the identified transportation needs, meet the TSP goals, and reflect criteria included in Oregon Revised Statute (ORS) 660-012-0035. These projects are also intended to provide the City with flexibility to adapt to changing economic development and community needs over the next 20 years.

Functional Classification Modifications

Roadway functional classifications organize streets based on their role in the transportation system. The classifications define a street by their intended mobility and access control as they relate to land use. They designate desired street characteristics such as operational and design characteristics, pavement width, driveway (access) spacing requirements, and context-appropriate pedestrian and bicycle facilities.

The existing hierarchy of local roadway functional classification for Boardman include:

- **Freeways** are limited-access roads designed mainly for motorized vehicles traveling across regions or states. They provide the highest level of mobility and are typically high-speed routes with widely spaced access points in the form of interchanges. Freeways are separated by medians and generally have little or no access for pedestrians and bicyclists.

- **Arterials** are major roadways designed primarily to facilitate traffic flow into and out of urban areas. They typically support significant intra-urban travel, connecting downtown areas to outlying residential neighborhoods. While arterials may provide access to adjacent properties, their primary function is to accommodate major traffic movements. As the longest and highest-volume roads within the UGB, arterials are key for longer-distance trips. They often feature pedestrian and bicycle activity as part of their streetscape.

- **Minor Collectors** connect arterials with the local street network. Collectors gather traffic from local streets and sometimes provide direct land access, channeling it toward arterial roads. They are generally shorter than arterials and operate at moderate speeds.

- **Neighborhood Collectors** extend into local neighborhoods, providing direct land access and supporting traffic circulation within the area. They typically carry lower traffic volumes at slower speeds compared to typical collectors. On-street parking is more common, and bike facilities may consist of dedicated lanes or shared roadways.

- **Local Streets** are primarily intended to provide access to abutting land uses. Local street facilities offer the lowest level of mobility and consequently tend to be short, low-speed facilities. As such, local streets should primarily serve passenger cars, pedestrians, and bicyclists; heavy truck traffic is discouraged. On-street parking is common, and sidewalks are typically present.

Recommended Boardman Functional Classification Changes

Functional classification designations align the design of a roadway with its intended function. Based on a review of the existing Boardman functional classification system, the following opportunities have been identified to better align the classifications with the intended use of the roadway as well as to better algin the roadway with existing and future development patterns.

1. Change the "Minor Collector" name to just "Collector". The existing Boardman TSP used the "Minor Collector" designation instead of the more encompassing "Collector" designation as the Transportation Planning Rules (TPR) at the time required all "Collector or Major Collector" designations to have sidewalks and bicycle lanes. Given the city's renewed focus on improving multimodal accommodations and the prescriptive list of multimodal projects identified in the following sections, there is no need for this nuanced and confusing sub-classification. Switching to just a "Collector" naming convention will simplify the overall classification convention.

2. Modify some existing street classifications to better address existing and future growth patterns. Recommended changes to current classifications are summarized in Table 1 and Figure 1.

Table 1. Recommended Boardman Functional Classification Changes

Street Segment	City Classification		Rationale for Change
	Current	Proposed	
Kunze Lane: West City Limits to Olson Road	Neighborhood Collector	Arterial	Kunze Road is a major east-west corridor that provides regional connections between Boardman and Tower Road.
Willow Fork Drive: Tatone Street to Main Street	Neighborhood Collector	Collector[1]	This segment of Willow Fork Drive primarily serves commercial land uses.
Kinkaid Road: Tatone Street to Main Street	Neighborhood Collector	Collector[1]	This segment of Kincaid Road primarily serves commercial land uses.
City Center Drive: Tatone Street to S Main Street	None	Collector[1]	As a newer roadway, City Center Drive was constructed after the existing TSP was adopted. City Center Drive primarily serves commercial land uses.
SW Tatone Street: SW Wilson Road to northern terminus	Local	Collector[1]	Tatone Street primarily serves commercial land uses.
SE/SW Front Street	Local	Collector[1]	SE/SW Front Street primarily serves commercial land uses.
Oregon Trail Boulevard	Minor Collector	Arterial	As envisioned in this planning effort, Oregon Trail Blvd. is a major east-west corridor that will connect to Olson Road to the east and SW Paul Smith Road to the west. It will serve a combination of commercial, industrial, and residential traffic demands.
Boardman Avenue: NW First Street to NE First Street	Neighborhood Collector	Collector[1]	This segment of Boardman Avenue primarily serves commercial land uses.
NW 1st Street: NW Boardman Avenue to NW Columbia Avenue	Local Street	Neighborhood Collector	This segment of NW 1st Street primarily serves commercial land uses.

Street Segment	City Classification		Rationale for Change
	Current	Proposed	
NE Eldridge Drive: NE Columbia Avenue to NE Olson Road	Neighborhood Collector	Collector[1]	This segment of NE Eldridge Road primarily serves commercial/industrial land uses.
NE Olson Road: NE Columbia Avenue to NE Eldridge Drive	Arterial	Collector[1]	This segment of NE Olson Road primarily serves commercial/industrial land uses and provides no local or regional connectivity.
SE 1st Street: SE Front Street to Oregon Trail Boulevard	None	Collector[1]	As a newer roadway, SE 1st Street was constructed after the existing TSP was adopted. SE 1st Street primarily serves commercial land uses.
Laurel Lane: south city limits to Yates Lane	Collector[1]	Arterial	Laurel Lane is a major north-south corridor that provides local and regional connections between Boardman/Morrow County and I-84.
Yates Lane: Laurel Lane to east city limits	None	Collector[1]	As a newer roadway, Yates Lane was constructed after the existing TSP was adopted. Yates Lane primarily serves commercial land uses.
Devin Loop: Laurel Lane to Yates Lane	None	Local	As a newer roadway, Devin Loop was constructed after the existing TSP was adopted.
SW River Ridge Drive: SW Wilson Lane to southern extents	None	Neighborhood Collector	As a newer roadway, SW River Ridge Drive was constructed after the existing TSP was adopted. SW River Ridge Drive serves residential uses.
SW Juniper Drive: SW Wilson Lane to southern extents	None	Neighborhood Collector	As a newer roadway, SW Juniper Drive was constructed after the existing TSP was adopted. SW Juniper Drive serves residential uses.
SW Tatone Street: SW Wilson Lane to southern extents	None	Neighborhood Collector	As a newer roadway, SW Tatone Street was constructed after the existing TSP was adopted. SW Tatone Street serves residential uses.

[1] Assuming the "Minor Collector" naming convention is changed to just "Collector".

Figure 1

Proposed Functional Classification Changes

Boardman STRATEGIC PLAN
CONNECTING COMMUNITIES
Making big dreams a reality.

- Proposed Change
- Freeway
- Arterial
- Proposed Arterial
- Collector
- Proposed Collector
- Neighborhood Collector
- Proposed Neighborhood Collector
- Local
- Proposed Local
- City Boundary
- Urban Growth Boundary
- Park
- Water

0 0.25 0.5 Mile

Columbia River
Marine Dr
Marine Dr
Eldrige Dr
Columbia Ave
Ullman Blvd
Industrial Wy
Boardman Ave
Front St
84
84
1st St
Oregon Trail Blvd
Kinkade Rd
Willow Fork Dr
Anderson Rd
Olson Rd
Laurel Ln
Rippee Rd
Garrison Ln
Mt Adams Ave
Faler Rd
River Ridge Dr
Wilson Rd
Skoubo Rd
Main St
Miller Rd
Downey Rd
Kunze Ln
Paul Smith Rd
Hilltop Rd
Parkside Rd
Canal Ln

Recommended Federal Functional Classification Changes

The Federal Highway Administration (FHWA) uses the Federal functional classification system to determine eligibility for funding under the Federal-aid Highway Program, which provides financial assistance for construction, maintenance, and operations of local and state roadways. The FHWA provides a rural and urban functional classification system that includes Interstates, Other Freeways and Expressways, Other Principal Arterials, Minor Arterials, Major and Minor Collectors, and Local Roads. Designations applicable to Boardman include:

- Rural Interstate - Interstates are the highest classification of Arterials and were designed and constructed with mobility and long-distance travel in mind. I-84 is currently classified Rural Interstate through Boardman.
- Minor Arterial serve trips of moderate length, interconnect and augment the higher Arterial system, provide intra-community continuity, and may carry local bus routes. They distribute traffic to smaller geographic areas than those served by higher-level Arterials.
- Major Collector serve land access and traffic circulation in higher density residential, commercial, and industrial areas. They provide throughways for residential neighborhoods for significant distances, distribute and channel trips between Local Roads and Arterials, and are characterized by higher speeds and more signalized intersections.
- Minor Collector serves land access and traffic circulation in lower density residential, commercial, and industrial areas. They provide throughways for residential neighborhoods for short distances, distribute and channel trips between Local Roads and Arterials, and are characterized by lower speeds and fewer signalized intersections.
- Local Roads provide direct access to adjacent land, access to higher classified roadway connections, and do not encourage through traffic. They are not intended for long-distance travel, except at the origin or destination of the trip, due to their provision of direct access to abutting land.

A review of existing Federal functional classification system indicates that only a few roadways in Boardman (I-84 as a Rural Interstate; Kunze Lane, Main Street, Wilson Lane, and parts of Columbia Avenue as Rural Major Collector; and parts of Marine Drive, Ullman Blvd, and Columbia Lane as Rural Local) currently have a Federal functional classification designation. To address this existing limitation, Boardman will need to work with ODOT Region 5 planning staff to request updates and changes to the Federal functional classification network. Based on a review of federal classification designations and Boardman's proposed functional classification system, Figure 2 identifies a recommended classification system for all roadways in Boardman.

Figure 2

Proposed Federal Functional Classification Changes/Additions

Boardman STRATEGIC PLAN
CONNECTING COMMUNITIES
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- Rural Interstate
- Minor Arterial
- Major Collector
- Minor Collector
- Local
- City Boundary
- Urban Growth Boundary
- Park
- Water

0 0.25 0.5 Mile

Columbia River
Marine Dr
Eldrige Dr
Columbia Ave
Ullman Blvd
Industrial Wy
Boardman Ave
Front St
84
1st St
Oregon Trail Blvd
Kinkade Rd
Willow Fork Dr
Anderson Rd
Olson Rd
Laurel Ln
Rippee Rd
Garrison Ln
Mt Adams Ave
Faler Rd
River Ridge Dr
Wilson Rd
Skoubo Rd
Main St
Miller Rd
Downey Rd
Kunze Ln
Paul Smith Rd
Hilltop Rd
Parkside Rd
Canal Ln

Recommended Freight Route Classification

As indicated in Tech Memo #4 (Existing Conditions Inventory and Analysis), Freight route classifications are provided at the State and Federal levels. In Oregon, the Oregon Highway Plan (OHP) documents freight designations on state highways. Within Boardman, the only state designated Freight Route is I-84. At the Federal level, I-84 is part of the Primary Highway Freight System (PHFS) classification of the National Highway Freight Network. Parts of Marine Drive, Ullman Boulevard, Columbian Avenue, and Laurel Lane are also classified as NHS Intermodal Connectors, roads that provide access between major intermodal facilities and PHFS (I-84). At the local level, Boardman does not have a designated freight network or classification system despite the presence of major freight-generating land uses within the Port of Morrow. Therefore, as part of the alternatives assessment, it is recommended that Boardman consider the designation of freight routes that are consistent with the state and federal designations and identify those other local corridors where large freight traffic is expected to travel within the City. Figure 3A illustrates a proposed freight designation map for the City's existing/proposed Collector and higher roadway network. The freight designation would be classified into two categories, Regional and Local Truck Routes:

- **Regional Truck Route** - Regional Truck Routes accommodate the continuous and regional flow of truck freight through the city. These routes serve as the primary travel routes for regionally oriented truck freight, connecting freight-generating land uses to the state highway network. They are consistent with the NHS Intermodal Connectors.

- **Local Truck Route** - Local Truck Routes serve local truck circulation and access and provide for goods and service delivery to individual commercial, employment, and residential land uses outside of industrial areas.

Figure 3B illustrates a proposed specialty freight route map for the High, Wide, and Heavy Freight Routes that travel through Boardman. These routes are for freight that are oversized in height, length, or weight.

Figure 3A

Proposed Freight Route Designations

Boardman STRATEGIC PLAN
CONNECTING COMMUNITIES
Making big dreams a reality.

- Regional Freight Route
- Local Freight Route
- City Boundary
- Urban Growth Boundary
- Park
- Water

0 0.25 0.5 Mile

Columbia River
Marine Dr
Eldrige Dr
Columbia Ave
Ullman Blvd
Industrial Wy
Boardman Ave
Front St
84
1st St
Oregon Trail Blvd
Laurel Ln
Rippee Rd
Kinkade Rd
Willow Fork Dr
Mt Adams Ave
Faler Rd
River Ridge Dr
Anderson Rd
Olson Rd
Wilson Rd
Garrison Ln
Downey Rd
Skoubo Rd
Main St
Miller Rd
Kunze Ln
Paul Smith Rd
Hilltop Rd
Parkside Rd
Canal Ln

Figure 3B

Proposed Specialty Freight Routes

Boardman STRATEGIC PLAN
CONNECTING COMMUNITIES
Making big dreams a reality.

- High, Wide, and Heavy Freight Routes
- City Boundary
- Urban Growth Boundary
- Park
- Water

0 0.25 0.5 Mile

Columbia River
Marine Dr
Eldrige Dr
Columbia Ave
Marine Dr
Boardman Ave
Front St
Ullman Blvd
Industrial Wy
84
1st St
Oregon Trail Blvd
Laurel Ln
Rippee Rd
Kinkade Rd
Willow Fork Dr
Anderson Rd
Olson Rd
Mt Adams Ave
Faler Rd
River Ridge Dr
Garrison Ln
Wilson Rd
Skoubo Rd
Main St
Miller Rd
Downey Rd
Kunze Ln
Paul Smith Rd
Hilltop Rd
Parkside Rd
Canal Ln

Roadway Improvement Standards

Roadway improvement standards refer to specifications and guidelines established by transportation agencies that govern the design, construction, and operation of roadways to accommodate the needs of vehicular and non-vehicular modes. These standards are tied to the roadway functional classification hierarchy described in the previous section so that the way that streets within each designation "look and feel" is consistent across the transportation system. They include provisions for multimodal facilities, including sidewalks along all urban streets and bike lanes, or space to provide them, along with all arterials and collectors, depending on available right-of-way.

The City's street design standards are contained in March 2021 Trench Excavation and Backfill Streets and Curbs of its Public Works Engineering Standards (ST7-ST12). The County's roadway design standards are contained in their 2012 Transportation System Plan. The City is currently updating their roadway improvement standards to provide consistent street cross sections across the urban area which will also include a standard for roadways owned by the Port of Morrow. Since these cross sections are still in process and not expected to be completed until August, they will be incorporated into the planning process as part of the DRAFT TSP.

Rail Projects

As noted in Tech Memo #3 (Existing Conditions Inventory and Analysis), there are several major rail corridors that travel through Boardman. All of the rail infrastructure serves uses located within and affiliated with the Port of Morrow. Given that all major rail crossings are grade separated within the more urban portions of the City and these rail crossings are all noted to be sufficient, there are no specific or rail-affiliated alternatives identified for inclusion in the Boardman TSP update.

Marine Projects

All of the marine-based transportation infrastructure is owned/maintained by the Port of Morrow (Columbia River marine terminals T-1, T,2, and T-3). All infrastructure plans for these terminals are outlined in the Port of Morrow Strategic Business Plan. All city-focused multimodal transportation improvement projects noted herein are consistent with the projects identified in the Port of Morrow Strategic Business Plan.

Transportation Projects

This section presents the recommended transportation projects for the TSP Update and are organized into three primary categories:

- Intersection Projects: these include intersection modifications that address either an identified capacity, geometric, or safety needs.
- Street Corridor Projects: these include new street connections and street modifications that address either connectivity, safety, or traffic calming needs – or the need for further study, and in some cases, multiple of these needs.
- Pedestrian Projects: these include pedestrian connections and crossing treatments that address either a system gap or safety need.
- Bicycle Projects: these include bicycle connections that address either a system gap or safety need.

These projects are a combination of solutions that have been carried forward from previous adopted plans and past studies that have not yet been completed as well as new recommendations that address new transportation needs identified through the TSP Update.

The past plans and studies incorporated into the proposed projects memo include the following:

- Previously Adopted Plans
    - *2009 Boardman Main Street Interchange Area Management Plan*
    - *2001 Main Street Downtown Development Plan*
    - *2011/2022 Port of Morrow Interchange Area management Plan*
- Other Relevant Studies
    - *2024 Main Street Corridor Refinement Assessment*
    - *Central, North, and West Urban Renewal Plans*

For projects previously identified, priorities presented are consistent with what was established by the prior planning effort. For new projects identified to address new needs, project priorities were developed by applying the evaluation criteria outlined in Tech Memo #3 (Goals, Objectives, and Evaluation Criteria). Projects are categorized as follows:

- High Priority Projects: 0–5-year implementation timeline.
- Medium Priority Projects: 5–10-year implementation timeline.
- Low Priority Projects: 10–20-year implementation timeline.
- Vision Projects: lower priority projects that are needed but have the greatest chance for implementation beyond the 20-year planning horizon.

If concentrated development occurs in the future, one or more of the projects identified as Vision Projects may be necessary within the TSP horizon. Vision Projects are defined as those projects whose need is anticipated to be beyond the horizon year of the TSP but could occur sooner if growth and development over the next 20 years is more concentrated in some areas than others. Therefore, development projects shall be responsible for dedicating and preserving the appropriate rights-of-way and, if deemed necessary, construct improvements to accommodate their respective impacts.

These priorities will be refined based on review by City staff, PMT, PAC, and community/constituent review. Some projects may be accelerated and others postponed due to changing conditions, funding availability, public input, or more detailed study performed during programming and budgeting processes. Project priorities are intended to be flexible, allowing the City to make wise investments consistent with the overall vision contained in this TSP. The TSP goals and objectives seek to improve multimodal connectivity and safety while supporting the economic health and prosperity of the city. Therefore, the highest priority projects for strategic investments are those that (1) improve the overall circulation network and (2) improve the efficiency and safety of existing multimodal facilities. These projects should be implemented first unless a lower priority measure demonstrates being more cost-effective or better supports safety, growth management, or other livability and economic considerations.

Planning-level costs for projects from past planning efforts have initially been inflated to 2025 dollars and cost estimates were developed for new projects that address new needs.

Intersection Projects

The intersection operations analysis summarized in Tech Memo #5: Future (No-build) Conditions, identifies 10 intersections that are projected to exceed their applicable mobility standards or targets within the 20-year planning horizon. This section summarizes the intersection treatments and alternatives considered to address intersection operations and queueing deficiencies at the study intersections.

Intersection Treatment Types

TURN LANE

Separate left and right-turn lanes, as well as two-way left-turn lanes (TWLT), can provide significant increases in the capacity of intersections to accommodate turn movements. They can also provide a safety benefit by creating separation between slowed or stopped vehicles waiting to turn left and through vehicles.

TURNING MOVEMENT RESTRICTIONS

Turning movement restrictions can be useful in situations where the spacing of intersections and/or private driveways is too close to safely and efficiently accommodate multimodal circulation. Turning movement restrictions can include the use of medians, driveway islands, and signing/striping measures to limit specific turning movements, often major and minor street left-turn movements

TRAFFIC SIGNAL

Traffic signals allow opposing streams of traffic to proceed through an intersection in alternating patterns. When used, traffic signals can effectively manage high traffic volumes and provide dedicated times in which pedestrians and bicyclists can cross roadways. Because they continuously draw from a power source and must be periodically re-timed, signals typically have higher maintenance costs than other types of intersection control.

ROUNDABOUT

Roundabouts are circular intersections where entering vehicles yield to vehicles already in the circle. They are designed to slow vehicle speeds to 20 to 30 mph or less before they enter the intersection, which promotes a more comfortable environment for pedestrians, bicyclists, and other non-motorized users. Roundabouts have fewer conflict-points and have been shown to reduce the severity of crashes, as compared to signalized intersections. Roundabouts can be more costly to design and install when compared to other intersection control types, but they have a lower operating and maintenance cost than traffic signals. Topography must be carefully evaluated in considering a roundabout, given that slope characteristics at an intersection may render a roundabout infeasible.

Intersection Alternatives (Capacity, Traffic Control, Geometric Changes)

This section carries forward recommendations from the 2001 TSP, various area studies, as well as presenting new recommendations based on an updated analysis of future needs and deficiencies. Capacity and geometric intersection projects are presented and described in Table 2 and shown on a map in Figure 4.

Attachment A contains the detailed alternative traffic operations analysis for the Main Street corridor.

Attachment B contains the intersection operations worksheets for the circulation alternatives.

Table 2. Intersection Traffic Control, Capacity and/or Geometric Improvement Projects

Project ID	Intersection	Jurisdiction	Project Alternatives	Project Source	Cost Estimate	Priority
I-1	N. Main Street / Boardman Ave	City	1. Signalize (with appropriate widening/re-striping of east and west approaches to provide separate left- and through/right-turn lanes) 2. Or, construct a single lane mini roundabout.	2024 Main St Corridor Refinement	1. $750k 2. $1M	High
I-2	N. Main Street / N. Front Street	City	• Implement right-in/right-out turning movement restrictions to/from N. Front Street via a raised median	2009 Main Street IAMP	$100k	High
I-3	I-84 WB Ramp / N. Main Street	ODOT/City	• Widen the I-84 Main Street overpass to provide a separate northbound left-turn lane and through lane. Signalize when warranted and widen the offramp to include separate left- and through/right-turn lanes	-	$30M+	Vision
I-4	I-84 EB Ramp / S. Main Street	ODOT/City	• Widen the I-84 Main Street overpass to provide a separate southbound left-turn lane and through lane. Signalize when warranted and widen the offramp to include separate left- and through/right-turn lanes	-		
I-5	S. Main Street / S. Front Street	City	• Implement right-in/right-out turning movement restrictions to/from S. Front Street via a raised median	2009 Main Street IAMP	$100k	High
I-6	S. Main Street / Oregon Trail Blvd	City	• Identify improvements that address capacity constraints when they arise. May include signalization or a single-lane mini roundabout.	-	$500k-$1M	Low
I-7	S. Main Street/ Kinkade Rd	City	• Identify improvements that address capacity constraints when they arise. May include signalization or a single-lane mini roundabout.	-	$500k-$1M	Low
I-8	I-84 WB Ramp / Laurel Lane / Columbia Blvd	ODOT/City/ Port of Morrow	• Combine the Laurel Lane/Columbia Boulevard and the Laurel Lane/I-84 WB ramp terminal intersections into one single-lane roundabout intersection. Modify the westbound offramp alignment accordingly and lengthen to current standards	2022 POM IAMP	$5M	High
I-9	I-84 EB Ramp / Laurel Lane	ODOT/City	• Widen Laurel Lane south of the roundabout to include a 14 ft center turn lane to accommodate southbound left-turn movements at the EB Ramp. Lengthen and widen the eastbound off ramp to provide separate left/through and right-turn lanes	2022 POM IAMP	$2M	Med

Figure 4

Intersection and Roadway Corridor Projects

Boardman STRATEGIC PLAN
CONNECTING COMMUNITIES
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- Traffic Control/Geometric Improvement
- Turn Lane Improvement
- Turn Movement Restriction
- Roadway Corridors
- Road Reconstruction/ Modernization
- City Boundary
- Urban Growth Boundary
- Park
- Water

0 0.25 0.5 Mile

Roadway Corridor Projects

Roadway corridor projects entail new roadway segments or modifications to existing roadway segments. Some roadway corridor project recommendations are carried forward from existing plans and studies, while others are newly proposed as part of this TSP update planning effort. The combined recommendations are illustrated in Figure 4 and described in the following sections.

New Connections and Roadway Upgrades

New roadway connections are intended to improve overall circulation in the city and meet the needs of future development. The existing Boardman TSP includes new roadway connections for overall circulation while other more recent planning efforts include new roadway corridors to better address access limitations in the vicinity of the I-84 interchange ramp terminals. These projects along with other new roadway connections and upgrades are presented in Table 3.

Local Street Connectivity and Extension Plan

Most streets within Boardman are classified as local streets. Most of Boardman's residential growth potential is located south of I-84. Development to date has been laid out on a partial street grid. With large parcels available for future infill and master-planned development, improvements to the street grid can be planned to create a more efficient local street network and maximize connections for motorists, cyclists, and pedestrians while accounting for potential neighborhood impacts. In addition, the quality of the transportation system can be improved by making connectivity improvements to the pedestrian and bicycle system separate from street connectivity, as discussed in the previous sections.

Local Street Connections

There are a number of areas within Boardman that could experience future development or redevelopment, including in the southwest, southeast, and northeast parts of the City. Within these areas, there are opportunities for new local streets that could improve access and circulation for all travel modes. Figure 5 illustrates the location of the local street connections. The arrows shown in Figure 5 represent potential connections and the general direction for the placement of the connection. In each case, the specific alignments and design will be determined upon development review. As shown, these local street extensions are consistent with the future Collector and Neighborhood Collector extensions identified in Figure 4.

Figure 5

Local Street Connections

Boardman STRATEGIC PLAN
CONNECTING COMMUNITIES
Making big dreams a reality.

- New Local Roads
- Future Roadway (See Roadway Corridor Projects for associated pedestrian/bicycle accommodations)
- City Boundary
- Urban Growth Boundary
- Park
- Water

0 0.25 0.5 Mile

Columbia River
Marine Dr
Eldrige Dr
Columbia Ave
Marine Dr
Boardman Ave
Front St
Ullman Blvd
Industrial Wy
84
1st St
Oregon Trail Blvd
Kinkade Rd
Willow Fork Dr
Mt Adams Ave
Faler Rd
River Ridge Dr
Anderson Rd
Olson Rd
Laurel Ln
Rippee Rd
Garrison Ln
Wilson Rd
Skoubo Rd
Main St
Miller Rd
Downey Rd
Kunze Ln
Paul Smith Rd
Hilltop Rd
Parkside Rd
Canal Ln

Table 3. New/Modified Roadway Corridor Improvement Projects

Project ID	Roadway Segment	Jurisdiction	Project Description	Project Source	Cost Estimate	Priority
R-1	**NE Boardman Avenue:** Eastern extents to NE Olson Road	City	• Extend Boardman Avenue to Olson Road at Neighborhood Collector standards	2001 TSP	$2.6M	Low[1]
R-2	**New East-West Roadway (west of Laurel Lane):** Laurel Lane to New North-South Roadway	City	• Construct a new east-west Collector roadway from Laurel Lane to a future north-south roadway (R-7)	-	$2.2M	Med[2]
R-3	**Oregon Trail Boulevard:** S. Main Street to Paul Smith Road	City	• Construct a new Oregon Trail Boulevard corridor between S Main Street and Paul Smith Road at Arterial standards	2001 TSP	$15.4M	High
R-4	**Oregon Trail Boulevard:** Eastern extents to Olson Road	City	• Extend Oregon Trail Boulevard to Olson Road at Arterial standards	2001 TSP	$4.8M	Med[1]
R-5	**Kinkade Road** Western extents to Wilson Lane/Juniper Drive intersection	City	• Extend Kinkade Road to Wilson Road at Neighborhood Collector standards	-	$2.5M	Low[1]
R-6	**New East-West Road:** Anderson Road to Olson Road	City	• Construct a new east-west Neighborhood Collector between Anderson Road and Olson Road	-	$6.0M	Low[1]
R-7	**New North-South Roadway (west of Laurel Lane)** Parallel circulation road to Laurel Lane	City	• Construct a new north-south Collector roadway that would link projects R-2 and R-8	-	$2.8M	Med[1]
R-8	**Oregon Trail Boulevard** Laurel Lane to UGB line	City	• Construct a new east-west Arterial roadway from Laurel Lane to the city limits	-	$4.4M	Med[1]
R-9	**Paul Smith Road:** Oregon Trail Boulevard Extension to Kunze Lane	County	• Upgrade Paul Smith Road to Neighborhood Collector standards between Kunze Lane and a future Oregon Trail Boulevard (R-3)	-	$9.1M	Low

Project ID	Roadway Segment	Jurisdiction	Project Description	Project Source	Cost Estimate	Priority
R-10	**Juniper Drive:** Current southern extents to Kunze Lane	City	• Extend Juniper Drive to Kunze Lane at Neighborhood Collector standards	-	$3.3M	Vision[1]
R-11	**Tatone Street:** Current southern extents to Kunze Lane	City	• Extend Tatone Street to Kunze Lane at Neighborhood Collector standards	-	$3.3M	Vision[1]
R-12	**Anderson Road:** Wilson Road to Kunze Lane	City	• Extend Anderson Road to Kunze Lane at Neighborhood Collector standards	-	$6.6M	Vision[1]
R-13	**New North-South Road**: Oregon Trail Boulevard to New East-West Road (R-6)	City	• Construct a new north-south Neighborhood Collector roadway that would link R-4 and R-6	-	$2.6M	Low[1]
R-14	**New East-West Road**: Juniper Drive to Olson Road	City	• Construct a new east-west Neighborhood Collector roadway between R-10 and Olson Road	-	$16.0M	Vision[1]
R-15	**Kunze Lane:** Paul Smith Road to Olson Road	County	• Upgrade Kunze Lane to Arterial standards between Paul Smith Road and Olson Road.	-	$9.7M	Vision
R-16	**New North-South Road:** Wilson Road to Kunze Lane	City	• Construct a new north-south Neighborhood Collector roadway between Wilson Road and Kunze Lane	-	$6.6M	Vision[1]
R-17	**SW 1st Street:** S. Front Street to Oregon Trail Boulevard extension	City	• Extend SW 1st Street to a future Oregon Trail Boulevard (R-3) at Collector standards	-	$2.9M	High[1]
R-18	**SE 1st Street:** Oregon Trail Boulevard to Wilson Road	City	• Extend SE 1st Street from Oregon Trail Boulevard to Wilson Road at Collector standards	-	$5.7M	Low[1]
R-19	**Kinkade Road**: S. Main Street to SE Anderson Road	City	• Extend Kinkade Road from S Main Street to Anderston Road at Collector standards	-	$3.6M	Low[1]

Project ID	Roadway Segment	Jurisdiction	Project Description	Project Source	Cost Estimate	Priority
R-20	**Wilson Road:** Faler Road to Paul Smith Road	City	• Upgrade Wilson Road to Arterial standards between Paul Smith Road and S. Main Street	-	$12.7M	Med
R-21	**Wilson Road:** S. Main Street to Olson Road	City	• Upgrade Wilson Road to Arterial standards between S. Main Street and Olson Road	-	$8.0M	Low
R-22	**Olson Road:** Kunze Lane to End of Olson Road/UGB	County	• Upgrade S. Olson Road to Arterial standards between Kunze Lane and northern extents	-	$10.7M	Vision
R-23	**S. Main Street:** Wilson Road to Kunze Lane	City	• Upgrade S. Main Street to Arterial standards between Wilson Road and Kunze Lane	-	$2.8M	Low
R-24	**S. Main Street:** S. Front Street to Wilson Road	City	• Upgrade S. Main Street to Arterial standards between Oregon Trail Boulevard and Wilson Road	Main Street Downtown Development Plan	$2.3M	High
R-25	**N. Front Street**: N. Main Street to Olson Road	City	• Upgrade Front Street to Collector standards from N. Main Street to Olson Road	2024 Capital Improvement Plan	$2.1M	High
R-26	**Olson Road**	ODOT	• Extend S. Olson Road underneath I-84 from northern extents to Front Street at Arterial standards	2001 TSP	$25M	Vision

Note: The cost estimates presented do not include costs associated with right-of-way acquisition due to its high variability depending on location, parcel sizes, and other characteristics. The cost estimates also reflect the full cost of the projects, including costs likely to be funded by others, such as private developers.

[1] Project anticipated to be primarily development driven.

Active Transportation (Pedestrian and Bicycle) Projects

Active transportation projects include pedestrian and bicycle connections and crossing treatments that promote a safe, efficient, and connected active transportation network for people walking, biking, and rolling. Treatments include sidewalks, multi-use paths, enhanced crossings, and bicycle lanes.

Active transportation projects are categorized as Pedestrian or Bicycle and are described in more detail below. The alternatives developed for the pedestrian system include sidewalks that fill gaps and provide new facilities along city streets, multi-use paths/trails that augment and support the sidewalks, and enhanced crossings that enable people to safely cross streets. Collectively, these alternatives will help enhance and expand the multimodal transportation system and encourage walking and other non-motorized trips consistent with the goals of the TSP Update.

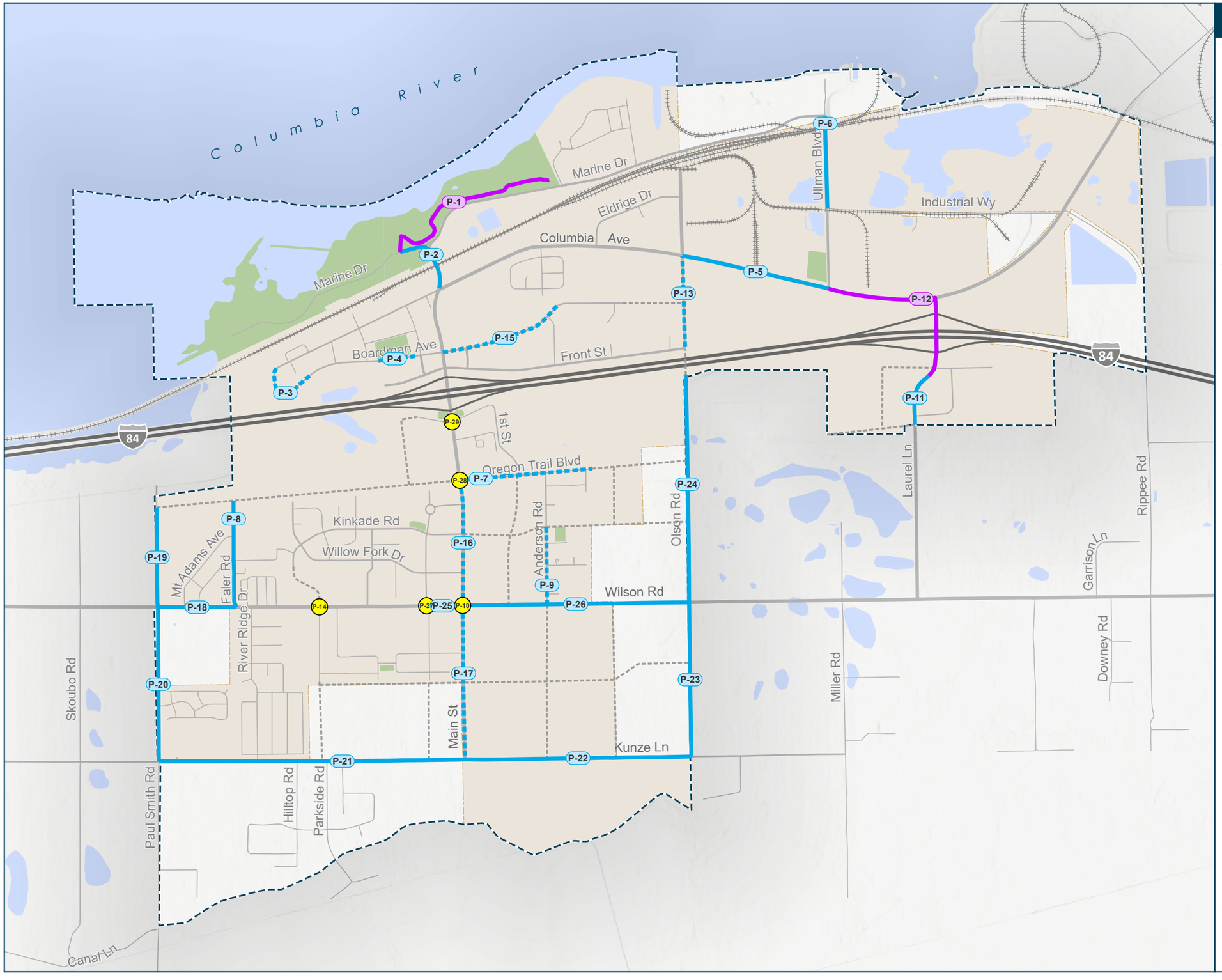
Pedestrian System Alternatives

Table 4 identifies the alternatives developed for the pedestrian system. The priorities shown in the table are based on the project evaluation criteria as well as input from the project team, the project advisory committee, and the community. The cost estimates are based on average unit costs for similar improvements in the Northwest. Figure 6 illustrates the locations of the pedestrian system improvement projects.

Figure 6

Pedestrian Projects

Boardman STRATEGIC PLAN
CONNECTING COMMUNITIES
Making big dreams a reality.



- Intersection Project
- New Sidewalks
- New Multi-Use Path
- New Sidewalks - Fill in Gaps
- Future Roadway (See Roadway Corridor Projects for associated pedestrian accommodations)
- City Boundary
- Urban Growth Boundary
- Park
- Water

0 0.25 0.5 Mile

Table 4. Pedestrian Projects

Project ID	Roadway Segment	Jurisdiction	Project Description	Project Source	Cost Estimate	Priority
P-1	**Columbia River Heritage Trail:** Marina Park to Riverfront Center	City	• Reconstruct the Columbia River Heritage Trail to be a 10-foot multi-use path and construct a new connection to Marine Drive	Columbia River Heritage Trail Plan	$250k	High
P-2	**N Main Street:** Marine Drive to Columbia Avenue	City	• Construct a new 5 ft sidewalk (west side)	-	$1.5 M	High
P-3	**Boardman Avenue:** Allen Court to NW 3rd Street NW	City	• Fill in the sidewalk gaps with new 5 ft sidewalk (east side)	-	$450k	Low
P-4	**Boardman Avenue:** NW 2nd Street to NW 1st Street	City	• Fill in the sidewalk gaps with new 5 ft sidewalks (north and south side)	-	$400k	Low
P-5	**Columbia Avenue:** Olson Road to Ullman Boulevard	City	• Construct a new 5 ft sidewalk (north side)	-	$1.2 M	Med
P-6	**Ullman Boulevard**: Rail Crossing to Marine Drive	Port of Morrow/ City	• Construct a new 5 ft sidewalk (east side)	-	$1.8 M	Med
P-7	**Oregon Trail Boulevard:** S. Main Street to east extents	City	• Fill in the sidewalk gaps with new 5 ft sidewalk (north and south side)	-	$1.3 M	High
P-8	**Faler Road:** Wilson Road to Mt Adams Avenue	City	• Construct a new 5 ft sidewalk (east and west side)	-	$430k	Med
P-9	**Anderson Road:** Wilson Road to 1/2 of Anderson Road	City	• Fill in the sidewalk gaps with new 5 ft sidewalk (west side)	-	$160k	High

P-10	**S. Main Street/ Wilson Road**	City	• Pedestrian crossing enhancement	-	$10k	High
P-11	**Laurel Lane:** Curve on Laurel Lane to UGB	City	• Construct a new 5 ft sidewalk (east and west sides)	-	$560k	Low
P-12	**Laurel Lane/Columbia Avenue:** Yates Lane to Ullman Boulevard	City/ ODOT	• Construct a new 10 ft multi-use path (west/south side)	-	$1.6 M	Low
P-13	**N. Olson Road:** N. Front Street to Columbia Avenue	City	• Fill in the sidewalks gaps with a new 5 ft sidewalk (west side)	-	$780k	Med[1]
P-14	**Wilson Road/ Jupiter Drive/future Kinkade Rd**	City	• When Kinkade Road is extended and connected to Wilson Road/Juniper Drive intersection, relocate nearby pedestrian crossing to the intersection and install pedestrian crossing beacons	-	$50k	Med[1]
P-15	**Boardman Avenue:** N. Main Street to NE 2nd Avenue	City	• Fill in the sidewalk gaps with new 5 ft sidewalks (south side)	-	$910k	High[1]
P-16	**S. Main Street:** Oregon Trail Boulevard to Wilson Lane	City	• Fill in the sidewalk gaps with new 5 ft sidewalks (east side)	Main Street Downtown Development Plan	$940k	High[1]
P-17	**S. Main Street:** Wilson Road to Kunze Lane	City/ County	• Fill in the sidewalk gaps with new 5 ft sidewalks (east side)	-	$1.1 M	Low[1]
P-18	**Wilson Road:** Faler Road to Paul Smith Road	City	• Construct a new 5 ft sidewalk (north and south side)	-	$820k	Low[1]
P-19	**Paul Smith Road:** Oregon Trail Blvd to Kunze Lane	City/ County	• Construct a new 5 ft sidewalk (east side)	-	$715k	Vision[1]

P-20	**Paul Smith Road:** Wilson Road to Kunze Lane	City/ County	• Construct a new 5 ft sidewalk (east side)	-	$1.1 M	Low[1]
P-21	**Kunze Lane:** Paul Smith Road to S Main Street	City/ County	• Construct a new 5 ft sidewalk (north and south side)	-	$3.3 M	Vision[1]
P-22	**Kunze Lane:** S. Main Street to Olson Road	City/ County	• Construct a new 5 ft sidewalk (north and south side)	-	$2.5 M	Vision[1]
P-23	**Olson Road:** Kunze Lane to Wilson Road	City/ County	• Construct a new 5 ft sidewalk (west side)	-	$1.2 M	Vision[1]
P-24	**Olson Road:** Wilson Road to north extents	City/ County	• Construct a new 5 ft sidewalk (west side)	-	$1.8 M	Vision[1]
P-25	**Wilson Road:** S Main Street to Tatone Street	City	• Fill in the sidewalk gaps with new 5 ft sidewalks (south side)	-	$270k	Med[1]
P-26	**Wilson Road:** S Main Street to Olson Road	City/ County	• Construct a new 5 ft sidewalk (north and south side)	-	$2.5 M	Vision[1]
P-27	**Wilson Road/ Tatone Street**	City	• Install pedestrian crossing beacons	-	$50k	High
P-28	**S. Main Street/ Oregon Trail Boulevard**	City	• When Oregon Trail Boulevard is extended to the west, install new pedestrian crossing beacons to the intersection	-	$50k	High
P-29	**S. Main Street/ S. Front Street**	City	• Install pedestrian crossing beacon	-	$50k	Med

Note: The cost estimates presented do not include costs associated with right-of-way acquisition due to its high variability depending on location, parcel sizes, and other characteristics. The cost estimates also reflect the full cost of the projects, including costs likely to be funded by others, such as ODOT or private developers.

[1] Project anticipated to be primarily development driven.

Bicycle Projects

To encourage increased travel by bicycle, the TSP provides a list of bike facility projects as well as programs that will improve safety, convenience, and direct connections for this mode. Riding bikes can help promote health, has a lower environmental impact, and allows people to move independently throughout the community without motorized vehicles, including many who cannot or choose not to drive.

The City relies on shared-use pathways and on-street bike lanes to serve people riding bikes of all ages and abilities.

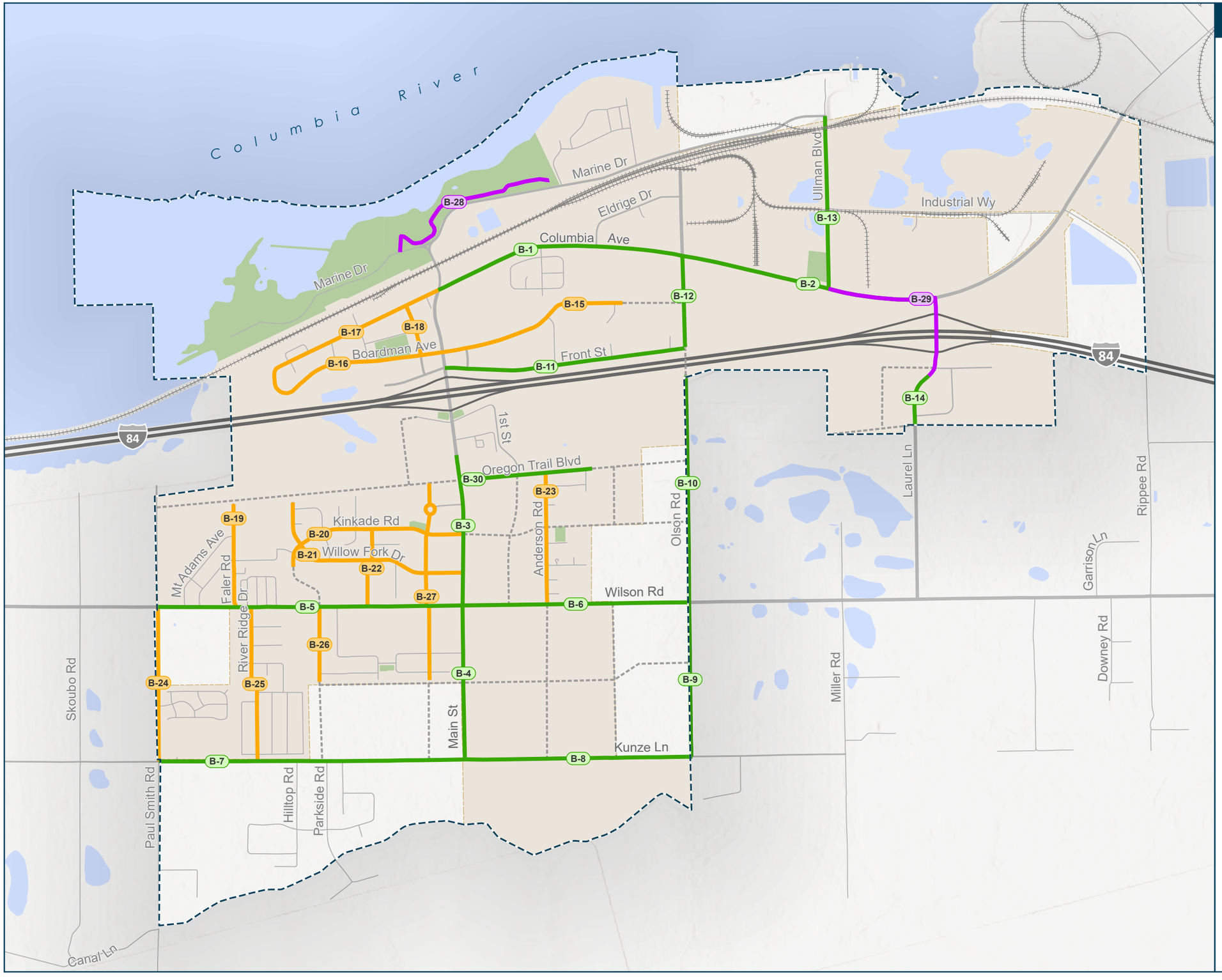
BICYCLE SYSTEM ALTERNATIVES

Table 5 identifies the preferred alternatives developed for the bicycle system. The priorities shown in the table are based on the project evaluation criteria as well as input from the project team, the project advisory committee, and the community. The cost estimates are based on average unit costs for similar improvements in the Northwest. Figure 7 illustrates the locations of the bicycle system improvement projects.

Figure 7

Bicycle Projects

Boardman STRATEGIC PLAN
CONNECTING COMMUNITIES
Making big dreams a reality.



- New Bike Lanes
- Shared Lanes
- New Multi-Use Path
- Future Roadway (See Roadway Corridor Projects for associated bicycle accommodations)
- City Boundary
- Urban Growth Boundary
- Park
- Water

0 0.25 0.5 Mile

Table 5. Bicycle Projects

Project ID	Roadway Segment	Jurisdiction	Project Description	Project Source	Cost Estimate	Priority
B-1	**Columbia Avenue:** N. Main Street to N. Olson Road	City	• Construct new 6 ft buffered bike lanes (north and south side)	-	$3.4 M	High
B-2	**Columbia Avenue:** N. Olson Road to Laurel Ln	City	• Construct new 6 ft buffered bike lanes (north and south side)	-	$3.5 M	Med
B-3	**S. Main Street:** S. Main Street to Oregon Trail Boulevard	City	• Construct new 6 ft buffered bike lanes (east and west side)	Main Street Downtown Development Plan	$2.0 M	High
B-4	**S Main Street:** Wilson Road to Kunze Lane	City	• Construct new 6 ft buffered bike lanes (east and west side)	-	$2.1 M	Low[1]
B-5	**Wilson Road:** Paul Smith Road to S. Main Street	City	• Construct new 6 ft buffered bike lanes (north and south side)	-	$4.1 M	Med[1]
B-6	**Wilson Road:** S. Main Street to S. Olson Road	City	• Construct new 6 ft buffered bike lanes (north and south side)	-	$3.0 M	Low[1]
B-7	**Kunze Lane:** Paul Smith Road to S. Main Street	City/County	• Construct new 6 ft buffered bike lane (north and south side)	-	$4.1 M	Vision[1]
B-8	**Kunze Lane:** S. Main Street to S. Olson Road	City/County	• Construct new 6 ft buffered bike lane (north and south side)	-	$3.1 M	Vision[1]
B-9	**Olson Road:** Kunze Lane to Wilson Road	City/County	• Construct new 6 ft bike lane (east and west side)	-	$2.1 M	Vision[1]
B-10	**Olson Road:** Wilson Road to north extents	City/County	• Construct new 6 ft bike lane (east and west side)	-	$3.0 M	Vision[1]

B-11	**NE Front Street:** N. Main Street to N. Olson Road	City	• Construct new 6 ft bike lane (north and south side)	-	$3.3 M	High
B-12	**Olson Road:** NE Front Street to Columbia Ave	County	• Construct new 6 ft bike lane (east and west side)	-	$1.2 M	High[1]
B-13	**Ullman Blvd:** Columbia Avenue to Marine Drive	Port of Morrow/City	• Construct new 6 ft bike lane (east and west side)	-	$2.3 M	Low
B-14	**Laurel Lane:** Yates Lane to south city limits	City/County	• Construct new 6 ft bike lane (east and west side)	-	$740k	Low[1]
B-15	**Boardman Avenue:** N. Main Street to eastern limits	City	• Install shared lane markings and signs	-	$20k	High
B-16	**Boardman Avenue:** N. Main Street to Columbia Avenue	City	• Install shared lane markings and signs	-	$20k	High
B-17	**Columbia Avenue:** Boardman Avenue to N. Main Street	City	• Install shared lane markings and signs	-	$20k	High
B-18	**NW 1st Street:** Boardman Avenue to Columbia Avenue	City	• Install shared lane markings and signs	-	$10k	High
B-19	**Faler Road**: Wilson Road to north extents	City	• Install shared lane markings and signs	-	$20K	High
B-20	**Kinkade Road:** West extents to S. Main St	City	• Install shared lane markings and signs	-	$20k	High

B-21	**Willow Fork Drive:** Cottonwood Loop to S. Main Street	City	• Install shared lane markings and signs	-	$20k	High
B-22	**Locust Road:** Wilson Road to Kinkade Rd	City	• Install shared lane markings and signs	-	$330k	High
B-23	**Anderson Road:** Wilson Road to Oregon Trail Boulevard	City	• Install shared lane markings and signs	-	$20k	High
B-24	**Paul Smith Road:** Wilson Road to Kunze Lane	City	• Install shared lane markings and signs	-	$20k	Low
B-25	**River Ridge Drive:** Wilson Road to Kunze Lane	City	• Install shared lane markings and signs	-	$20k	High
B-26	**Juniper Drive:** Sage Street to Wilson Road	City	• Install shared lane markings and signs	-	$10k	High
B-27	**Tatone Street:** City Center Drive to South extents	City	• Install shared lane markings and signs	-	$10k	High
B-28	**Columbia River Heritage Trail:** Marina Park to Port of Morrow Riverfront Center	City/POM	• Reconstruct the Columbia River Heritage Trail to be a 10-foot multi-use path and construct a new connection to Marine Drive	Columbia River Heritage Trail Plan	$250k	High
B-29	**Laurel Lane/ Columbia Avenue:** Ullman Blvd to Laurel Lane	ODOT/City	• Construct new 10 ft multi-use path (west side)	2022 POM IAMP	$1.6 M	Low
B-30	**Oregon Trail Boulevard:** S. Main Street to east extents	City	• Widen roadway and construct new 6 ft buffered bike lane (north and south side)	-	$1.9M	Low

Note: The cost estimates presented do not include costs associated with right-of-way acquisition due to its high variability depending on location, parcel sizes, and other characteristics. The cost estimates also reflect the full cost of the projects, including costs likely to be funded by others, such as ODOT or private developers.

Transit Projects

Table 6 summarizes the alternatives developed to address the gaps and deficiencies in the transit facilities and services provided in Boardman.

Table 6. Boardman Transit Improvement Alternatives

Transit Facilities and Services	Considerations	Improvement	Project Source
Service Frequency, Hours, Coverage	Public comment has identified confusion regarding the frequency of transit service in Boardman.	• Work with Morrow County to install signage at every bus stop that indicates the location of the stop and includes scheduling information for The Loop. • Work with Morrow County The Loop to explore service modifications and infrastructure enhancements to existing fixed route services lines as needed.	• Morrow County TSP • Morrow County Coordinated Transit Plan
New Amenities	Most transit stops in Boardman do not have a shelter or a bench. Adding these amenities would make the ridership experience more comfortable while waiting for a bus.	• Add transit shelters and/or benches to existing bus stops • As new service is added, improve ADA accessibility to all new/proposed stop locations (if needed)	• Morrow County TSP • Morrow County Coordinated Transit Plan
Park and Ride Locations	A park and ride could be valuable for regional transit trips outside of Boardman.	• Explore establishing a shared park-n-ride at or near the Boardman Pool & Recreation Center/SAGE Center. • Explore establishing a park-n-ride at or near the Boardman City Hall.	• Morrow County TSP • Morrow County Coordinated Transit Plan

Traffic Calming Measures

To support the development of transportation improvements, a Traffic Calming Toolbox has been created to provide guidance on evaluating and implementing traffic calming measures to reduce vehicle speeds and enhance safety in the City of Boardman. The Toolbox describes individual measures, their intended effects, and considerations for application. It serves as a resource for future decisions regarding traffic calming throughout the city.

The Traffic Calming Toolbox is included in Attachment B.

Transportation Funding Plan

The following summarizes current and potential future funding sources for transportation improvements.

Current and Potential Future Funding Sources

The City of Boardman currently receives funding from the state gas tax, which is comprised of proceeds from excise taxes imposed by the state and federal government, and from several local sources.

Based on the current transportation funding sources, the City of Boardman will need to identify additional funding sources that can be dedicated to transportation-related capital improvement projects over the next 20 years. The City will likely rely upon transportation improvements grants, partnerships with regional and state agencies, and other funding sources to help implement future transportation-related improvements. Table 7 summarizes the funding opportunities and identifies the intended use of the funds and any applicable project types as broken out into the following categories.

- Local Funding Mechanisms: These can currently be used to fund future projects or can be considered by elected officials for adoption as new funding sources. Inclusion of these sources in the TSP does not create a new funding source but identifies the various funding sources that local governments throughout Oregon have utilized. In general, local funding sources are more flexible than funding obtained from state or federal grant sources. ·

- State and Federal Grants: The City can seek opportunities to leverage funding from grants at the state and federal levels for specific projects. Potential state funding sources are extremely limited, with some having significant competition. Any future improvements that rely on state funding may require City, County, and regional consensus that they are more important than transportation needs elsewhere in the region and the state. It will likely be necessary to combine multiple funding sources to pay for a single improvement project (e.g., combining state or City bicycle and pedestrian funds to pay for new bike lanes and sidewalks). At the federal level, many new grant opportunities have become available through the Infrastructure Investment and Jobs Act (IIJA). The City and partner agencies should continue to monitor available funding opportunities offered by this program through its end in fiscal year 2026.

Table 7. Priority Funding Sources for Boardman TSP Implementation

Funding Source	Description	Application
Local City-Wide Funding Sources		
Local Gas Tax	A local tax can be assessed on the purchase of gas within the urban area. This tax is added to the cost of gasoline at the pump, along with the state and federal gas taxes.	System-wide transportation facilities including streets, sidewalks, and bike lanes.
Street Utility Fees	A fee based on the number of automobile trips a particular land use generates; usually collected through a regular utility bill. Fees can also be tied to the annual registration of a vehicle to pay for improvements, expansion, and maintenance of the street system.	System-wide transportation facilities including streets, sidewalks, bike lanes, and shared use paths.
General Obligation Bond	Bonding allows municipal and county government to finance construction projects by borrowing money and paying it back over time, with interest. General obligation bonds are often used to pay for construction of large capital improvements and must be approved by a public vote because the cost of the improvement is added to property taxes over time.	Construction of major capital improvement projects within the urban area, street maintenance and incidental improvements.
Vehicle Registration Fee	An extra fee on all registered motor vehicles in the urban area. Requires county-wide approval and implementation.	Operations or capital programs.
State/Federal Sources for Specific Projects		
Statewide Transportation Improvement Program (STIP)	STIP is the State of Oregon's four-year transportation capital improvement program. ODOT's system for distributing these funds has varied over recent years. Generally, local agencies apply in advance for projects to be funded in each four-year cycle.	Projects on any facility that meet the benefit categories of the STIP.
Statewide Transportation Improvement Fund (STIF)	Introduced by the House Bill 2017 Transportation Funding Package to fund public transportation improvements across Oregon, STIF funds may be used for public transportation purposes that support the effective planning, deployment, operation, and administration of public transportation programs. This can include projects that are secondary but important to public transportation, such as walking and biking infrastructure near transit stops.	Pedestrian and bicycle improvements that provide connections to transit.
All Roads Transportation Safety (ARTS)	The federal Highway Safety Improvement Program is administered as ARTS in Oregon. ARTS provides funding to infrastructure and non-infrastructure projects that improve safety on all public roads. ARTS requires a data-driven approach and prioritizes projects in demonstrated problem areas.	Areas of safety concerns within the urban area, consistent with Oregon's Transportation Safety Action Plan.
Safe Routes to School (SRTS)	Administered by ODOT and focuses on infrastructure and non-infrastructure programs to improve access and safety for children to walk, roll, and/or bike to school.	Pedestrian and bicycle-related projects within the vicinity of local schools.

Funding Source	Description	Application
Community Paths Program	This is a State of Oregon program focused on helping communities create and maintain connections through shared-use paths.	Shared-use paths.
Oregon Parks and Recreation Local Government Grants	Oregon Parks and Recreation Department administers this program using Oregon Lottery revenues. These grants can fund acquisition, development, and major rehabilitation of public outdoor parks and recreation facilities. A match of at least 20 percent is required.	Trails and other recreational facility development or rehabilitation.
Rebuilding American Infrastructure with Sustainability and Equity (RAISE)	The RAISE Discretionary Grant program invests in projects that promise to achieve national objectives. RAISE can provide capital funding directly to any public entity, in contrast to traditional Federal programs which provide funding to very specific groups of applicants. The RAISE program provides supplemental funding for grants to the State and local entities on a competitive basis for projects that will have a significant local/regional impact.	Road, rail, transit, and port projects aimed toward national objectives with significant local or regional impact.
Infrastructure Investment and Jobs Act (IIJA)	The IIJA (aka "Bipartisan Infrastructure Law," BIL) signed into law in November 2021 includes a five-year (FY 2022-26) reauthorization of existing federal highway, transit, safety, and rail programs as well as new programs (resilience, carbon reduction, bridges, electric vehicle charging infrastructure, wildlife crossings, and reconnecting communities) and increased funding. Oregon will receive over $4.5 billion through the life of the act.	Projects around the state that will benefit drivers, transit riders, cyclists, and pedestrians, and that help maintain roads and bridges, and address climate change.
Rural Surface Transportation Grant Program (Rural Surface)	This program will support projects to improve and expand the surface transportation infrastructure in rural areas to increase connectivity, improve safety and reliability for moving people and freight, and generate regional economic growth and improve quality of life.	Surface transportation infrastructure in rural areas.

Next Steps

The PMT, joint TAC/PAC, and community, along with City Planning Commission and City Council will review and help refine the transportation solutions and their priorities documented in this memo. The refined solutions will then be presented in the Draft TSP.

Attachments

A. Alternative Traffic Operations Analysis
B. Intersection Operations Worksheets
C. Traffic Calming Toolbox

Attachment A - Alternative Traffic Operations Analysis

ATTACHMENT A – MAIN STREET OPERATIONS ASSESSMENT

This attachment documents the development and evaluation of potential Main Street corridor, I-84 interchange, and access improvement concepts for the Boardman Transportation System Plan's transportation solutions Technical Memorandum #6.

Initial Main Street Corridor Development

The initial Main Street and I-84 interchange improvement concepts considered in this assessment were developed by the project team to address the existing and forecast capacity, operations, safety, and access management conditions within the study area. Concepts were developed that focused on addressing the following specific issues:

- Mitigating the forecasted over capacity conditions at the Boardman Avenue/N. Main Street intersection.
- Improving the turning movement conflicts between the closely spaced north and south Front Street intersections with the I-84 Ramp Terminal intersections.
- Mitigating the forecasted over capacity conditions at the N. Main Street/I-84 Westbound Ramp Terminal and S. Main Street/I-84 Eastbound Ramp Terminal intersections.

Additional I-84 Crossing Opportunities

The City of Boardman is currently bisected by I-84 with key employment, retail, and school destinations located in the north half of the city and most of the existing and future residential and retail developments located in the southern half of the city. Access across I-84 is currently limited to two crossings within city limits: Main Street and Laurel Lane. Main Street is the primary corridor that links the two halves of the city, providing the most direct and convenient access to the local retail, service, civic, and school uses. Laurel Lane is less direct to most existing and future growth areas in Boardman and is primarily used as an access to the Port of Morrow and regional rural land uses.

As noted in Technical Memorandum #5's future conditions analysis, many of the key intersections along the Main Street corridor in the vicinity of, and including the I-84 interchange, are forecast to experience significant levels of traffic growth that will necessitate capacity improvements at several key intersections. Given these forecast conditions, a high-level assessment was performed that investigated potential additional I-84 crossing opportunities in the hopes that they would provide a reasonable routing alternative to Main Street, reduce forecast travel demand on the corridor, and minimize the need for major corridor and key intersection improvements.

SW Faler Road Extension

One potential I-84 crossing opportunity that was brought up for consideration was a new extension of the SW Faler Road corridor that would link the southwest and northwest quadrants of Boardman. While such an extension would provide a convenient link between the existing and future growth areas of southwest Boardman, a land use and tax lot review found that there is no reasonable opportunity to connect such an extension to the roadway network in the northwest quadrant without significant property impacts to existing residential areas. Specifically, any potential landing spot in the northwest quadrant is limited by wetlands, the UPRR rail line, and existing built-out residential development neighborhoods. As such, this option was not investigated further.

Olson Road Extension

A second potential I-84 crossing involves an extension of the Olson Road corridor. This extension project is identified as a long-term aspirational project in the current Boardman TSP and is envisioned as an extension of Olson Road either over or under I-84 where it would link its two halves and establish a continuous roadway corridor between NE Columbia Boulevard on the north side to SE Kunze Road on the south side. Unlike the land use, environmental, and private property challenges of the SW Faler Road extension option, an Olson Road extension is only limited by the complexities, challenges, and costs of crossing over/under I-84.

To assess the benefits of such a connection, a simplified travel demand modeling effort was performed to better understand the local travel demand projections associated with such an extension and if those projections would measurably lower the travel demand projections on the Main Street corridor. Considering the existing land use and future development patterns, it was determined that most key retail and school destinations will continue to be centered around and focused along the Main Street corridor. Consequently, it was found that most drivers would have to take a longer and more circuitous travel path to these key destinations when using a potential Olson Road extension. More specifically, it was estimated that an Olson Road extension would divert less than 10% of the forecast travel demand from Main Street during the AM and PM peak hours. Given that the extension is not expected to significantly reduce traffic volumes on Main Street and considering the aspirational nature of such a connection, the remaining Main Street concept development analysis was performed assuming no such connection.

N Main Street/Boardman Avenue Concept Evaluation

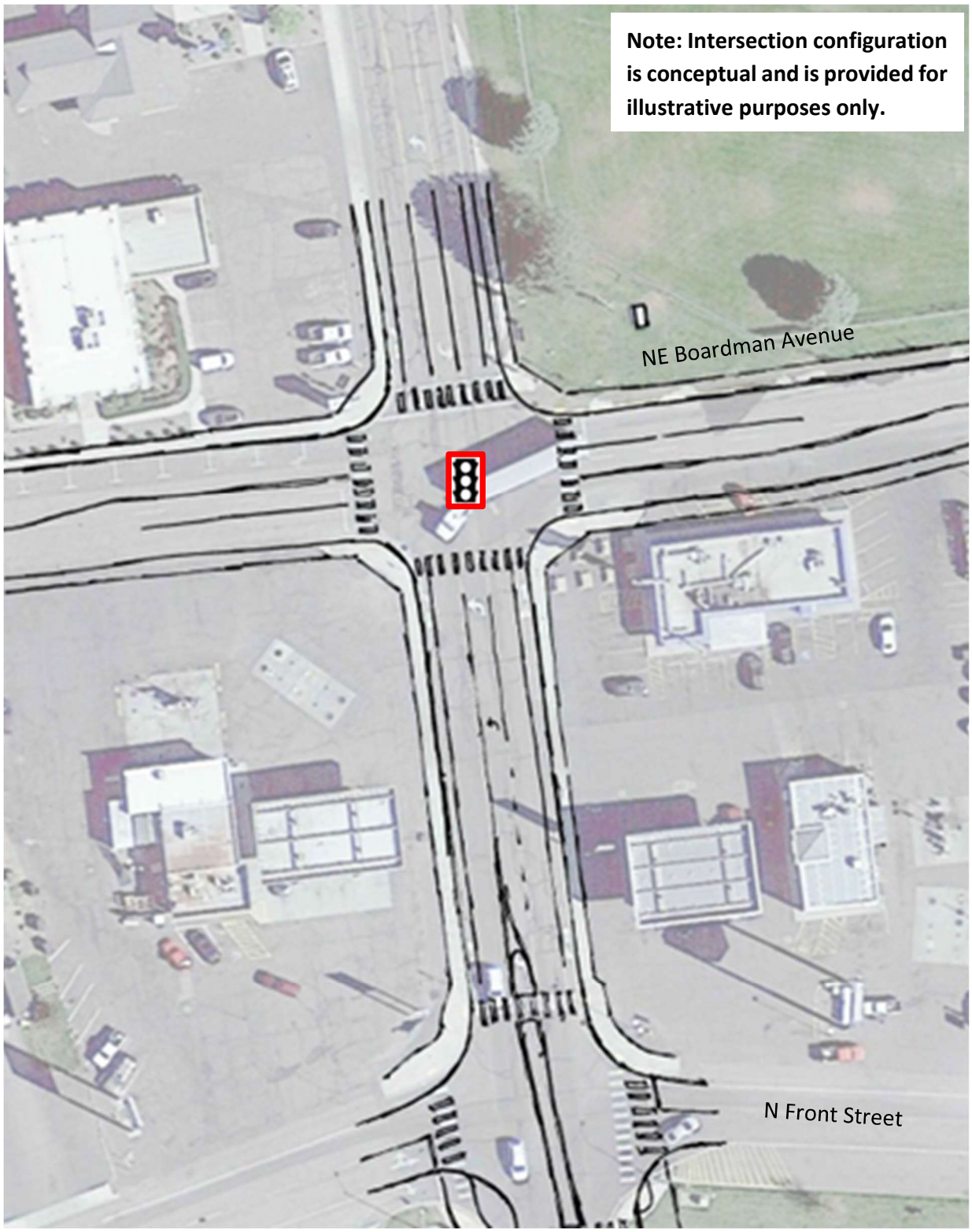
The need for traffic control improvements at N Main Street/Boardman Avenue were investigated at a planning level.

Signalization

Given the existing north, south, east, and west approaches all have adequate width to support separate left-turn and shared through/right movements, a traffic signal was investigated. A conceptual sketch of a widened signalized intersection is shown in Exhibit 1. A planning-level signal warrant analysis was conducted at the intersection in accordance with the procedures outlined in ODOT's preliminary traffic signal warrant analysis. From this analysis, it was found that the intersection would meet this preliminary signal warrant which focuses on high volumes on the intersecting minor street with high volumes on the major street. While meeting this preliminary signal warrant is not an outright indicator that signalization should be implemented, it does suggest there is sufficient projected demand to meet a basic volume-based criteria. In addition, a traffic signal could replace the existing RRFB with a standard signal-integrated pedestrian crossing phase. The pedestrian crossing phase would eliminate repeated back-to-back activations and minimize instances of vehicle queue spillback along the N Main Street corridor. Specific improvements associated with this project would include:

- Installation of a traffic signal and the removal of the existing rectangular rapid flashing beacon (RRFB) on the north leg of the intersection.
- Widening of NE Boardman Avenue to accommodate a three-lane section. This widening would include removal of the head-in parking along the north side of the C&D Drive-in.
- Reallocation of the NW Boardman Avenue travel lanes to accommodate a three-lane section. This would include the removal of the on-street parking along the north curb line between Main Street and W 1st Street.
- Installation of a raised median on Main Street from the Boardman Avenue intersection to terminate near the I-84 WB Ramp Terminal intersection. The raised median would modify Front Avenue and all commercial driveways in this section to right-in/right-out movements.

Exhibit 1 - N Main Street/Boardman Avenue Conceptual Widened Signalized Intersection



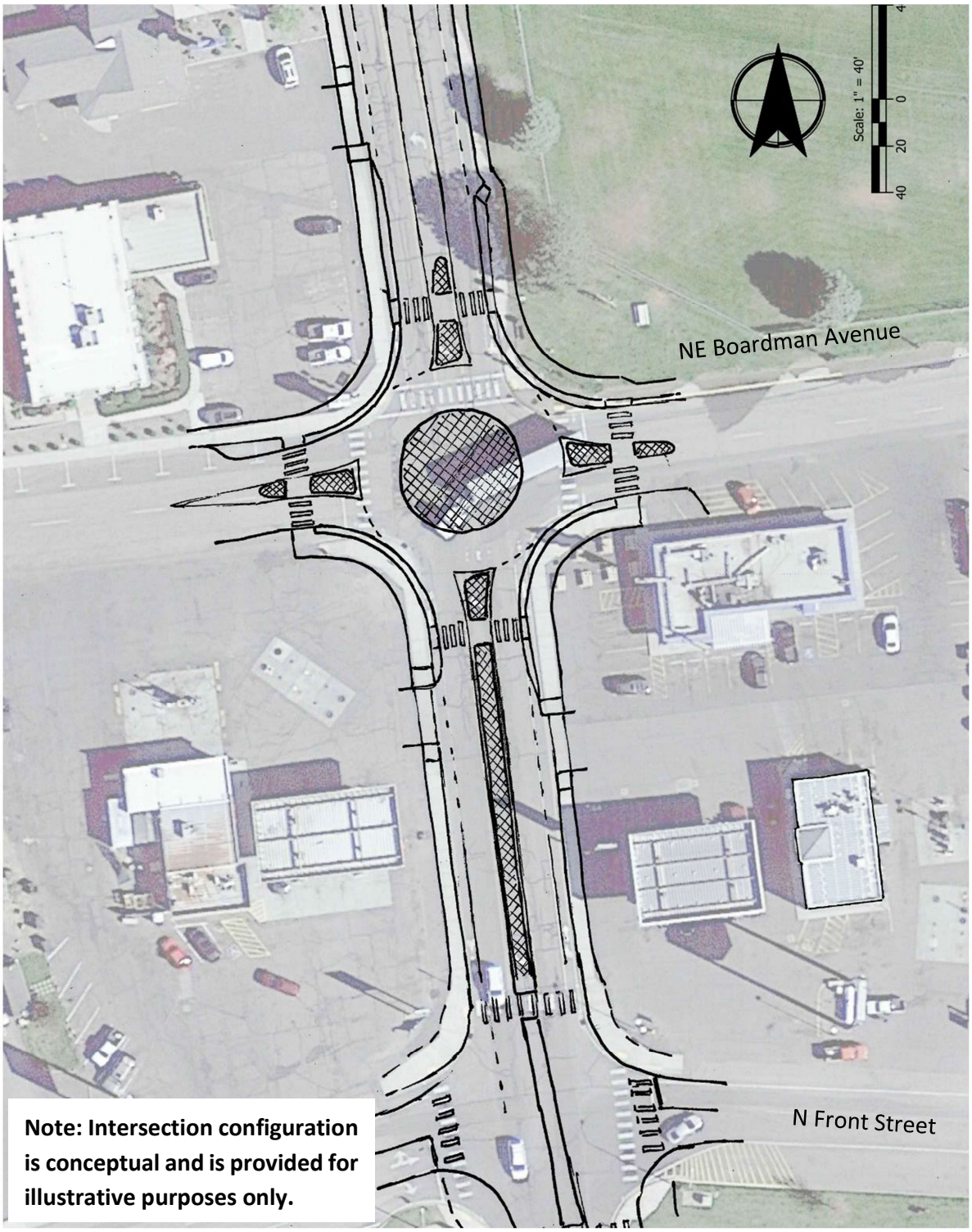
Roundabout

From an operations perspective and considering it is less than 500 feet north of the I-84 WB ramp terminal, a single lane roundabout would be an appropriate treatment at the N Main Street/Boardman Avenue intersection. However, given the interchange is expected to continue to serve freeway-oriented freight traffic, any roundabout treatment would need to be able to accommodate the circulation needs of large trucks and trailers. A conceptual sizing of a mini roundabout is shown in

Exhibit 2. A mini roundabout has a smaller footprint than a typical roundabout and a mountable center island that allows large vehicles to traverse over it if needed. As shown in the exhibit, there is the potential for some private property impacts and right-of-way acquisition needs, however the intersection can reasonably accommodate the basic footprint of a mini roundabout without major impacts to structures or on-site circulation. Specific improvements associated with this project would include:

- Reallocation of the NW Boardman Avenue travel lanes to accommodate the roundabout splitter islands. This would include the partial removal of the on-street parking along the north curb line between Main Street and W 1st Street and some head-in parking along the north side of the C&D Drive-in.
- Installation of a raised median on Main Street from the Boardman Avenue intersection to terminate near the I-84 WB Ramp Terminal intersection.

Exhibit 2 – N Main Street/Boardman Avenue Conceptual Mini Roundabout Footprint



Interchange Concept Evaluation

Interchange improvement concepts were developed at the I-84/Main Street interchange that assess traffic control improvements (signalization and roundabouts) at the I-84 EB and WB ramp terminals. A planning-level assessment was completed for each concept as summarized in Tables 3 and 4 and contains the following Each table contains the following planning-level evaluation:

- A graphical illustration that conveys the basic components of the concept overlaid on an aerial photograph.
- A short narrative summarizing the main infrastructure components of the concept.
- A planning-level evaluation using the operations/land use/access spacing/cost/constructability evaluation criteria from the original Main Street IAMP.

An operations summary of the circulation alternatives is shown in Table 1 and Table 2. As shown, traffic signals and the associated geometric/lane improvements are forecast to accommodate projected long-term traffic demands at the two interchange ramp terminals. While operationally better than roundabouts, it is recognized that the implementation of traffic signals will most likely require a complete rebuild of the interchange infrastructure along with a new wider Main Street overpass.

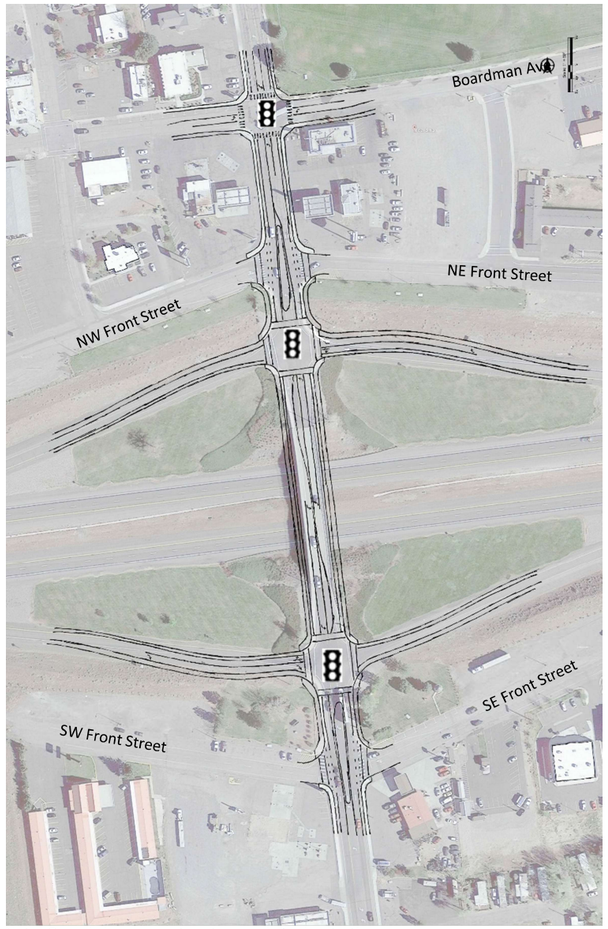
Table 1. Intersection Performance Summary, Circulation Alternative #1: Traffic Signals

ID	Intersection	Owner	Operational Standard	Forecast AM Peak Hour Operations	Forecast PM Peak Hour Operations
3	N Main Street / Boardman Avenue	City	LOS C	LOS C	LOS B
5	N Main Street / I-84 Westbound Ramp Terminal	ODOT	v/c = 0.65 for the 20-year design mobility standard	v/c = 0.59	v/c = 0.66
6	S Main Street / I-84 Eastbound Ramp Terminal	ODOT	v/c = 0.65 for the 20-year design mobility standard	v/c = 0.60	v/c = 0.60

Table 2. Intersection Performance Summary, Circulation Alternative #2: Roundabouts

ID	Intersection	Owner	Operational Standard	Forecast AM Peak Hour Operations	Forecast PM Peak Hour Operations
3	N Main Street / Boardman Avenue	City	LOS C	LOS B	LOS A
5	N Main Street / I-84 Westbound Ramp Terminal	ODOT	v/c = 0.65 for the 20-year design mobility standard	v/c = 0.74	v/c = 0.74
6	S Main Street / I-84 Eastbound Ramp Terminal	ODOT	v/c = 0.65 for the 20-year design mobility standard	v/c = 1.01	v/c = 0.83

Table 3. Circulation Alternative #1 Summary and Evaluation: Signals

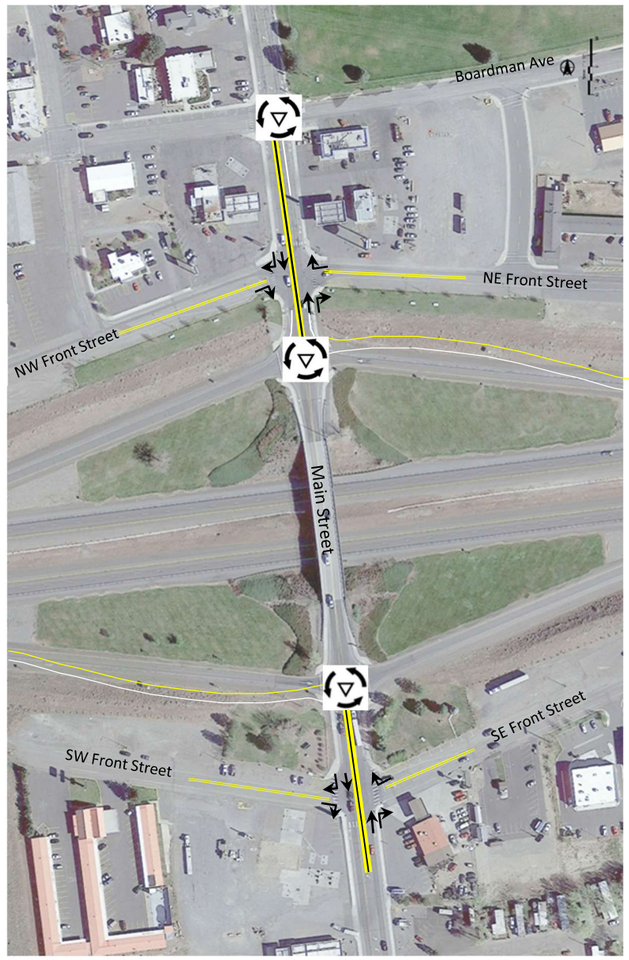
Circulation Alternative #1	Evaluation Information				Evaluation Results	
Concept Description and Illustration	**Category**	**Evaluation Criteria**	**Scoring Key**		**Score**	**Comments**
Circulation Alternative #1 widens and signalizes the two I-84 EB and WB ramp terminals (when warranted) and converts the N Main Street/NE Front Street and S Main Street/SE Front Street intersections to limited access right-in/right-out through a median on Main Street. To accommodate anticipated re-routing of traffic volumes, the N Main Street/Boardman Avenue intersection would be signalized (when warranted) along with widening of the eastbound and westbound Boardman Avenue approaches. A full reconstruction of the Main Street I-84 overpass is assumed to accommodate side-by-side NB and SB left-turn lanes at each ramp terminal. The rationale for this alternative is to develop an attainable corridor improvement that better manages the close spacing of the two Front Street intersections and incorporates long-term intersection traffic control at the adjacent interchange and supporting intersections.  Note: Graphic is a concept sketch and is for illustrative purposes only.	Transportation	Addresses the identified operational deficiencies at the Front Street, WB ramp terminal, and EB ramp terminals	+1	Fully addresses the identified operation, capacity, and queuing concerns	**+1**	**Signalization of the I-84 ramp terminal intersections would improve intersection operations, the I-84 ramp terminals would generally meet ODOT's long-term design mobility standards. The limited access restrictions at the two Front Street intersections will improve operations at those intersections.**
			0	Only partially addresses the identified operations, capacity, and queuing concerns		
			-1	Does not fundamentally address the major operations, capacity, and queueing concerns		
		Improves walking and biking along Main Street	+1	Improves walking and biking to existing and future destinations along Main Street	**+1**	**Pedestrian and bicycle movements along Main Street will improve with fewer turning movement interactions at the two Front Street intersections and signalized crossings at Boardman Avenue and the two I-84 ramp terminal volume intersections.**
			0	Does not improve walking or biking to existing or future destination along Main Street relative to existing conditions.		
	Land Use/ Economic Development	Minimizes right-of-way impacts	+1	Alternative provides for long-term growth in the study area with minimal ROW and/or circulation impacts	**0**	**Likely to be no right-of-way impacts. However, a median along N Main Street will have access impacts to adjacent retail establishments along Main Street and Front Street.**
			0	Alternative provides for long-term growth but has some ROW and/or circulation impacts		
	Access Spacing	Moves in the direction of ODOT access spacing requirements	+1	Improves or moves in the direction meeting of ODOT's access spacing guidelines	**+1**	**While the alternative does not close the two Front Street intersections, the limited access right-in/right-out configuration will minimize turning movements near the two ramp terminals and improve the safety and operations along the Main Street corridor.**
			0	Does not meet, improve, or move in the direction of meeting ODOT's access spacing guidelines relative to existing conditions.		
	Cost	Cost relative to other concepts	+1	Low construction costs	**-1**	**This concept has a planning level cost estimate of approximately $31+M.**
			0	Moderate construction costs		
			-1	Substantial construction costs		
	Implementation	Constructability	+1	Project can be constructed with relative ease and/or can maintain existing traffic during construction.	**0**	**Construction of a new I-84 overpass is likely to require some detours and/or temporary lanes to maintain traffic flow.**
			0	Construction of improvements will be a physical challenge and/or will require major detours during construction.		
					+2	**Total Score**

Miscellaneous Evaluation Comments

- Signalization of the I-84 WB and EB ramp terminals would not preclude the ability to accommodate oversized freight loads. ODOT has noted that oversized height-related loads have needed to utilize the off- and on-ramps due to clearance issues with the Main Street overpass over I-84.
- Signalization of the I-84 ramp terminals will require reconstruction of the I-84 overpass structure in order to accommodate northbound and southbound left-turn lanes at each ramp terminal. In order to accommodate long-term vehicle queues on Main Street, the overpass will need to be reconstructed to four travel lanes with side-by-side left-turn lanes.

Table 4. Circulation Alternative #2 Summary and Evaluation: Roundabouts

Circulation Alternative #2	Evaluation Information				Evaluation Results	
Concept Description and Illustration	**Category**	**Evaluation Criteria**	**Scoring Key**		**Score**	**Comments**
Circulation Alternative #2 includes single lane roundabouts at the two I-84 EB and WB ramp terminals and converts the N Main Street/NE Front Street and S Main Street/SE Front Street intersections to limited access right-in/right-out through medians on Main Street. To accommodate anticipated re-routing of traffic volumes, the N Main Street/Boardman Avenue intersection would be a roundabout. The rationale for this alternative is to better manage the close spacing of the two Front Street intersections and address the long-term operations at the I-84 ramp terminals without widening Main Street over I-84.	Transportation	Addresses the identified operational deficiencies at the Front Street, WB ramp terminal, and EB ramp terminals	+1	Fully addresses the identified operation, capacity, and queuing concerns	-1	**Roundabouts at the I-84 ramp terminals will not provide improved long-term capacity. There is still a weekday AM peak hour capacity limitation at the EB ramp terminal.**
			0	Only partially addresses the identified operations, capacity, and queuing concerns		
			-1	Does not fundamentally address the major operations, capacity, and queueing concerns		
		Improves walking and biking along Main Street	+1	Improves walking and biking to existing and future destinations along Main Street	+1	**Pedestrian and bicycle movements along Main Street will improve with fewer turning movement interactions at the two Front Street intersections a signalized crossings at Boardman Avenue, and pedestrian crossing accommodations at the I-84 ramp terminal roundabouts.**
			0	Does not improve walking or biking to existing or future destination along Main Street relative to existing conditions.		
	Land Use/ Economic Development	Minimizes right-of-way impacts	+1	Alternative provides for long-term growth in the study area with minimal ROW and/or circulation impacts	0	**Likely to be no right-of-way impacts to private properties as the roundabouts can be constructed within existing ODOT right-of-way. However, a median along N Main Street will have access impacts to adjacent retail establishments along Main Street and Front Street.**
			0	Alternative precludes long-term growth or has significant ROW and/or circulation impacts		
	Access Spacing	Moves in the direction of ODOT access spacing requirements	+1	Improves or moves in the direction meeting of ODOT's access spacing guidelines	+1	**While the alternative does not close the two Front Street intersections, the limited access right-in/right-out configuration will minimize turning movements near the two ramp terminals and improve the safety and operations along the Main Street corridor.**
			0	Does not meet, improve, or move in the direction of meeting ODOT's access spacing guidelines relative to existing conditions.		
	Cost	Cost relative to other concepts	+1	Low construction costs	-1	**This concept has a planning level cost estimate of approximately $30+M.**
			0	Moderate construction costs		
			-1	Substantial construction costs		
	Implementation	Constructability	+1	Project can be constructed with relative ease and/or can maintain existing traffic during construction.	0	**Construction of the roundabouts is likely to require some detours and/or temporary lanes to maintain traffic flow.**
			0	Construction of improvements will be a physical challenge and/or will require detours during construction.		
					0	**Total Score**



Note: Graphic is a concept sketch and is for illustrative purposes only.

Miscellaneous Evaluation Comments

- Forecast traffic volumes will require a multi-lane roundabout or enhanced capacity features that will require a larger roundabout and likely necessitate a full replacement of the Main Street overpass structure.
- The accommodation of roundabouts at the I-84 EB and WB ramp terminals will require realignment of the respective offramps. Additional design efforts would need to explore the ramifications of accommodating the offramp realignments considering the sloped embankments at the interchange.
- Additional design efforts would need to explore the size of the roundabouts and their ability to accommodate oversized freight movements.

S Main Street/Oregon Trail Boulevard Evaluation

The need for traffic control improvements at S Main Street/Oregon Trail Boulevard were investigated at a planning level. It is projected that the intersection will operate over capacity in the 20-year horizon. The City should consider improvements to address these capacity constraints when they arise, which could include signalization or the installation of a single-lane roundabout.

S Main Street/Kinkade Road Evaluation

The need for traffic control improvements at S Main Street/Kinkade Road were investigated at a planning level. It is projected that the intersection will operate overcapacity in the 20-year horizon. The City should consider improvements to address these capacity constraints when they arise, which could include signalization or the installation of a single-lane roundabout.

Attachment B - Intersection Operations Worksheets

Circulation Alternative #1: Signals

Vistro File: H:\...\30287_Vistro_RIRO at Front_Signals - AXR -AXG.vistro
Report File: H:\...\Signals 2045 AM.pdf

Scenario 1 Signals 2045 AM
6/27/2025

Intersection Analysis Summary

ID	Intersection Name	Control Type	Method	Worst Mvmt	V/C	Delay (s/veh)	LOS
3	Main St/Boardman Ave	Signalized	HCM 7th Edition	WB Left	0.735	30.2	C
5	Main St/I-84 WB Ramp Terminal	Signalized	HCM 7th Edition	WB Left	0.591	14.9	B
6	Main St/I-84 EB Ramp Terminal	Signalized	HCM 7th Edition	SB Left	0.600	11.6	B

V/C, Delay, LOS: For two-way stop, these values are taken from the movement with the worst (highest) delay value. For all other control types, they are taken for the whole intersection.

Intersection Level Of Service Report
Intersection 3: Main St/Boardman Ave

Control Type:	Signalized	Delay (sec / veh):	30.2
Analysis Method:	HCM 7th Edition	Level Of Service:	C
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.735

Intersection Setup

Name	Main St			Main St			Boardman Ave			Boardman Ave		
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	0	1	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]	20.00			20.00			25.00			20.00		
Grade [%]	0.00			0.00			0.00			0.00		
Curb Present	No			No			No			No		
Crosswalk	Yes			Yes			Yes			Yes		

Volumes

Name	Main St			Main St			Boardman Ave			Boardman Ave		
Base Volume Input [veh/h]	93	173	201	25	88	30	30	18	48	265	21	21
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 [%]	16.00	5.00	4.00	12.00	9.00	4.00	0.00	0.00	6.00	9.00	6.00	6.00
Proportion of CAVs [%]	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]	93	173	201	25	88	30	30	18	48	265	21	21
Peak Hour Factor	0.6800	0.6800	0.6800	0.6800	0.6800	0.6800	0.6800	0.6800	0.6800	0.6800	0.6800	0.6800
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]	34	64	74	9	32	11	11	7	18	97	8	8
Total Analysis Volume [veh/h]	137	254	296	37	129	44	44	26	71	390	31	31
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 m	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	No
Signal Coordination Group	-
Cycle Length [s]	100
Active Pattern	Pattern 1
Coordination Type	Time of Day Pattern Coordinated
Actuation Type	Fully actuated
Offset [s]	0.0
Offset Reference	LagCoordGreen
Permissive Mode	SingleBand
Lost time [s]	8.00

Phasing & Timing (Basic)

Control Type	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss
Signal Group	0	6	0	0	2	0	0	8	0	7	4	0
Auxiliary Signal Groups												
Maximum Green [s]	0	60	0	0	60	0	0	32	0	5	32	0
Amber [s]	0.0	3.5	0.0	0.0	3.5	0.0	0.0	3.5	0.0	3.0	3.5	0.0
All red [s]	0.0	0.5	0.0	0.0	0.5	0.0	0.0	0.5	0.0	1.0	0.5	0.0
Walk [s]	0	7	0	0	7	0	0	7	0	0	7	0
Pedestrian Clearance [s]	0	11	0	0	11	0	0	11	0	0	11	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	0.0	0.0	2.0	0.0	2.0	2.0	0.0
I2, Clearance Lost Time [s]	0.0	2.0	0.0	0.0	2.0	0.0	0.0	2.0	0.0	2.0	2.0	0.0
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

Phasing & Timing: Pattern 1

Split [s]	0	64	0	0	64	0	0	36	0	9	36	0
Lead / Lag	-	-	-	-	-	-	-	-	-	Lead	-	-
Minimum Green [s]	0	10	0	0	10	0	0	10	0	5	10	0
Vehicle Extension [s]	0.0	3.0	0.0	0.0	3.0	0.0	0.0	3.0	0.0	3.0	3.0	0.0
Minimum Recall		Yes			Yes			No			No	
Maximum Recall		No			No			No			No	
Pedestrian Recall		No			No			No			No	

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	L	C
C, Cycle Length [s]	100	100	100	100	100	100	100	100
L, Total Lost Time per Cycle [s]	4.00	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	2.00	0.00	2.00	0.00	2.00	0.00
l2, Clearance Lost Time [s]	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00
g_i, Effective Green Time [s]	60	60	60	60	32	32	32	32
g / C, Green / Cycle	0.60	0.60	0.60	0.60	0.32	0.32	0.32	0.32
(v / s)_i Volume / Saturation Flow Rate	0.13	0.36	0.05	0.11	0.03	0.06	0.32	0.04
s, saturation flow rate [veh/h]	1075	1535	789	1556	1362	1550	1225	1532
c, Capacity [veh/h]	663	921	418	933	444	496	386	490
d1, Uniform Delay [s]	5.73	5.37	9.38	4.26	27.28	24.66	39.56	24.10
k, delay calibration	0.50	0.50	0.50	0.50	0.11	0.11	0.45	0.11
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
d2, Incremental Delay [s]	0.71	2.85	0.42	0.44	0.10	0.19	45.72	0.11
d3, Initial Queue Delay [s]	0.00	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	1.00	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

Lane Group Results

X, volume / capacity	0.21	0.60	0.09	0.19	0.10	0.20	1.01	0.13
d, Delay for Lane Group [s/veh]	6.43	8.22	9.80	4.70	27.38	24.85	85.27	24.21
Lane Group LOS	A	A	A	A	C	C	F	C
Critical Lane Group	No	Yes	No	No	No	No	Yes	No
50th-Percentile Queue Length [veh/ln]	0.87	3.64	0.38	0.91	0.81	1.71	14.70	1.08
50th-Percentile Queue Length [ft/ln]	21.68	90.93	9.38	22.71	20.22	42.64	367.59	26.97
95th-Percentile Queue Length [veh/ln]	1.56	6.55	0.68	1.64	1.46	3.07	21.12	1.94
95th-Percentile Queue Length [ft/ln]	39.03	163.67	16.88	40.88	36.39	76.76	527.88	48.55

Movement, Approach, & Intersection Results

d_M, Delay for Movement [s/veh]	6.43	8.22	8.22	9.80	4.70	4.70	27.38	24.85	24.85	85.27	24.21	24.21
Movement LOS	A	A	A	A	A	A	C	C	C	F	C	C
d_A, Approach Delay [s/veh]	7.87			5.60			25.64			76.90		
Approach LOS	A			A			C			E		
d_I, Intersection Delay [s/veh]	30.17											
Intersection LOS	C											
Intersection V/C	0.735											

Emissions

Vehicle Miles Traveled [mph]	7.05	28.29	7.59	35.47	4.52	9.96	40.11	6.38
Stops [stops/h]	31.23	130.93	13.50	32.71	29.12	61.41	529.33	38.84
Fuel consumption [US gal/h]	0.60	2.64	0.48	2.00	0.56	1.17	10.05	0.72
CO [g/h]	42.29	184.73	33.73	139.96	39.14	82.06	702.67	50.09
NOx [g/h]	8.23	35.94	6.56	27.23	7.61	15.97	136.71	9.75
VOC [g/h]	9.80	42.81	7.82	32.44	9.07	19.02	162.85	11.61

Other Modes

g_Walk,mi, Effective Walk Time [s]	11.0	11.0	11.0	11.0
M_corner, Corner Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
M_CW, Crosswalk Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
d_p, Pedestrian Delay [s]	39.61	39.61	39.61	39.61
l_p,int, Pedestrian LOS Score for Intersectio	2.776	2.124	2.236	2.173
Crosswalk LOS	C	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]	1200	1200	640	640
d_b, Bicycle Delay [s]	8.00	8.00	23.12	23.12
l_b,int, Bicycle LOS Score for Intersection	2.693	1.906	1.792	2.305
Bicycle LOS	B	A	A	B

Sequence

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



Intersection Level Of Service Report
Intersection 5: Main St/I-84 WB Ramp Terminal

Control Type:	Signalized	Delay (sec / veh):	14.9
Analysis Method:	HCM 7th Edition	Level Of Service:	B
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.591

Intersection Setup

Name	Main St			Main St						I-84 WB		
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	0	0	1	0	0	0	1	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]	30.00			30.00			30.00			45.00		
Grade [%]	0.00			0.00			0.00			0.00		
Curb Present	No			No						No		
Crosswalk	Yes			Yes			Yes			Yes		

Volumes

Name	Main St			Main St						I-84 WB		
Base Volume Input [veh/h]	37	474	0	0	420	53	0	0	0	200	1	159
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 [%]	24.00	5.00	2.00	2.00	8.00	19.00	2.00	2.00	2.00	4.00	0.00	15.00
Proportion of CAVs [%]	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]	37	474	0	0	420	53	0	0	0	200	1	159
Peak Hour Factor	0.7800	0.7800	1.0000	1.0000	0.7800	0.7800	1.0000	1.0000	1.0000	0.7800	0.7800	0.7800
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]	12	152	0	0	135	17	0	0	0	64	0	51
Total Analysis Volume [veh/h]	47	608	0	0	538	68	0	0	0	256	1	204
Presence of On-Street Parking	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 m	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			1			0			0		

Intersection Settings

Located in CBD	No
Signal Coordination Group	-
Cycle Length [s]	100
Active Pattern	Pattern 1
Coordination Type	Time of Day Pattern Coordinated
Actuation Type	Fully actuated
Offset [s]	0.0
Offset Reference	LagCoordGreen
Permissive Mode	SingleBand
Lost time [s]	12.00

Phasing & Timing (Basic)

Control Type	ProtPer	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Split	Split	Split
Signal Group	1	6	0	0	2	0	0	0	0	0	4	0
Auxiliary Signal Groups												
Maximum Green [s]	10	27	0	0	27	0	0	0	0	0	25	0
Amber [s]	3.5	3.5	0.0	0.0	3.5	0.0	0.0	0.0	0.0	0.0	3.5	0.0
All red [s]	0.5	0.5	0.0	0.0	0.5	0.0	0.0	0.0	0.0	0.0	0.5	0.0
Walk [s]	0	7	0	0	7	0	0	0	0	0	7	0
Pedestrian Clearance [s]	0	11	0	0	11	0	0	0	0	0	11	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	
I1, Start-Up Lost Time [s]	2.0	2.0	0.0	0.0	2.0	0.0	0.0	0.0	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	0.0	0.0	0.0	2.0	0.0
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

Phasing & Timing: Pattern 1

Split [s]	14	73	0	0	59	0	0	0	0	0	27	0
Lead / Lag	Lead	-	-	-	-	-	-	-	-	-	-	-
Minimum Green [s]	5	10	0	0	10	0	0	0	0	0	10	0
Vehicle Extension [s]	3.0	3.0	0.0	0.0	3.0	0.0	0.0	0.0	0.0	0.0	3.0	0.0
Minimum Recall	No	Yes			Yes						No	
Maximum Recall	No	No			No						No	
Pedestrian Recall	No	No			No						No	

Exclusive Pedestrian Phase

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

Lane Group Calculations

Lane Group	L	C	C	R		L	C
C, Cycle Length [s]	100	100	100	100		100	100
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	0.00	0.00		0.00	0.00
l2, Clearance Lost Time [s]	0.00	2.00	2.00	2.00		2.00	2.00
g_i, Effective Green Time [s]	74	74	66	66		18	18
g / C, Green / Cycle	0.74	0.74	0.66	0.66		0.18	0.18
(v / s)_i Volume / Saturation Flow Rate	0.07	0.36	0.33	0.05		0.16	0.14
s, saturation flow rate [veh/h]	722	1681	1639	1238		1614	1489
c, Capacity [veh/h]	584	1243	1087	821		291	269
d1, Uniform Delay [s]	0.58	0.19	2.35	1.99		39.88	38.91
k, delay calibration	0.14	0.50	0.50	0.50		0.18	0.12
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00		1.00	1.00
d2, Incremental Delay [s]	0.08	1.38	1.61	0.20		12.84	4.78
d3, Initial Queue Delay [s]	0.00	0.00	0.00	0.00		0.00	0.00
Rp, platoon ratio	1.33	1.33	1.33	1.33		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	0.08	0.49	0.50	0.08		0.88	0.76
d, Delay for Lane Group [s/veh]	0.66	1.57	3.96	2.19		52.72	43.70
Lane Group LOS	A	A	A	A		D	D
Critical Lane Group	No	Yes	No	No		Yes	No
50th-Percentile Queue Length [veh/ln]	0.02	0.62	1.84	0.20		6.88	4.92
50th-Percentile Queue Length [ft/ln]	0.59	15.57	46.03	5.00		171.88	122.94
95th-Percentile Queue Length [veh/ln]	0.04	1.12	3.31	0.36		11.18	8.55
95th-Percentile Queue Length [ft/ln]	1.06	28.02	82.86	8.99		279.38	213.86

Movement, Approach, & Intersection Results

d_M, Delay for Movement [s/veh]	0.66	1.57	0.00	0.00	3.96	2.19	0.00	0.00	0.00	52.72	43.70	43.70
Movement LOS	A	A			A	A				D	D	D
d_A, Approach Delay [s/veh]	1.50			3.76			0.00			48.71		
Approach LOS	A			A			A			D		
d_I, Intersection Delay [s/veh]	14.93											
Intersection LOS	B											
Intersection V/C	0.591											

Emissions

Vehicle Miles Traveled [mph]	4.88	63.07	21.92	2.77		26.49	21.21
Stops [stops/h]	0.85	22.43	66.32	7.20		247.63	177.13
Fuel consumption [US gal/h]	0.21	2.91	1.70	0.18		6.73	4.75
CO [g/h]	14.79	203.70	119.01	12.87		470.64	332.18
NOx [g/h]	2.88	39.63	23.15	2.50		91.57	64.63
VOC [g/h]	3.43	47.21	27.58	2.98		109.07	76.99

Other Modes

g_Walk,mi, Effective Walk Time [s]	11.0	11.0	11.0	11.0
M_corner, Corner Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
M_CW, Crosswalk Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
d_p, Pedestrian Delay [s]	39.58	39.58	39.58	39.58
l_p,int, Pedestrian LOS Score for Intersectio	2.416	2.406	1.602	2.170
Crosswalk LOS	B	B	A	B
s_b, Saturation Flow Rate of the bicycle lane	2000	2000	2000	2000
c_b, Capacity of the bicycle lane [bicycles/h]	1381	1101	0	460
d_b, Bicycle Delay [s]	4.79	10.11	49.97	29.62
l_b,int, Bicycle LOS Score for Intersection	2.640	2.560	4.132	2.320
Bicycle LOS	B	B	D	B

Sequence

Ring 1	1	2	-	4	-	-	-	-	-	-	-	-	-	-	-	-
Ring 2	-	6	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-



Intersection Level Of Service Report
Intersection 6: Main St/I-84 EB Ramp Terminal

Control Type:	Signalized	Delay (sec / veh):	11.6
Analysis Method:	HCM 7th Edition	Level Of Service:	B
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.600

Intersection Setup

Name	Main St			Main St			I-84 EB					
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	1	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]	30.00			30.00			45.00			30.00		
Grade [%]	0.00			0.00			0.00			0.00		
Curb Present	No			No			No					
Crosswalk	Yes			Yes			Yes			Yes		

Volumes

Name	Main St			Main St			I-84 EB					
Base Volume Input [veh/h]	0	478	321	173	492	0	33	0	24	0	0	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	6.00	3.00	15.00	6.00	2.00	18.00	0.00	14.00	2.00	2.00	2.00
Proportion of CAVs [%]	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	478	321	173	492	0	33	0	24	0	0	0
Peak Hour Factor	1.0000	0.8100	0.8100	0.8100	0.8100	1.0000	0.8100	0.8100	0.8100	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]	0	148	99	53	152	0	10	0	7	0	0	0
Total Analysis Volume [veh/h]	0	590	396	214	607	0	41	0	30	0	0	0
Presence of On-Street Parking	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 m	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]	1			1			0			0		

Intersection Settings

Located in CBD	No
Signal Coordination Group	-
Cycle Length [s]	100
Active Pattern	Pattern 1
Coordination Type	Time of Day Pattern Coordinated
Actuation Type	Fully actuated
Offset [s]	0.0
Offset Reference	LagCoordGreen
Permissive Mode	SingleBand
Lost time [s]	12.00

Phasing & Timing (Basic)

Control Type	Permiss	Permiss	Permiss	Protecte	Permiss	Permiss	Split	Split	Split	Permiss	Permiss	Permiss
Signal Group	0	6	0	5	2	0	0	8	0	0	0	0
Auxiliary Signal Groups												
Maximum Green [s]	0	100	0	20	100	0	0	40	0	0	0	0
Amber [s]	0.0	3.5	0.0	3.5	3.5	0.0	0.0	3.5	0.0	0.0	0.0	0.0
All red [s]	0.0	0.5	0.0	0.5	0.5	0.0	0.0	0.5	0.0	0.0	0.0	0.0
Walk [s]	0	7	0	0	7	0	0	7	0	0	0	0
Pedestrian Clearance [s]	0	11	0	0	11	0	0	11	0	0	0	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				
I1, Start-Up Lost Time [s]	0.0	2.0	0.0	2.0	2.0	0.0	0.0	2.0	0.0	0.0	0.0	0.0
I2, Clearance Lost Time [s]	0.0	2.0	0.0	2.0	2.0	0.0	0.0	2.0	0.0	0.0	0.0	0.0
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

Phasing & Timing: Pattern 1

Split [s]	0	54	0	24	78	0	0	22	0	0	0	0
Lead / Lag	-	-	-	Lead	-	-	-	-	-	-	-	-
Minimum Green [s]	0	10	0	5	10	0	0	10	0	0	0	0
Vehicle Extension [s]	0.0	3.0	0.0	3.0	3.0	0.0	0.0	3.0	0.0	0.0	0.0	0.0
Minimum Recall		Yes		No	Yes			No				
Maximum Recall		No		No	No			No				
Pedestrian Recall		No		No	No			No				

Exclusive Pedestrian Phase

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

Lane Group Calculations

Lane Group	C	R	L	C	L	C	
C, Cycle Length [s]	100	100	100	100	100	100	
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	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	
g_i, Effective Green Time [s]	63	63	16	83	9	9	
g / C, Green / Cycle	0.63	0.63	0.16	0.83	0.09	0.09	
(v / s)_i Volume / Saturation Flow Rate	0.35	0.28	0.15	0.36	0.03	0.02	
s, saturation flow rate [veh/h]	1667	1422	1469	1667	1430	1488	
c, Capacity [veh/h]	1048	894	241	1388	125	130	
d1, Uniform Delay [s]	3.89	3.58	38.26	0.00	42.98	42.60	
k, delay calibration	0.50	0.50	0.24	0.50	0.11	0.11	
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	
d2, Incremental Delay [s]	2.19	1.59	19.94	1.00	1.51	0.89	
d3, Initial Queue Delay [s]	0.00	0.00	0.00	0.00	0.00	0.00	
Rp, platoon ratio	1.33	1.33	1.33	1.33	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	0.56	0.44	0.89	0.44	0.33	0.23	
d, Delay for Lane Group [s/veh]	6.08	5.17	58.20	1.00	44.48	43.50	
Lane Group LOS	A	A	E	A	D	D	
Critical Lane Group	Yes	No	Yes	No	Yes	No	
50th-Percentile Queue Length [veh/ln]	2.87	1.84	6.09	0.39	0.97	0.70	
50th-Percentile Queue Length [ft/ln]	71.87	45.93	152.27	9.68	24.35	17.52	
95th-Percentile Queue Length [veh/ln]	5.17	3.31	10.14	0.70	1.75	1.26	
95th-Percentile Queue Length [ft/ln]	129.37	82.67	253.46	17.42	43.83	31.54	

Movement, Approach, & Intersection Results

d_M, Delay for Movement [s/veh]	0.00	6.08	5.17	58.20	1.00	0.00	44.48	43.50	43.50	0.00	0.00	0.00
Movement LOS		A	A	E	A		D	D	D			
d_A, Approach Delay [s/veh]	5.72			15.91			44.07			0.00		
Approach LOS	A			B			D			A		
d_I, Intersection Delay [s/veh]	11.62											
Intersection LOS	B											
Intersection V/C	0.600											

Emissions

Vehicle Miles Traveled [mph]	20.60	13.83	22.20	62.97	4.85	3.55	
Stops [stops/h]	103.35	66.04	218.96	13.91	35.02	25.19	
Fuel consumption [US gal/h]	2.15	1.35	4.66	2.79	0.97	0.70	
CO [g/h]	150.26	94.41	325.59	195.23	68.00	48.96	
NOx [g/h]	29.23	18.37	63.35	37.98	13.23	9.53	
VOC [g/h]	34.82	21.88	75.46	45.25	15.76	11.35	

Other Modes

g_Walk,mi, Effective Walk Time [s]	11.0	11.0	11.0	11.0
M_corner, Corner Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
M_CW, Crosswalk Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
d_p, Pedestrian Delay [s]	39.67	39.67	39.67	39.67
l_p,int, Pedestrian LOS Score for Intersectio	2.473	2.417	1.980	2.023
Crosswalk LOS	B	B	A	B
s_b, Saturation Flow Rate of the bicycle lane	2000	2000	2000	2000
c_b, Capacity of the bicycle lane [bicycles/h]	999	1478	359	0
d_b, Bicycle Delay [s]	12.56	3.41	33.69	50.07
l_b,int, Bicycle LOS Score for Intersection	3.187	2.914	1.677	4.132
Bicycle LOS	C	C	A	D

Sequence

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



Vistro File: H:\...\30287_Vistro_RIRO at Front_Signals - AXR -AXG.vistro
Report File: H:\...\Signals 2045 PM.pdf

Scenario 2 Signals 2045 PM
6/27/2025

Intersection Analysis Summary

ID	Intersection Name	Control Type	Method	Worst Mvmt	V/C	Delay (s/veh)	LOS
3	Main St/Boardman Ave	Signalized	HCM 7th Edition	WB Left	0.436	10.8	B
5	Main St/I-84 WB Ramp Terminal	Signalized	HCM 7th Edition	WB Left	0.663	23.0	C
6	Main St/I-84 EB Ramp Terminal	Signalized	HCM 7th Edition	EB Left	0.602	15.4	B

V/C, Delay, LOS: For two-way stop, these values are taken from the movement with the worst (highest) delay value. For all other control types, they are taken for the whole intersection.

Intersection Level Of Service Report
Intersection 3: Main St/Boardman Ave

Control Type:	Signalized	Delay (sec / veh):	10.8
Analysis Method:	HCM 7th Edition	Level Of Service:	B
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.436

Intersection Setup

Name	Main St			Main St			Boardman Ave			Boardman Ave		
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	0	1	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]	20.00			20.00			25.00			20.00		
Grade [%]	0.00			0.00			0.00			0.00		
Curb Present	No			No			No			No		
Crosswalk	Yes			Yes			Yes			Yes		

Volumes

Name	Main St			Main St			Boardman Ave			Boardman Ave		
Base Volume Input [veh/h]	206	204	42	19	192	29	19	2	91	226	11	8
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 [%]	3.00	2.00	17.00	10.00	2.00	0.00	0.00	0.00	3.00	0.00	11.00	14.00
Proportion of CAVs [%]	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]	206	204	42	19	192	29	19	2	91	226	11	8
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]	55	55	11	5	52	8	5	1	24	61	3	2
Total Analysis Volume [veh/h]	222	219	45	20	206	31	20	2	98	243	12	9
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 m	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			1			0		

Intersection Settings

Located in CBD	No
Signal Coordination Group	-
Cycle Length [s]	63
Active Pattern	Pattern 1
Coordination Type	Time of Day Pattern Coordinated
Actuation Type	Fully actuated
Offset [s]	0.0
Offset Reference	LagCoordGreen
Permissive Mode	SingleBand
Lost time [s]	8.00

Phasing & Timing (Basic)

Control Type	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss
Signal Group	0	6	0	0	2	0	0	8	0	0	4	0
Auxiliary Signal Groups												
Maximum Green [s]	0	35	0	0	35	0	0	20	0	0	20	0
Amber [s]	0.0	3.5	0.0	0.0	3.5	0.0	0.0	3.5	0.0	0.0	3.5	0.0
All red [s]	0.0	0.5	0.0	0.0	0.5	0.0	0.0	0.5	0.0	0.0	0.5	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]	0.0	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]	0.0	2.0	0.0	0.0	2.0	0.0	0.0	2.0	0.0	0.0	2.0	0.0
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

Phasing & Timing: Pattern 1

Split [s]	0	39	0	0	39	0	0	24	0	0	24	0
Lead / Lag	-	-	-	-	-	-	-	-	-	-	-	-
Minimum Green [s]	0	10	0	0	10	0	0	10	0	0	10	0
Vehicle Extension [s]	0.0	3.0	0.0	0.0	3.0	0.0	0.0	3.0	0.0	0.0	3.0	0.0
Minimum Recall		Yes			Yes			No			No	
Maximum Recall		No			No			No			No	
Pedestrian Recall		No			No			No			No	

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	L	C
C, Cycle Length [s]	63	63	63	63	63	63	63	63
L, Total Lost Time per Cycle [s]	4.00	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	2.00	0.00	2.00	0.00	2.00	0.00
l2, Clearance Lost Time [s]	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00
g_i, Effective Green Time [s]	37	37	37	37	18	18	18	18
g / C, Green / Cycle	0.59	0.59	0.59	0.59	0.29	0.29	0.29	0.29
(v / s)_i Volume / Saturation Flow Rate	0.20	0.16	0.02	0.14	0.01	0.07	0.18	0.01
s, saturation flow rate [veh/h]	1134	1672	1044	1683	1413	1461	1315	1486
c, Capacity [veh/h]	689	985	637	992	467	415	388	422
d1, Uniform Delay [s]	5.04	3.07	4.37	3.03	18.00	17.34	24.22	16.38
k, delay calibration	0.50	0.50	0.50	0.50	0.11	0.11	0.13	0.11
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
d2, Incremental Delay [s]	1.24	0.67	0.09	0.57	0.04	0.30	2.01	0.05
d3, Initial Queue Delay [s]	0.00	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	1.00	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

Lane Group Results

X, volume / capacity	0.32	0.27	0.03	0.24	0.04	0.24	0.63	0.05
d, Delay for Lane Group [s/veh]	6.27	3.73	4.46	3.60	18.04	17.64	26.23	16.43
Lane Group LOS	A	A	A	A	B	B	C	B
Critical Lane Group	Yes	No	No	No	No	No	Yes	No
50th-Percentile Queue Length [veh/ln]	1.04	0.90	0.08	0.80	0.22	1.09	3.61	0.22
50th-Percentile Queue Length [ft/ln]	26.06	22.60	2.08	19.95	5.42	27.30	90.37	5.51
95th-Percentile Queue Length [veh/ln]	1.88	1.63	0.15	1.44	0.39	1.97	6.51	0.40
95th-Percentile Queue Length [ft/ln]	46.90	40.67	3.75	35.90	9.76	49.14	162.67	9.92

Movement, Approach, & Intersection Results

d_M, Delay for Movement [s/veh]	6.27	3.73	3.73	4.46	3.60	3.60	18.04	17.64	17.64	26.23	16.43	16.43
Movement LOS	A	A	A	A	A	A	B	B	B	C	B	B
d_A, Approach Delay [s/veh]	4.89			3.66			17.71			25.45		
Approach LOS	A			A			B			C		
d_I, Intersection Delay [s/veh]	10.79											
Intersection LOS	B											
Intersection V/C	0.436											

Emissions

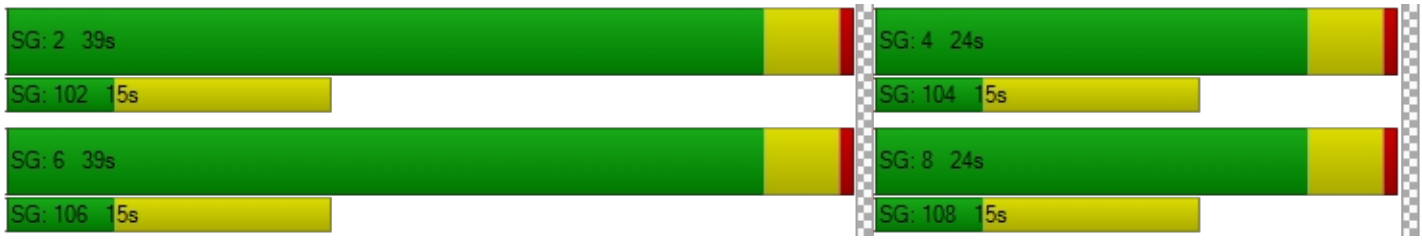
Vehicle Miles Traveled [mph]	11.42	13.58	4.10	48.59	2.05	10.26	24.99	2.16
Stops [stops/h]	59.56	51.65	4.76	45.59	12.40	62.40	206.57	12.59
Fuel consumption [US gal/h]	1.00	1.00	0.23	2.69	0.21	1.06	3.04	0.21
CO [g/h]	69.56	69.89	16.28	188.16	14.91	74.09	212.62	14.55
NOx [g/h]	13.53	13.60	3.17	36.61	2.90	14.42	41.37	2.83
VOC [g/h]	16.12	16.20	3.77	43.61	3.46	17.17	49.28	3.37

Other Modes

g_Walk,mi, Effective Walk Time [s]	9.0	9.0	9.0	9.0
M_corner, Corner Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
M_CW, Crosswalk Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
d_p, Pedestrian Delay [s]	23.14	23.14	23.14	23.14
l_p,int, Pedestrian LOS Score for Intersectio	2.493	2.061	2.344	2.024
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]	1111	1111	635	635
d_b, Bicycle Delay [s]	6.22	6.22	14.68	14.67
l_b,int, Bicycle LOS Score for Intersection	2.362	1.984	1.758	1.995
Bicycle LOS	B	A	A	A

Sequence

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



Intersection Level Of Service Report
Intersection 5: Main St/I-84 WB Ramp Terminal

Control Type:	Signalized	Delay (sec / veh):	23.0
Analysis Method:	HCM 7th Edition	Level Of Service:	C
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.663

Intersection Setup

Name	Main St			Main St						I-84 WB		
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	0	0	1	0	0	0	1	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]	30.00			30.00			30.00			45.00		
Grade [%]	0.00			0.00			0.00			0.00		
Curb Present	No			No						No		
Crosswalk	Yes			Yes			Yes			Yes		

Volumes

Name	Main St			Main St						I-84 WB		
Base Volume Input [veh/h]	48	467	0	0	557	77	0	0	0	275	0	221
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 [%]	6.00	3.00	2.00	2.00	2.00	8.00	2.00	2.00	2.00	4.00	0.00	5.00
Proportion of CAVs [%]	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]	48	467	0	0	557	77	0	0	0	275	0	221
Peak Hour Factor	0.9200	0.9200	1.0000	1.0000	0.9200	0.9200	1.0000	1.0000	1.0000	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]	13	127	0	0	151	21	0	0	0	75	0	60
Total Analysis Volume [veh/h]	52	508	0	0	605	84	0	0	0	299	0	240
Presence of On-Street Parking	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 m	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			1			0			0		

Intersection Settings

Located in CBD	Yes
Signal Coordination Group	-
Cycle Length [s]	126
Active Pattern	Pattern 1
Coordination Type	Time of Day Pattern Coordinated
Actuation Type	Fully actuated
Offset [s]	0.0
Offset Reference	LagCoordGreen
Permissive Mode	SingleBand
Lost time [s]	12.00

Phasing & Timing (Basic)

Control Type	ProtPer	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Split	Split	Split
Signal Group	1	6	0	0	2	0	0	0	0	0	4	0
Auxiliary Signal Groups												
Maximum Green [s]	10	27	0	0	27	0	0	0	0	0	25	0
Amber [s]	3.0	3.0	0.0	0.0	3.0	0.0	0.0	0.0	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	0.0	0.0	0.0	1.0	0.0
Walk [s]	0	7	0	0	7	0	0	0	0	0	7	0
Pedestrian Clearance [s]	0	11	0	0	11	0	0	0	0	0	11	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	
I1, Start-Up Lost Time [s]	2.0	2.0	0.0	0.0	2.0	0.0	0.0	0.0	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	0.0	0.0	0.0	2.0	0.0
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

Phasing & Timing: Pattern 1

Split [s]	14	90	0	0	76	0	0	0	0	0	36	0
Lead / Lag	Lead	-	-	-	-	-	-	-	-	-	-	-
Minimum Green [s]	5	10	0	0	10	0	0	0	0	0	10	0
Vehicle Extension [s]	3.0	3.0	0.0	0.0	3.0	0.0	0.0	0.0	0.0	0.0	3.0	0.0
Minimum Recall	No	Yes			Yes						No	
Maximum Recall	No	No			No						No	
Pedestrian Recall	No	No			No						No	

Exclusive Pedestrian Phase

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

Lane Group Calculations

Lane Group	L	C	C	R		L	C
C, Cycle Length [s]	126	126	126	126		126	126
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	0.00	0.00		0.00	0.00
l2, Clearance Lost Time [s]	0.00	2.00	2.00	2.00		2.00	2.00
g_i, Effective Green Time [s]	90	90	82	82		28	28
g / C, Green / Cycle	0.71	0.71	0.65	0.65		0.22	0.22
(v / s)_i Volume / Saturation Flow Rate	0.07	0.33	0.39	0.07		0.21	0.18
s, saturation flow rate [veh/h]	710	1538	1550	1228		1453	1339
c, Capacity [veh/h]	514	1099	1007	798		322	297
d1, Uniform Delay [s]	2.03	0.93	3.88	3.04		47.96	46.41
k, delay calibration	0.32	0.50	0.50	0.50		0.31	0.24
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00		1.00	1.00
d2, Incremental Delay [s]	0.25	1.40	2.65	0.27		25.32	10.73
d3, Initial Queue Delay [s]	0.00	0.00	0.00	0.00		0.00	0.00
Rp, platoon ratio	1.33	1.33	1.33	1.33		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	0.10	0.46	0.60	0.11		0.93	0.81
d, Delay for Lane Group [s/veh]	2.28	2.33	6.53	3.30		73.28	57.14
Lane Group LOS	A	A	A	A		E	E
Critical Lane Group	Yes	No	Yes	No		Yes	No
50th-Percentile Queue Length [veh/ln]	0.10	1.07	3.30	0.37		11.16	7.80
50th-Percentile Queue Length [ft/ln]	2.45	26.67	82.56	9.23		279.09	194.89
95th-Percentile Queue Length [veh/ln]	0.18	1.92	5.94	0.66		16.64	12.37
95th-Percentile Queue Length [ft/ln]	4.41	48.00	148.61	16.61		416.07	309.37

Movement, Approach, & Intersection Results

d_M, Delay for Movement [s/veh]	2.28	2.33	0.00	0.00	6.53	3.30	0.00	0.00	0.00	73.28	57.14	57.14
Movement LOS	A	A			A	A				E	E	E
d_A, Approach Delay [s/veh]	2.33			6.14			0.00			66.09		
Approach LOS	A			A			A			E		
d_I, Intersection Delay [s/veh]	23.02											
Intersection LOS	C											
Intersection V/C	0.663											

Emissions

Vehicle Miles Traveled [mph]	5.44	53.10	23.75	3.30		30.94	24.83
Stops [stops/h]	2.80	30.50	94.43	10.55		319.21	222.91
Fuel consumption [US gal/h]	0.26	2.60	2.30	0.25		9.49	6.41
CO [g/h]	18.41	181.41	160.98	17.51		663.18	448.28
NOx [g/h]	3.58	35.30	31.32	3.41		129.03	87.22
VOC [g/h]	4.27	42.04	37.31	4.06		153.70	103.89

Other Modes

g_Walk,mi, Effective Walk Time [s]	11.0	11.0	11.0	11.0
M_corner, Corner Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
M_CW, Crosswalk Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
d_p, Pedestrian Delay [s]	52.43	52.43	52.43	52.43
l_p,int, Pedestrian LOS Score for Intersectio	2.432	2.423	1.638	2.219
Crosswalk LOS	B	B	A	B
s_b, Saturation Flow Rate of the bicycle lane	2000	2000	2000	2000
c_b, Capacity of the bicycle lane [bicycles/h]	1366	1144	0	508
d_b, Bicycle Delay [s]	6.32	11.54	62.95	35.02
l_b,int, Bicycle LOS Score for Intersection	2.484	2.696	4.132	2.449
Bicycle LOS	B	B	D	B

Sequence

Ring 1	1	2	-	4	-	-	-	-	-	-	-	-	-	-	-	-
Ring 2	-	6	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-



Intersection Level Of Service Report
Intersection 6: Main St/I-84 EB Ramp Terminal

Control Type:	Signalized	Delay (sec / veh):	15.4
Analysis Method:	HCM 7th Edition	Level Of Service:	B
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.602

Intersection Setup

Name	Main St			Main St			I-84 EB					
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	1	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]	30.00			30.00			45.00			30.00		
Grade [%]	0.00			0.00			0.00			0.00		
Curb Present	No			No			No					
Crosswalk	Yes			Yes			Yes			Yes		

Volumes

Name	Main St			Main St			I-84 EB					
Base Volume Input [veh/h]	0	407	336	194	763	0	108	0	99	0	0	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	3.00	3.00	2.00	2.00	2.00	7.00	0.00	9.00	2.00	2.00	2.00
Proportion of CAVs [%]	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	407	336	194	763	0	108	0	99	0	0	0
Peak Hour Factor	1.0000	0.9400	0.9400	0.9400	0.9400	1.0000	0.9400	0.9400	0.9400	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]	0	108	89	52	203	0	29	0	26	0	0	0
Total Analysis Volume [veh/h]	0	433	357	206	812	0	115	0	105	0	0	0
Presence of On-Street Parking	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 m	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			1			0			0		

Intersection Settings

Located in CBD	No
Signal Coordination Group	-
Cycle Length [s]	126
Active Pattern	Pattern 1
Coordination Type	Time of Day Pattern Coordinated
Actuation Type	Fully actuated
Offset [s]	0.0
Offset Reference	LagCoordGreen
Permissive Mode	SingleBand
Lost time [s]	12.00

Phasing & Timing (Basic)

Control Type	Permiss	Permiss	Permiss	Protecte	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss
Signal Group	0	6	0	5	2	0	0	8	0	0	0	0
Auxiliary Signal Groups												
Maximum Green [s]	0	40	0	5	40	0	0	15	0	0	0	0
Amber [s]	0.0	3.5	0.0	3.5	3.5	0.0	0.0	3.5	0.0	0.0	0.0	0.0
All red [s]	0.0	0.5	0.0	0.5	0.5	0.0	0.0	0.5	0.0	0.0	0.0	0.0
Walk [s]	0	7	0	0	7	0	0	7	0	0	0	0
Pedestrian Clearance [s]	0	11	0	0	11	0	0	11	0	0	0	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				
I1, Start-Up Lost Time [s]	0.0	2.0	0.0	2.0	2.0	0.0	0.0	2.0	0.0	0.0	0.0	0.0
I2, Clearance Lost Time [s]	0.0	2.0	0.0	2.0	2.0	0.0	0.0	2.0	0.0	0.0	0.0	0.0
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

Phasing & Timing: Pattern 1

Split [s]	0	70	0	34	104	0	0	22	0	0	0	0
Lead / Lag	-	-	-	Lead	-	-	-	-	-	-	-	-
Minimum Green [s]	0	10	0	5	10	0	0	10	0	0	0	0
Vehicle Extension [s]	0.0	3.0	0.0	3.0	3.0	0.0	0.0	3.0	0.0	0.0	0.0	0.0
Minimum Recall		Yes		No	Yes			No				
Maximum Recall		No		No	No			No				
Pedestrian Recall		No		No	No			No				

Exclusive Pedestrian Phase

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

Lane Group Calculations

Lane Group	C	R	L	C	L	C	
C, Cycle Length [s]	126	126	126	126	126	126	
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	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	
g_i, Effective Green Time [s]	85	85	18	107	11	11	
g / C, Green / Cycle	0.67	0.67	0.14	0.85	0.09	0.09	
(v / s)_i Volume / Saturation Flow Rate	0.25	0.25	0.13	0.47	0.07	0.07	
s, saturation flow rate [veh/h]	1709	1452	1640	1722	1574	1488	
c, Capacity [veh/h]	1153	980	230	1459	141	133	
d1, Uniform Delay [s]	2.28	2.27	50.30	0.00	56.29	56.14	
k, delay calibration	0.50	0.50	0.11	0.50	0.11	0.11	
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	
d2, Incremental Delay [s]	0.93	1.05	11.74	1.54	10.80	9.85	
d3, Initial Queue Delay [s]	0.00	0.00	0.00	0.00	0.00	0.00	
Rp, platoon ratio	1.33	1.33	1.33	1.20	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	0.38	0.36	0.90	0.56	0.82	0.79	
d, Delay for Lane Group [s/veh]	3.22	3.32	62.04	1.54	67.09	66.00	
Lane Group LOS	A	A	E	A	E	E	
Critical Lane Group	No	No	No	Yes	Yes	No	
50th-Percentile Queue Length [veh/ln]	1.54	1.30	6.83	0.62	3.93	3.56	
50th-Percentile Queue Length [ft/ln]	38.41	32.56	170.78	15.58	98.30	89.00	
95th-Percentile Queue Length [veh/ln]	2.77	2.34	11.12	1.12	7.08	6.41	
95th-Percentile Queue Length [ft/ln]	69.13	58.60	277.94	28.04	176.93	160.19	

Movement, Approach, & Intersection Results

d_M, Delay for Movement [s/veh]	0.00	3.22	3.32	62.04	1.54	0.00	67.09	66.00	66.00	0.00	0.00	0.00
Movement LOS		A	A	E	A		E	E	E			
d_A, Approach Delay [s/veh]	3.26			13.78			66.57			0.00		
Approach LOS	A			B			E			A		
d_I, Intersection Delay [s/veh]	15.41											
Intersection LOS	B											
Intersection V/C	0.602											

Emissions

Vehicle Miles Traveled [mph]	15.28	12.60	21.53	84.88	13.61	12.42	
Stops [stops/h]	43.91	37.23	195.26	17.81	112.39	101.75	
Fuel consumption [US gal/h]	1.16	0.97	4.57	3.85	3.43	3.10	
CO [g/h]	80.74	67.48	319.15	268.87	240.01	216.76	
NOx [g/h]	15.71	13.13	62.10	52.31	46.70	42.17	
VOC [g/h]	18.71	15.64	73.97	62.31	55.63	50.24	

Other Modes

g_Walk,mi, Effective Walk Time [s]	11.0	11.0	11.0	11.0
M_corner, Corner Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
M_CW, Crosswalk Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
d_p, Pedestrian Delay [s]	52.45	52.45	52.45	52.45
l_p,int, Pedestrian LOS Score for Intersectio	2.511	2.465	2.064	1.988
Crosswalk LOS	B	B	B	A
s_b, Saturation Flow Rate of the bicycle lane	2000	2000	2000	2000
c_b, Capacity of the bicycle lane [bicycles/h]	1048	1588	286	0
d_b, Bicycle Delay [s]	14.27	2.67	46.26	62.97
l_b,int, Bicycle LOS Score for Intersection	2.863	3.239	1.923	4.132
Bicycle LOS	C	C	A	D

Sequence

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



Circulation Alternative #2: Roundabouts

Vistro File: H:\...\30287_Vistro_RIRO at Front_Roundabout.vistro
Report File: H:\...\Roundabouts 2045 AM.pdf

Scenario 5 Roundabouts 2045 AM - Redis
6/27/2025

Intersection Analysis Summary

ID	Intersection Name	Control Type	Method	Worst Mvmt	V/C	Delay (s/veh)	LOS
3	Main St/Boardman Ave	Roundabout	HCM 7th Edition	WB Left		10.9	B
5	Main St/I-84 WB Ramp Terminal	Roundabout	HCM 7th Edition	WB Left		14.7	B
6	Main St/I-84 EB Ramp Terminal	Roundabout	HCM 7th Edition	NB Thru		32.6	D

V/C, Delay, LOS: For two-way stop, these values are taken from the movement with the worst (highest) delay value. For all other control types, they are taken for the whole intersection.

Intersection Level Of Service Report
Intersection 3: Main St/Boardman Ave

Control Type:	Roundabout	Delay (sec / veh):	10.9
Analysis Method:	HCM 7th Edition	Level Of Service:	B
Analysis Period:	15 minutes		

Intersection Setup

Name	Main St			Main St			Boardman Ave			Boardman Ave		
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]	20.00			20.00			25.00			20.00		
Grade [%]	0.00			0.00			0.00			0.00		
Crosswalk	Yes			Yes			Yes			Yes		

Volumes

Name	Main St			Main St			Boardman Ave			Boardman Ave		
Base Volume Input [veh/h]	93	173	201	25	88	30	30	18	48	265	21	21
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 [%]	16.00	5.00	4.00	12.00	9.00	4.00	0.00	0.00	6.00	9.00	6.00	6.00
Proportion of CAVs [%]	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]	93	173	201	25	88	30	30	18	48	265	21	21
Peak Hour Factor	0.6800	0.6800	0.6800	0.6800	0.6800	0.6800	0.6800	0.6800	0.6800	0.6800	0.6800	0.6800
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]	34	64	74	9	32	11	11	7	18	97	8	8
Total Analysis Volume [veh/h]	137	254	296	37	129	44	44	26	71	390	31	31
Pedestrian Volume [ped/h]	3			3			1			5		

Intersection Settings

Number of Conflicting Circulating Lanes	1			1			1			1		
Circulating Flow Rate [veh/h]	111			617			607			470		
Exiting Flow Rate [veh/h]	641			344			238			375		
Demand Flow Rate [veh/h]	93	173	201	25	88	30	30	18	48	265	21	21
Adjusted Demand Flow Rate [veh/h]	137	254	296	37	129	44	44	26	71	390	31	31

Lanes

Overwrite Calculated Critical Headway	No	No	No	No
User-Defined Critical Headway [s]	4.00	4.00	4.00	4.00
Overwrite Calculated Follow-Up Time	No	No	No	No
User-Defined Follow-Up Time [s]	3.00	3.00	3.00	3.00
A (intercept)	1380.00	1380.00	1380.00	1380.00
B (coefficient)	0.00102	0.00102	0.00102	0.00102
HV Adjustment Factor	0.94	0.92	0.97	0.92
Entry Flow Rate [veh/h]	733	228	146	491
Capacity of Entry and Bypass Lanes [veh/h]	1232	736	743	855
Pedestrian Impedance	1.00	1.00	1.00	1.00
Capacity per Entry Lane [veh/h]	1156	679	722	787
X, volume / capacity	0.59	0.31	0.20	0.57

Movement, Approach, & Intersection Results

Lane LOS	B	A	A	B
95th-Percentile Queue Length [veh]	4.11	1.32	0.72	3.72
95th-Percentile Queue Length [ft]	102.80	32.90	18.03	93.02
Approach Delay [s/veh]	10.55	9.22	7.17	13.44
Approach LOS	B	A	A	B
Intersection Delay [s/veh]	10.92			
Intersection LOS	B			

Intersection Level Of Service Report
Intersection 5: Main St/I-84 WB Ramp Terminal

Control Type:	Roundabout	Delay (sec / veh):	14.7
Analysis Method:	HCM 7th Edition	Level Of Service:	B
Analysis Period:	15 minutes		

Intersection Setup

Name	Main St			Main St						I-84 WB		
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]	30.00			30.00			30.00			45.00		
Grade [%]	0.00			0.00			0.00			0.00		
Crosswalk	Yes			Yes			Yes			Yes		

Volumes

Name	Main St			Main St						I-84 WB		
Base Volume Input [veh/h]	37	474	0	0	420	53	0	0	0	200	1	159
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 [%]	24.00	5.00	2.00	2.00	8.00	19.00	2.00	2.00	2.00	4.00	0.00	15.00
Proportion of CAVs [%]	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]	37	474	0	0	420	53	0	0	0	200	1	159
Peak Hour Factor	0.7800	0.7800	1.0000	1.0000	0.7800	0.7800	1.0000	1.0000	1.0000	0.7800	0.7800	0.7800
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]	12	152	0	0	135	17	0	0	0	64	0	51
Total Analysis Volume [veh/h]	47	608	0	0	538	68	0	0	0	256	1	204
Pedestrian Volume [ped/h]	0			0			1			4		

Intersection Settings

Number of Conflicting Circulating Lanes	1			1			1			1		
Circulating Flow Rate [veh/h]	0			326			847			697		
Exiting Flow Rate [veh/h]	847			873			140			0		
Demand Flow Rate [veh/h]	37	474	0	0	420	53	0	0	0	200	1	159
Adjusted Demand Flow Rate [veh/h]	47	608	0	0	538	68	0	0	0	256	1	204

Lanes

Overwrite Calculated Critical Headway	No	No		No
User-Defined Critical Headway [s]	4.00	4.00		4.00
Overwrite Calculated Follow-Up Time	No	No		No
User-Defined Follow-Up Time [s]	3.00	3.00		3.00
A (intercept)	1380.00	1380.00		1380.00
B (coefficient)	0.00102	0.00102		0.00102
HV Adjustment Factor	0.94	0.92		0.92
Entry Flow Rate [veh/h]	696	662		501
Capacity of Entry and Bypass Lanes [veh/h]	1380	991		679
Pedestrian Impedance	1.00	1.00		1.00
Capacity per Entry Lane [veh/h]	1300	908		625
X, volume / capacity	0.50	0.67		0.74

Movement, Approach, & Intersection Results

Lane LOS	A	B		C
95th-Percentile Queue Length [veh]	2.94	5.29		6.44
95th-Percentile Queue Length [ft]	73.52	132.28		161.04
Approach Delay [s/veh]	8.07	14.90	0.00	23.97
Approach LOS	A	B	A	C
Intersection Delay [s/veh]	14.73			
Intersection LOS	B			

Intersection Level Of Service Report
Intersection 6: Main St/I-84 EB Ramp Terminal

Control Type:	Roundabout	Delay (sec / veh):	32.6
Analysis Method:	HCM 7th Edition	Level Of Service:	D
Analysis Period:	15 minutes		

Intersection Setup

Name	Main St			Main St			I-84 EB					
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]	30.00			30.00			45.00			30.00		
Grade [%]	0.00			0.00			0.00			0.00		
Crosswalk	Yes			Yes			Yes			Yes		

Volumes

Name	Main St			Main St			I-84 EB					
Base Volume Input [veh/h]	0	478	321	173	492	0	33	0	24	0	0	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	6.00	3.00	15.00	6.00	2.00	18.00	0.00	14.00	2.00	2.00	2.00
Proportion of CAVs [%]	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]	0	478	321	173	492	0	33	0	24	0	0	0
Peak Hour Factor	1.0000	0.8100	0.8100	0.8100	0.8100	1.0000	0.8100	0.8100	0.8100	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]	0	148	99	53	152	0	10	0	7	0	0	0
Total Analysis Volume [veh/h]	0	590	396	214	607	0	41	0	30	0	0	0
Pedestrian Volume [ped/h]	0			0			1			4		

Intersection Settings

Number of Conflicting Circulating Lanes	1			1			1			1		
Circulating Flow Rate [veh/h]	294			0			890			674		
Exiting Flow Rate [veh/h]	678			674			0			654		
Demand Flow Rate [veh/h]	0	478	321	173	492	0	33	0	24	0	0	0
Adjusted Demand Flow Rate [veh/h]	0	590	396	214	607	0	41	0	30	0	0	0

Lanes

Overwrite Calculated Critical Headway	No	No	No	
User-Defined Critical Headway [s]	4.00	4.00	4.00	
Overwrite Calculated Follow-Up Time	No	No	No	
User-Defined Follow-Up Time [s]	3.00	3.00	3.00	
A (intercept)	1380.00	1380.00	1380.00	
B (coefficient)	0.00102	0.00102	0.00102	
HV Adjustment Factor	0.95	0.92	0.86	
Entry Flow Rate [veh/h]	1034	889	83	
Capacity of Entry and Bypass Lanes [veh/h]	1022	1380	557	
Pedestrian Impedance	1.00	1.00	1.00	
Capacity per Entry Lane [veh/h]	976	1276	479	
X, volume / capacity	1.01	0.64	0.15	

Movement, Approach, & Intersection Results

Lane LOS	F	B	A	
95th-Percentile Queue Length [veh]	19.90	4.98	0.52	
95th-Percentile Queue Length [ft]	497.59	124.58	12.92	
Approach Delay [s/veh]	52.19	10.99	9.56	0.00
Approach LOS	F	B	A	A
Intersection Delay [s/veh]	32.57			
Intersection LOS	D			

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Report File: H:\...\Roundabouts 2045 PM.pdf

Scenario 6 Roundabouts 2045 PM - Redis
6/27/2025

Intersection Analysis Summary

ID	Intersection Name	Control Type	Method	Worst Mvmt	V/C	Delay (s/veh)	LOS
3	Main St/Boardman Ave	Roundabout	HCM 7th Edition	SB Thru		7.0	A
5	Main St/I-84 WB Ramp Terminal	Roundabout	HCM 7th Edition	WB Left		15.4	C
6	Main St/I-84 EB Ramp Terminal	Roundabout	HCM 7th Edition	NB Thru		18.0	C

V/C, Delay, LOS: For two-way stop, these values are taken from the movement with the worst (highest) delay value. For all other control types, they are taken for the whole intersection.

Intersection Level Of Service Report
Intersection 3: Main St/Boardman Ave

Control Type:	Roundabout	Delay (sec / veh):	7.0
Analysis Method:	HCM 7th Edition	Level Of Service:	A
Analysis Period:	15 minutes		

Intersection Setup

Name	Main St			Main St			Boardman Ave			Boardman Ave		
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]	20.00			20.00			25.00			20.00		
Grade [%]	0.00			0.00			0.00			0.00		
Crosswalk	Yes			Yes			Yes			Yes		

Volumes

Name	Main St			Main St			Boardman Ave			Boardman Ave		
Base Volume Input [veh/h]	206	204	42	19	192	29	19	2	91	226	11	8
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 [%]	3.00	2.00	17.00	10.00	2.00	0.00	0.00	0.00	3.00	0.00	11.00	14.00
Proportion of CAVs [%]	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]	206	204	42	19	192	29	19	2	91	226	11	8
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]	55	55	11	5	52	8	5	1	24	61	3	2
Total Analysis Volume [veh/h]	222	219	45	20	206	31	20	2	98	243	12	9
Pedestrian Volume [ped/h]	1			0			0			5		

Intersection Settings

Number of Conflicting Circulating Lanes	1			1			1			1		
Circulating Flow Rate [veh/h]	44			485			475			472		
Exiting Flow Rate [veh/h]	554			254			273			77		
Demand Flow Rate [veh/h]	206	204	42	19	192	29	19	2	91	226	11	8
Adjusted Demand Flow Rate [veh/h]	222	219	45	20	206	31	20	2	98	243	12	9

Lanes

Overwrite Calculated Critical Headway	No	No	No	No
User-Defined Critical Headway [s]	4.00	4.00	4.00	4.00
Overwrite Calculated Follow-Up Time	No	No	No	No
User-Defined Follow-Up Time [s]	3.00	3.00	3.00	3.00
A (intercept)	1380.00	1380.00	1380.00	1380.00
B (coefficient)	0.00102	0.00102	0.00102	0.00102
HV Adjustment Factor	0.96	0.98	0.98	0.99
Entry Flow Rate [veh/h]	504	264	123	267
Capacity of Entry and Bypass Lanes [veh/h]	1320	842	850	853
Pedestrian Impedance	1.00	1.00	1.00	1.00
Capacity per Entry Lane [veh/h]	1273	823	830	845
X, volume / capacity	0.38	0.31	0.14	0.31

Movement, Approach, & Intersection Results

Lane LOS	A	A	A	A
95th-Percentile Queue Length [veh]	1.82	1.34	0.50	1.34
95th-Percentile Queue Length [ft]	45.52	33.47	12.61	33.47
Approach Delay [s/veh]	6.48	7.92	5.79	7.75
Approach LOS	A	A	A	A
Intersection Delay [s/veh]	7.03			
Intersection LOS	A			

Intersection Level Of Service Report
Intersection 5: Main St/I-84 WB Ramp Terminal

Control Type:	Roundabout	Delay (sec / veh):	15.4
Analysis Method:	HCM 7th Edition	Level Of Service:	C
Analysis Period:	15 minutes		

Intersection Setup

Name	Main St			Main St						I-84 WB		
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]	30.00			30.00			30.00			45.00		
Grade [%]	0.00			0.00			0.00			0.00		
Crosswalk	Yes			Yes			Yes			Yes		

Volumes

Name	Main St			Main St						I-84 WB		
Base Volume Input [veh/h]	48	467	0	0	557	77	0	0	0	275	0	221
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 [%]	6.00	3.00	2.00	2.00	2.00	8.00	2.00	2.00	2.00	4.00	0.00	5.00
Proportion of CAVs [%]	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]	48	467	0	0	557	77	0	0	0	275	0	221
Peak Hour Factor	0.9200	0.9200	1.0000	1.0000	0.9200	0.9200	1.0000	1.0000	1.0000	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]	13	127	0	0	151	21	0	0	0	75	0	60
Total Analysis Volume [veh/h]	52	508	0	0	605	84	0	0	0	299	0	240
Pedestrian Volume [ped/h]	0			0			0			4		

Intersection Settings

Number of Conflicting Circulating Lanes	1			1			1			1		
Circulating Flow Rate [veh/h]	0			366			928			578		
Exiting Flow Rate [veh/h]	928			775			146			0		
Demand Flow Rate [veh/h]	48	467	0	0	557	77	0	0	0	275	0	221
Adjusted Demand Flow Rate [veh/h]	52	508	0	0	605	84	0	0	0	299	0	240

Lanes

Overwrite Calculated Critical Headway	No	No		No
User-Defined Critical Headway [s]	4.00	4.00		4.00
Overwrite Calculated Follow-Up Time	No	No		No
User-Defined Follow-Up Time [s]	3.00	3.00		3.00
A (intercept)	1380.00	1380.00		1380.00
B (coefficient)	0.00102	0.00102		0.00102
HV Adjustment Factor	0.97	0.97		0.96
Entry Flow Rate [veh/h]	579	708		563
Capacity of Entry and Bypass Lanes [veh/h]	1380	950		766
Pedestrian Impedance	1.00	1.00		1.00
Capacity per Entry Lane [veh/h]	1337	926		733
X, volume / capacity	0.42	0.74		0.74

Movement, Approach, & Intersection Results

Lane LOS	A	C		C
95th-Percentile Queue Length [veh]	2.12	7.06		6.58
95th-Percentile Queue Length [ft]	52.95	176.62		164.51
Approach Delay [s/veh]	6.72	18.03	0.00	21.03
Approach LOS	A	C	A	C
Intersection Delay [s/veh]	15.39			
Intersection LOS	C			

Intersection Level Of Service Report
Intersection 6: Main St/I-84 EB Ramp Terminal

Control Type:	Roundabout	Delay (sec / veh):	18.0
Analysis Method:	HCM 7th Edition	Level Of Service:	C
Analysis Period:	15 minutes		

Intersection Setup

Name	Main St			Main St			I-84 EB					
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]	30.00			30.00			45.00			30.00		
Grade [%]	0.00			0.00			0.00			0.00		
Crosswalk	Yes			Yes			Yes			Yes		

Volumes

Name	Main St			Main St			I-84 EB					
Base Volume Input [veh/h]	0	407	336	194	763	0	108	0	99	0	0	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	3.00	3.00	2.00	2.00	2.00	7.00	0.00	9.00	2.00	2.00	2.00
Proportion of CAVs [%]	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]	0	407	336	194	763	0	108	0	99	0	0	0
Peak Hour Factor	1.0000	0.9400	0.9400	0.9400	0.9400	1.0000	0.9400	0.9400	0.9400	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]	0	108	89	52	203	0	29	0	26	0	0	0
Total Analysis Volume [veh/h]	0	433	357	206	812	0	115	0	105	0	0	0
Pedestrian Volume [ped/h]	0			0			0			4		

Intersection Settings

Number of Conflicting Circulating Lanes	1			1			1			1		
Circulating Flow Rate [veh/h]	333			0			1038			569		
Exiting Flow Rate [veh/h]	943			569			0			578		
Demand Flow Rate [veh/h]	0	407	336	194	763	0	108	0	99	0	0	0
Adjusted Demand Flow Rate [veh/h]	0	433	357	206	812	0	115	0	105	0	0	0

Lanes

Overwrite Calculated Critical Headway	No	No	No	
User-Defined Critical Headway [s]	4.00	4.00	4.00	
Overwrite Calculated Follow-Up Time	No	No	No	
User-Defined Follow-Up Time [s]	3.00	3.00	3.00	
A (intercept)	1380.00	1380.00	1380.00	
B (coefficient)	0.00102	0.00102	0.00102	
HV Adjustment Factor	0.97	0.98	0.93	
Entry Flow Rate [veh/h]	814	1039	238	
Capacity of Entry and Bypass Lanes [veh/h]	983	1380	479	
Pedestrian Impedance	1.00	1.00	1.00	
Capacity per Entry Lane [veh/h]	954	1353	444	
X, volume / capacity	0.83	0.75	0.50	

Movement, Approach, & Intersection Results

Lane LOS	C	B	C	
95th-Percentile Queue Length [veh]	9.79	7.70	2.70	
95th-Percentile Queue Length [ft]	244.73	192.53	67.39	
Approach Delay [s/veh]	23.13	14.00	18.34	0.00
Approach LOS	C	B	C	A
Intersection Delay [s/veh]	18.02			
Intersection LOS	C			

Attachment C - Traffic Calming Toolbox

TRAFFIC CALMING TOOLBOX

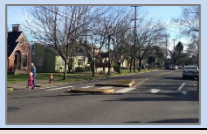
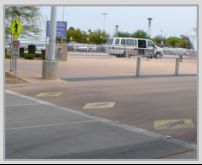
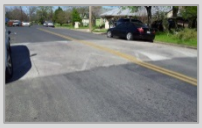
A traffic calming treatment Toolbox was developed to be a resource that houses traffic calming measures for the City of Boardman. The Toolbox provides information about specific treatments and considerations when applying the treatments. The Toolbox may be used as a reference for more information about the transportation improvement alternatives in this memorandum and to identify future treatments at other locations within the City. The treatments are generally intended to reduce traffic speeds through one of the following ways:

- Create a narrower cross-section (throughout a roadway corridor or at individual locations along the corridor) or tighter turning radii at intersections, which has been shown to slow traffic speeds;
- Create a visual change in context and/or gateways to the corridor to alert drivers of the need to reduce speed;
- Provide a visual or audible warning to drivers to reduce their speed;
- Create horizontal or vertical curvature in the roadway to reduce travel speeds; and/or
- Provide breaks in the corridor to slow or stop through traffic.

The Toolbox shown in Table 1 identifies treatments and groups them based on the categories above.

Table 1. Toolbox Contents

	Page #	Treatment	Image
Narrow Cross-Section	4	Buffered Bike Lane	
	5	Standard Bike Lane	
	6	Raised Medians	
	7	Reduced Travel Lane Width	
	8	Reduced Curb Radii	
	9	Bulb-Out/Curb Extensions and Pinch Points	
Contextual Changes	10	Shared Lane Roadways	
	11	Advisory Bike Lane	
	12	Gateway Treatments	
	13	Sidewalk	
	14	Street Furniture and Lighting	
	15	High Visibility Crosswalk	

	16	Crossing Island (Pedestrian Refuge)	
Warning Devices	17	Rectangular rapid Flashing Beacon	
	18	Rumble Strips	
	19	Speed Feedback Signs	
Curvature Features	20	Raised Pedestrian Crossing	
	21	Speed Bumps, Speed Humps, Speed Tables	
	22	Chicanes	
Corridor Breaks	23	Intersection Control Changes	
	24	Turn Restrictions	
	25	Mini-Roundabout	

Narrow Cross-Section

BUFFERED BIKE LANE

Cost: $-$$$



Riverside Boulevard
Bend, OR



Source: movingahead.org

Buffered bicycle lanes are on-street lanes that include an additional striped buffer of typically 2-3 feet between the bicycle lane and the vehicle travel lane and/or between the bicycle lane and the vehicle parking lane.

Benefits

- Can be used to narrow the vehicle travel lane width and create a more urban feel for drivers, encouraging slower speeds.
- A parking-edge buffer on streets with on-street parking can reduce the likelihood of "dooring."
- Increased separation from motor vehicles can increase bicyclist comfort and driver awareness of other modes.

Constraints

- Does not provide physical protection and therefore may not attract bicyclists of all levels.
- Does not physically narrow the pavement width on the road.
- The additional width provided by the buffer may invite motorists to illegally park in the lane if not adequately signed and enforced.

Typical Applications

- Long-distance links within and between communities.
- Streets with sufficient pavement width to provide a buffer.
- Widely applicable in both urban and rural settings.
- Segments of the bicycle network with moderate vehicle speeds or volumes.

Design Considerations

- Typical buffer width is 2-3 feet, in addition to standard bicycle lane width of 5-6 feet, but a combined width of 6 feet is acceptable.
- Green pavement markings or striping can add visibility and awareness in "conflict areas" or intersections where bicycle and vehicle travel paths cross.
- Buffer space can have markings or rumble strips to deter vehicles from traveling or parking in the space.

Additional Guidance

- AASHTO Guide for the Development of Bicycle Facilities
- NACTO Urban Bikeway Design Guide
- ODOT Highway Design Manual
- ODOT Bicycle and Pedestrian Design Guide

Narrow Cross-Section

STANDARD BIKE LANE

Cost: $-$$$


Irrigon, OR


Boise, ID

A standard bike lane is an on-street facility that provides space designated for bicyclists, separated from vehicles by pavement markings.

Benefits

- Provides a designated facility for bicyclists using the minimum pavement width, encouraging bicycle activity and increasing driver awareness.
- Can be used to reallocate pavement space and narrow travel lanes for vehicles.
- Provides increased visibility for bicyclists.
- Relatively inexpensive treatment when pavement width is available.

Constraints

- Can position bicyclists in the "door zone" if located adjacent to parked vehicles without a buffer.
- Motorists may illegally park in the lane if not adequately signed and enforced.
- Does not provide physical protection or horizontal buffer from vehicles and therefore may not attract bicyclists of all levels.
- Does not physically narrow the pavement width on the road.

Typical Applications

- Arterials, collectors, and other non-local streets with speeds higher than 25 mph or over 3,000 average daily motorized traffic volumes.
- Streets without sufficient right-of-way or pavement width for buffered bike lanes or separated bike lanes (SBLs).

Design Considerations

- Typical bike lane width is 6 feet, with 5 feet in constrained locations. A minimum 4-foot width can be used on constrained segments where on-street parking is not present.
- Green pavement markings or striping can add visibility and awareness in "conflict areas" or intersections where bicycle and vehicle travel paths cross.

Additional Guidance

- AASHTO Guide for the Development of Bicycle Facilities
- NACTO Urban Bikeway Design Guide
- ODOT Highway Design Manual
- ODOT Bicycle and Pedestrian Design Guide

Narrow Cross-Section

RAISED MEDIANS

Cost: $-$$$


FHWA
Intersection Safety


FHWA
Pedestrian Safety Guide and Countermeasure Selection System


FHWA
Traffic Calming ePrimer

Physical medians constructed in the center of the roadway providing a physical barrier between travel directions. These features can be installed on a corridor wide scale or as individual median islands for site specific locations.

Benefits

- Physically narrows the pavement width and reduces the open feel of the street.
- Can facilitate pedestrian crossing refuge areas and increase pedestrian visibility, slowing vehicles.
- Changes visual and physical context of the roadway.
- Can include landscaping or monument sign and to serve as a gateway treatment.

Constraints

- Insufficient roadway width or right-of-way can prevent installation.
- Access must be maintained or accommodated to residential and business driveways and intersections, unless access restrictions are permitted.

Typical Applications

- Two-way streets with one or more lanes in each direction.
- Roadways with urban cross-sections.
- Arterials, collectors, and some local streets in urban or suburban settings.
- Midblock locations, intersection approaches, or through intersections. If through an intersection, the median becomes a barrier.
- Appropriate for any traffic volumes.

Design Considerations

- Adequate roadway width and/or right-of-way for installation.
- Residential and business driveways.
- Whether corridor-wide or median islands is the appropriate application.

Additional Guidance

- AASHTO Green Book
- ODOT Highway Design Manual
- FHWA Traffic Calming ePrimer

Narrow Cross-Section

REDUCED TRAVEL LANE WIDTH

Cost: $-$$$



FHWA
Traffic Calming ePrimer





FHWA
Pedestrian Safety Guide and Countermeasure Selection System



FHWA
Traffic Calming ePrimer

Reducing travel lane widths encourages slower vehicle speeds as it heightens driver awareness of the environment and increases conscientiousness of driver behavior. Reducing travel lanes can be achieved within existing roadway cross-sections and without major modifications to existing curb and gutter.

Benefits

- Can be achieved with added on-street parking.
- Can be achieved with dedicated bicycle facilities of different variations.
- Can be achieved with raised medians.
- Can be achieved with street landscaping.

Constraints

- On-street parking may decrease visibility of other roadway users such as pedestrians.
- See Standard Bike Lane, Buffered Bike Lane, and Separated Bike Lanes.
- See Raised Medians.
- Street landscaping increases maintenance and costs.

Typical Applications

- On-street parking is appropriate for arterials, collectors, and local streets in urban or suburban settings. It can be installed on one- or two-way streets. Appropriate for urban speed limits and all traffic volumes.
- See Standard Bike Lane, Buffered Bike Lane, and Separated Bike Lanes.
- See Raised Medians.

Design Considerations

- Parallel on-street parking tends to be more effective than angle parking for slowing vehicle speeds.
- Emergency response vehicles, buses, and trucks.
- See Standard Bike Lane, Buffered Bike Lane, and Separated Bike Lanes.
- See Raised Medians.

Additional Guidance

- FHWA Traffic Calming ePrimer
- See Standard Bike Lane, Buffered Bike Lane, and Separated Bike Lanes.
- See Raised Medians.

Narrow Cross-Section

REDUCED CURB RADII

Cost: $$


Lake Oswego, OR


Lake Oswego, OR



Orlando, FL

Street corner is reconstructed with a smaller radius to reduce vehicle turning speeds.

Benefits

- Forces sharper turn by right-turning motorists and thus slower speeds.
- Reducing crossing distance for pedestrians and places pedestrian in better view for approaching vehicles.

Constraints

- Requires additional space that may not be available.
- Makes turning movements more challenging for large vehicles and may not accommodate all trucks.

Typical Applications

- Typically used at intersections with high vehicle speeds and high pedestrian volumes where space is available.

Design Considerations

- The street type, angle of intersection, land uses, etc. should be considered when designing the curbs.
- Maintenance vehicles, emergency vehicles, school buses, and other anticipated large vehicles should be accommodated in the design.
- The effective turning radius (considering presence of parking, bike lanes, medians, etc.) should be used rather than the curb return radius to evaluate the ability of vehicles to make a turn.
- In locations where reducing the curb radius is challenging based on design vehicles, consider using a compound radius, at-grade paving treatments, or advance stop lines.

Additional Guidance

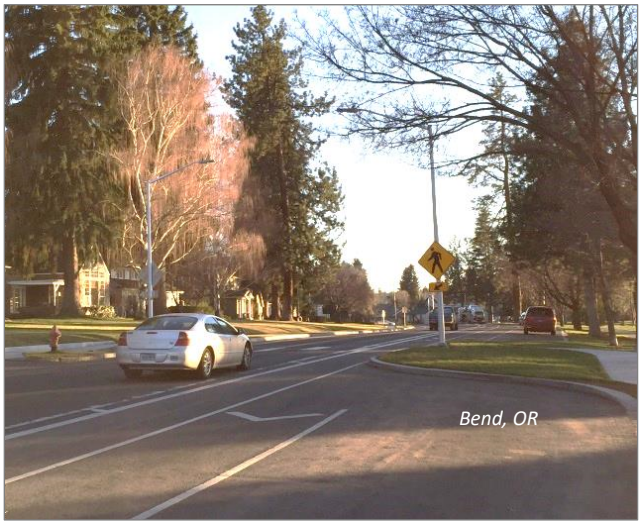
- FHWA Signalized Intersections: An Informational Guide
- FHWA Pedestrian Safety Guide for Transit Agencies
- NACTO Best Practices for Pedestrian Master Planning and Design

Narrow Cross-Section

BULB-OUT/CURB EXTENSIONS AND PINCH POINTS

Cost: $$





An extension of the curb or the sidewalk into the street (in the form of a bulb), usually at an intersection, that narrows the vehicle path, inhibits fast turns, and shortens the crossing distance for pedestrians.

Benefits

- Shortens crossing distances for pedestrians and encourages pedestrian activity.
- Reduces motorist turning speeds.
- Increases visibility between motorists and pedestrians, heightening driver awareness.
- Accommodates on-street parking.
- Enables tree and landscape planting and water runoff treatment, providing additional traffic calming effects through a change in context.

Constraints

- Physical barrier can be exposed to traffic.
- Greater cost and time to install than standard crosswalks.
- Can present turning radius problems to large vehicles.

Typical Applications

- Mid-block or intersection pedestrian crossings on streets with unrestricted on-street parking.
- Streets with on-street parking where pedestrian volumes ≥ 20 pedestrians per hour, ADT ≥ 1,500 vehicles per day, and average right-turn speeds ≥ 15 mph.

Design Considerations

- Include a narrow passage for bicyclists to prevent conflict with vehicles.
- Provide accessible curb ramps and detectible warnings.
- Include landscaping on the curb extension to differentiate path for pedestrian travel, especially for pedestrians with vision impairments.

Additional Guidance

- ITE/FHWA Report Traffic Calming: State of the Practice
- FHWA Designing Sidewalks and Trails for Access *Part II of II: Best Practices Design Guide*

Contextual Changes

SHARED LANE ROADWAYS

Cost: <$



Prince George's County, MD



Cornell Road,
Portland, OR


Pennsylvania

Shared lane roadways include roadways without separate bicycle facilities on which bicycle travel is not prohibited. Most roadways, with the exception of some limited access freeways, are "shared lane roadways" if they do not have a different type of bicycle facility. Shared lane roadways that are part of a designated bicycle network may include shared lane markings ("sharrows") or signage to indicate the legal presence of bicyclists in the travel lane.

Benefits

- Allows for bicycle travel when other treatments are not feasible.
- Introduces bicycles to the roadway and can create a less car-centric environment, increasing driver awareness.
- Low- to no-cost.

Constraints

- Does not provide any separation from vehicles.
- Without additional traffic-calming treatments, it is likely to attract only strong and fearless bicyclists.

Typical Applications

- Rural roadways without shoulders often use "share the road" signage to indicate to road users that bicyclists may be present.
- Sharrows are typically used in urban or suburban locations on bicycle network links where other facilities are not present.

Design Considerations

- Sharrows should be placed at least 4 feet from the edge of the curb or on-street parking.

Additional Guidance

- ODOT Bicycle and Pedestrian Design Guide
- ODOT Highway Design Manual
- Manual on Uniform Traffic Control Devices (MUTCD)

Contextual Changes

ADVISORY BIKE LANE

Cost: $



Hanover, NH
Photo: Danny Kim, *The Dartmouth*



Hanover, NH
Photo: Danny Kim, *The Dartmouth*

Advisory bike lanes, also known as "suggestion lanes," are bicycle lanes that motor vehicles can use to pass oncoming motor vehicles after yielding to bicyclists. Advisory bicycle lanes are used in combination with a single center lane (without a centerline) for bi-directional motor vehicle travel on relatively low-volume streets.

Benefits

- Provides striped bicycle facility on roadways with very limited right-of-way or pavement width.
- Encourages slower motor vehicle speeds and yielding to bicyclists.
- Very inexpensive treatment consisting of only signing and striping.

Constraints

- Motorists may not initially understand advisory lanes due to limited applications in the US to date.
- Does not provide physical protection from vehicles and may not attract bicyclists of all levels.

Typical Applications

- Streets with less than 6,000 average daily motorized traffic that do not have sufficient width for exclusive bicycle facilities.
- Can be applied in urban or rural contexts.

Design Considerations

- Advisory bike lanes can be striped as 5-7 foot lanes with a single center motorized vehicle lane of 10 to 18 feet.
- Explanatory signage may be helpful in US contexts to communicate to motorists that they must yield to bicyclists before passing oncoming vehicles.

Additional Guidance

- CROW Design Manual for Bicycle Traffic (Netherlands Design Guide)

Contextual Changes

GATEWAY TREATMENTS

Cost: $$$









Gateway treatments create bookends to clearly indicate where the roadway environment changes. They may create segments within longer corridors and alert drivers to changing context and the need to slow speeds and be more alert for potential conflicts. Gateway treatments can be achieved through a variety of treatments including traffic circles, mini roundabouts, and landscape medians/buffers.

Benefits

- Provides a visual change to alert drivers they are entering a unique area and to drive with caution.
- Physical features naturally slow driver speeds.
- Can add beautification to streets.

Constraints

- Gateway treatments should accommodate the appropriate design vehicles for the specific location.

Typical Applications

- See Raised Medians for additional applications and considerations.
- Landscape buffers on the outside of the roadway may also be used to change the context and serve as gateway treatments.
- Traffic circles may be appropriate at intersections of low-volume local streets with urban cross-sections.
- Mini roundabouts may be appropriate at intersections of local streets or local streets with collectors.

Design Considerations

- Traffic circles require relatively low speeds (around <30 mph) and low traffic volumes (around <3,500 vehicles/day per approach); not typically appropriate at offset intersections.
- Mini roundabouts require low speeds or warning features for drivers approaching the intersection. They are appropriate for locations with lower traffic volumes than standard roundabouts. Unique mini roundabout designs such as dog-bone shaped roundabouts may be used at some offset intersections (Homedale Road/Harlan Drive).
- Designs must accommodate emergency vehicles, and in some locations designs should accommodate buses and trucks.

Additional Guidance

- FHWA Traffic Calming ePrimer

Contextual Changes

SIDEWALK

Cost: $$$





A sidewalk is a dedicated pedestrian facility adjacent to the roadway and separated from traffic by a curb.

Benefits

- Provides pedestrians with a dedicated physically-separated space.
- Increases driver awareness for potential conflicts with pedestrians and other modes.
- Provides opportunities for landscape buffers, increasing traffic calming effects.
- Provides means of mobility for people using wheelchairs, people with strollers, or others who may not be able to travel on an unpaved surface.

Constraints

- Adding a concrete curb and sidewalk to streets adds a substantial expense to the overall construction cost.
- Stormwater drainage needs to be considered when retrofitting existing streets.

Typical Applications

- Typically provided on urban (non-rural) and residential streets, with the exception of limited access freeways.
- Typically added to streets in urbanizing areas as development occurs.

Design Considerations

- Typically 6 to 8 feet wide. Sidewalks should be constructed at least 5 feet wide, with a minimum of 4 feet of clear width, excluding a shy distance of 1.5 feet from the curb and any adjacent obstructions.
- A landscaped buffer is preferable in residential areas and in locations with higher traffic speeds and volumes.
- Wider sidewalks of 12 to 20 feet can be beneficial in commercial or “town center” areas in order to accommodate higher pedestrian volumes, street furniture, pedestrian scale lighting, business signage, bike parking, transit stops, and other amenities.

Additional Guidance

- ODOT Highway Design Manual.
- ODOT Bicycle and Pedestrian Design Guide
- AASHTO Green Book
- NACTO Urban Streets Design Guide

Contextual Changes

STREET FURNITURE AND LIGHTING

Cost: $$-$$$


Austin, TX



Heppner, OR

Street furniture includes pedestrian seating, information/ wayfinding structures, and trash cans. Street furniture and lighting can be used to enhance the pedestrian experience and encourage pedestrian activity on a street. It changes the environment and alerts drivers to a more urban context.

Benefits

- Encourages walking and sense of comfort and security for pedestrians.
- Increases driver awareness of pedestrians and potential conflicts.
- Relatively inexpensive and easy installation.
- Creates the perception of an urban environment and increases driver behavior conscientiousness.

Constraints

- Requires space in potentially busy areas, such as sidewalks.

Typical Applications

- Typically provided at areas of high bicycle and pedestrian traffic such as bus stations, shopping centers, schools, and multi-use trails.
- Street furniture and pedestrian-scale lighting is usually provided on corridors with commercial activity and anticipated high-pedestrian use.

Design Considerations

- Street furniture should not be placed to block the entrance of a building or inhibit pedestrian flow.
- The type and size of street furniture should be based on the available space and anticipated demand.
- Street furniture should be accessible to all users.

Additional Guidance

- AASHTO Roadway Lighting Design Guide

Contextual Changes

HIGH VISIBILITY CROSSWALK

Cost: $



Heppner, OR



Boise, ID

High visibility crosswalks consist of reflective roadway markings and accompanying signage at intersections and priority pedestrian crossing locations.

Benefits

- Communicates potential for pedestrian crossings to motorists and increases driver awareness.
- Designates a preferred crossing location for pedestrians.
- Low cost.

Constraints

- Can be more effective with other types of traffic control (signals, stop signs).
- At uncontrolled locations (midblock), motorist compliance is not as high as with other treatments.

Typical Applications

- High visibility crosswalks are typically applied at intersections of arterials, collectors, and/or other facilities with moderate to high vehicle volumes and speeds.
- Can be applied at mid-block locations, especially in conjunction with other treatments.

Design Considerations

- Crosswalk striping can vary, and may include continental striping (top photo), ladder striping, zebra striping (middle photo), etc.
- Can be constructed with paint or thermoplastic material.
- Minimum width is 6 feet, but wider crossings are preferred in areas with high number of pedestrians.

Additional Guidance

- NCHRP Report 562 Improving Pedestrian Safety at Unsignalized Crossings
- ODOT Bicycle and Pedestrian Design Guide

Contextual Changes

CROSSING ISLAND (PEDESTRIAN REFUGE)

Cost: $-$$





A crossing island in the median provides a protected area in the middle of a crosswalk for pedestrians to stop while crossing the street. Also called pedestrian refuge islands or median refuges, they can be used at intersections or mid-block crossings.

Benefits

- Increases driver awareness of pedestrian activity.
- Can be used to narrow travel lanes.
- Reduces pedestrian exposure at marked and unmarked crosswalks.
- Requires shorter gaps in traffic to cross the street.
- Allows pedestrians to cross in two phases.

Constraints

- Streets with constrained right-of-way may not have sufficient width to allow for a crossing island.

Typical Applications

- Preferred treatment for crossings of multi-lane streets.
- Often used in areas with high levels of vulnerable pedestrian users, such as near schools or senior centers/housing.
- Often applied in areas with high traffic volumes or with a pedestrian crash history.

Design Considerations

- Must have at least 6 feet of clear width to accommodate people using wheelchairs.
- At crossing locations where bicyclists are anticipated, a width of 10 feet or greater is desirable to accommodate bicycles with trailers or groups of bicyclists.
- Can be applied in conjunction with other traffic control treatments.

Additional Guidance

- ODOT Bicycle and Pedestrian Design Guide
- NACTO Urban Streets Design Guide
- NCHRP Report 562 Improving Pedestrian Safety at Unsignalized Crossings

Warning Devices

RECTANGULAR RAPID FLASHING BEACON (RRFB)

Cost: $$-$$$



Pendleton, OR


Irrigon, OR

These crossing treatments include signs that have a pedestrian-activated "strobe-light" flashing pattern to attract motorists' attention and provide awareness of pedestrians and/or bicyclists that are intending to cross the roadway.

Benefits

- Provides a visible warning to motorists at eye level.
- Increases motorists yielding behavior at crossing locations over round yellow flashing beacons (80 to 100 percent compliance).
- Allows motorists to proceed after yielding to pedestrians and bicyclists.

Constraints

- Flashing beacons must be activated by pedestrians.
- Motorists may not understand the flashing lights of the RRFB, so compliance may be lower than with a traffic signal.

Typical Applications

- Midblock crossings with medium to high pedestrian or bicycle demand and/or medium to high traffic volumes.
- Locations where multi-use paths intersect with roadways.

Design Considerations

- The push button to activate the RRFB should be easily accessible by pedestrians, wheelchair users, and bicyclists (if applicable).
- Consider adding a push button in the median island for crossings of multi-lane facilities.

Additional Guidance

- Manual on Uniform Traffic Control Devices (MUTCD)
- NACTO Urban Street Design Guide
- NCHRP Report 562 Improving Pedestrian Safety at Unsignalized Crossings
- ODOT Bicycle and Pedestrian Design Guide

Warning Devices

RUMBLE STRIPS

Cost: <$


Austin, TX


Libson, MD

Pavement surface treatments intended to cause drivers to experience vehicular vibrations signaling them to slow down. Rumble strips can be raised pavement markers across the roadway or grooves along the shoulder or centerline. Rumble strips are best used in conjunction with other traffic calming treatments.

Benefits

- Low cost.
- Speed reduction and increase in driver awareness.

Constraints

- Vibration noise created may be inappropriate in residential areas.
- Perceived more as a warning to slow down, than a physical measure that forces slower speeds.
- Impacts the comfort and control of bicyclists.
- Potential impacts on pavement deterioration based on pavement quality and placement.

Typical Applications

- Roadways with high speeds or where driver inattention is an issue.
- Rumble strips can be used on shoulders to alert drivers they are entering a part of the roadway not intended for use.
- Roadway rumble strips placed across the roadway are used to alert drivers of a changing roadway condition or the need for speed reduction.

Design Considerations

- All road users need to be considered and accommodated. Bicycles need particular attention, especially if they are expected to use the roadway or shoulders.
- There are a variety of types of rumble strips, so the site application should be considered to determine the most appropriate design.

Additional Guidance

- FHWA Technical Advisory: Shoulder and Edge Line Rumble Strips

Warning Devices

SPEED FEEDBACK SIGNS

Cost: $



FHWA
Speed Management: A Manual for Local Rural Road Owners

Digital signs mounted to posted speed signs that detect driver speed and provide real-time feedback to drivers.

Benefits

- Relatively low-cost and easy to install.
- Provides real-time feedback to drivers on speed and increases driver awareness.

Constraints

- Signs should be installed in conjunction with posted speed limit signs and at locations with speed issues or locations that serve as a gateway into slower speed corridors.

Typical Applications

- Sites where the 85th percentile speed or mean speed exceeds the posted speed limit by 5 mph or more.
- Roadways where average daily traffic exceeds 500 vehicles.
- Sites exhibiting a correctible speeding-related crash history within a recent time period.
- Sites with a pedestrian-related crash history.

Design Considerations

- Design specifications such as sign dimensions, text height, illumination, flashing wavelength, etc.
- Location-specific guidance for schools and parks, street conditions, and work zones.
- Research has shown effectiveness for speed feedback signs peaks approximately 1200 to 1400’ upstream of the sign and lasts until approximately 300 to 500’ past the sign. Speed feedback signs should be placed at the location of intended speed reduction (at locations with a documented speed issue or at gateways into locations with unique contexts).

Additional Guidance

- FHWA Effective Deployment of Radar Speed Signs report
- Spatial Effectiveness of Speed Feedback Signs

Curvature Features

RAISED PEDESTRIAN CROSSING

Cost: $$


Orlando, FL


Pendleton, OR


Sanford, FL

Raised pedestrian crossings bring the level of the roadway even with the sidewalk, providing a level pedestrian path and requiring vehicles to slow. Raised crossings can be used at midblock crosswalks or intersections.

Benefits

- Provides a better view for pedestrians and motorists.
- Slows down motorists.

Constraints

- Can be difficult to navigate for large trucks, snow plows, and low ground clearance vehicles.
- Relatively expensive.

Typical Applications

- Raised crosswalks are typically provided at midblock crossings on two-lane roads where pedestrian volumes ≥ 50 pedestrians per hour and speed control is needed.
- Raised crosswalks may be provided at intersections where low-volume streets intersect with high-volume streets or where a roadway changes character (such as from commercial to residential).
- Raised crosswalks should not be used on transit routes or where there are steep grades or curves.

Design Considerations

- Raised crosswalks should be even with the sidewalk in height and at least as wide as the crossing or intersection.
- Provide detectable warnings for pedestrians where they cross from the sidewalk in to the crossing area.
- Consider drainage needs and provide appropriate treatments.
- Use colored asphalt as opposed to brick or decorative surface materials to make the crossing smoother for those with mobility impairments.
- Design should accommodate emergency vehicle access.

Additional Guidance

- ITE/FHWA Report Traffic Calming: State of the Practice
- FHWA Designing Sidewalks and Trails for Access *Part II of II: Best Practices Design Guide*

Curvature Features

SPEED BUMPS, SPEED HUMPS, SPEED TABLES

Cost: $$


Howard County, MD


Austin, TX



Kissimmee, FL

There are a number of raised treatments that can be used in the roadway to slow vehicular traffic, including speed bumps, humps and tables.

Speed humps utilize a larger vertical radius than speed bumps that results in wider widths and a gentler crossing by vehicles.

Speed tables are wide mountable obstructions installed on the pavement surface across travel lanes, and intended to cause vehicles to slow. Speed tables are wider flat-top speed humps, and are gentler on vehicles. They can be used on higher order roads than bumps or humps, because they allow a smoother ride and higher speeds.

Benefits

- Relatively inexpensive.
- Effectively slows vehicle speeds, with speed bumps and humps reducing speeds more than speed tables.
- Easily navigated by bicyclists.

Constraints

- May be considered noisy by nearby residents.
- Forces emergency vehicles to slow down.
- Inappropriate on streets with bus traffic due to rider comfort and reduced travel speeds.

Typical Applications

- Speed bumps or humps can be used on lower order roadways, whiles speed tables are appropriate on higher order roadways.
- Roadways where a reduction in speeds and traffic calming is desired.
- Speed bumps, humps, or tables work well with curb extensions.

Design Considerations

- Emergency vehicle access and drainage needs should be considered and accommodated.
- Treatments should be used midblock, not at intersections.
- Treatments are not appropriate on roadways with grades >8%.
- Advance signing and pavement markings on the treatment can be provided.
- Typically preferred for treatment not to cover a bike lane.

Additional Guidance

- ITE Traffic Calming Measures

Curvature Features

CHICANES

Cost: $$







Chicanes introduce curvature to straight roadways that force drivers to steer and naturally slow vehicle speeds. Curvature can be curves or lanes shifts, which occur in series. Chicanes can be achieved with curb extensions, on-street parking, raised/landscape medians, etc. Their placement is the important consideration.

Benefits

- Heightens driver awareness and forces drivers to steer/drive slower.
- Creates opportunities for street landscaping.

Constraints

- May require right-of-way depending on the existing horizontal curvature of the road.
- May not be as effective when traffic volumes are higher in one direction or when traffic volumes are low enough that opposing vehicles rarely interact.
- Not a preferred location for crosswalks as drivers should be focus on curvature.

Typical Applications

- Appropriate for local streets or low-volume collectors if enough horizontal curvature is present.
- Either applied midblock or for entire blocks if short.
- Installed on one- and two-way streets in an open or urban cross-section.
- Appropriate for streets with speed limits of 35mph or less and relatively low traffic volumes (i.e. 3,500 per day).

Design Considerations

- Should not require utility relocation.
- Avoid relocating drainage features.

Additional Guidance

- FHWA Traffic Calming ePrimer

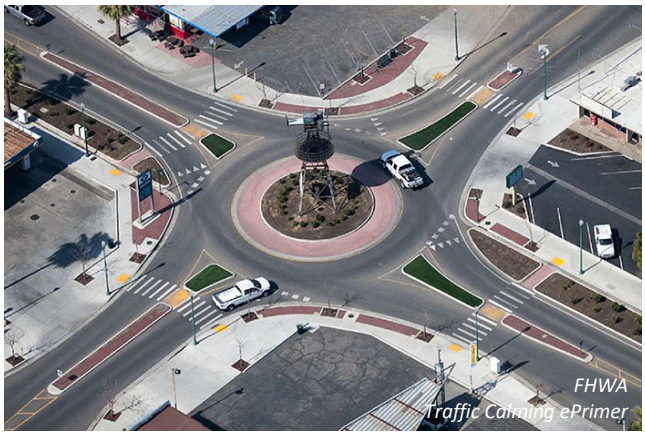
Corridor Breaks

INTERSECTION CONTROL CHANGES

Cost: $$-$$$$







Intersection control changes (including all-way stop-control, traffic signals, and roundabouts) can be used to create additional breaks in the corridor and force drivers to slow down on the approach to intersections.

Benefits

- Can be achieved with stop signs, traffic signals, roundabouts, mini roundabouts, and traffic circles.
- Creates breaks along corridors and forces drivers to slow down.
- Creates more crossing opportunities for pedestrians.
- Some treatments such as roundabouts create street beautification opportunities.

Constraints

- MUTCD warrants for all-way stop-control and traffic signals should be evaluated.
- The MUTCD all-way stop control warrant states that this intersection control should not be used for speed control but can be used for safety purposes.
- Each intersection control treatment has different warrants and purposes.
- Some control types require more right-of-way while others require long-term operation/maintenance.

Typical Applications

- See traffic circles in Gateway Treatments.
- Roundabouts and signals may be appropriate along arterials and collectors.
- Each intersection control has different application requirements and need individual evaluation.

Design Considerations

- Traffic volumes, posted speed, intersection locations, design vehicles, right-of-way and utility impacts. Each intersection control has different application requirements and need individual evaluation.

Additional Guidance

- NCHRP Roundabout Design Guide
- MUTCD
- FHWA Traffic Calming ePrimer

Corridor Breaks

TURN RESTRICTIONS

Cost: $-$$







Turn restrictions are physical barriers at intersections that prevent specific movements and decrease vehicle speeds. In extreme cases, these can be road closures.

Benefits

- Can eliminate cut-through traffic.
- Can allow cross bike traffic.
- May slow vehicles along major street.
- Can improve vehicle safety by removing certain turning movements.
- Can improve bicycle and pedestrian safety on local streets with potential reduction in traffic volume.

Constraints

- May cause traffic diversion to other streets.
- Not expected to reduce speeds along local cross streets.
- Restricts emergency vehicle and bus passage.

Typical Applications

- Arterial or collector streets to prevent turn traffic from/to minor collectors or local streets
- Can be used on one- or two-way streets with an urban cross section.
- The maximum speed limit on the side street should be 25mph.

Design Considerations

- Emergency, transit, and access routes; not appropriate if such routes are blocked.
- Right turn curb radii.
- Barrier gaps for bicycles and pedestrians to pass through.
- Should extend 15 to 25 feet beyond intersection.

Additional Guidance

- MUTCD
- FHWA Traffic Calming ePrimer

Corridor Breaks

MINI ROUNDABOUTS

Cost: $$



FHWA
Traffic Calming ePrimer



FHWA
Traffic Calming ePrimer

Mini roundabouts are compact roundabouts that operate similar to a single lane roundabout with raised central islands in the center and splitter islands to direct traffic but have smaller intersection footprints and serve slightly lower traffic volumes in comparison with full-size roundabouts.

Benefits

- Helps slow vehicles along both streets.
- Reduces conflict points between vehicles at intersection.
- Typically cheaper to build than standard roundabouts, requiring less right-of-way.
- May have a fully traversable center island for heavy vehicles.
- Central island can be used as a landscaping or color/texture treatment opportunity.

Constraints

- Speed reduction largely dependent on geometric design.
- May discourage through truck traffic from use and encourage alternative routes.

Typical Applications

- Intersection of two local roads or a local road with a collector
- One- or two-way streets
- Urban and suburban settings and cross sections
- Lower traffic volumes than a single lane roundabout

Design Considerations

- Stormwater runoff draining away from center island
- Redesign/relocation of existing utilities, like manholes
- Potential need for additional street lighting

Additional Guidance

- FHWA Traffic Calming ePrimer
- FHWA Mini-Roundabouts Technical Summary

Appendix I: Implementing Ordinances

Appendix J: Public Outreach Summary

Boardman Transportation System Plan

ENGAGEMENT SUMMARY | March 4, 2025

In January and February 2025, the project team hosted a series of in-person engagement events while also conducting an online community survey that ran from January to February. The engagement events included a public open house, two pop-up tables and a student presentation. The survey and engagement events were designed to gather community input to help inform an updated Transportation System Plan (TSP).

Key takeaways



99 interactions were recorded for the Boardman TSP either at the community events or through the online survey.



Lack of sidewalks is a barrier to walking



Improving connections across I-84 is a priority for many in the community.



Lack of bike infrastructure is a barrier to biking.



Traffic congestion and delays are common barriers to driving.



Limited bus service and unclear stop locations discourage Loop ridership.



Key roads can be difficult to navigate at times due of traffic congestion, especially Main Street

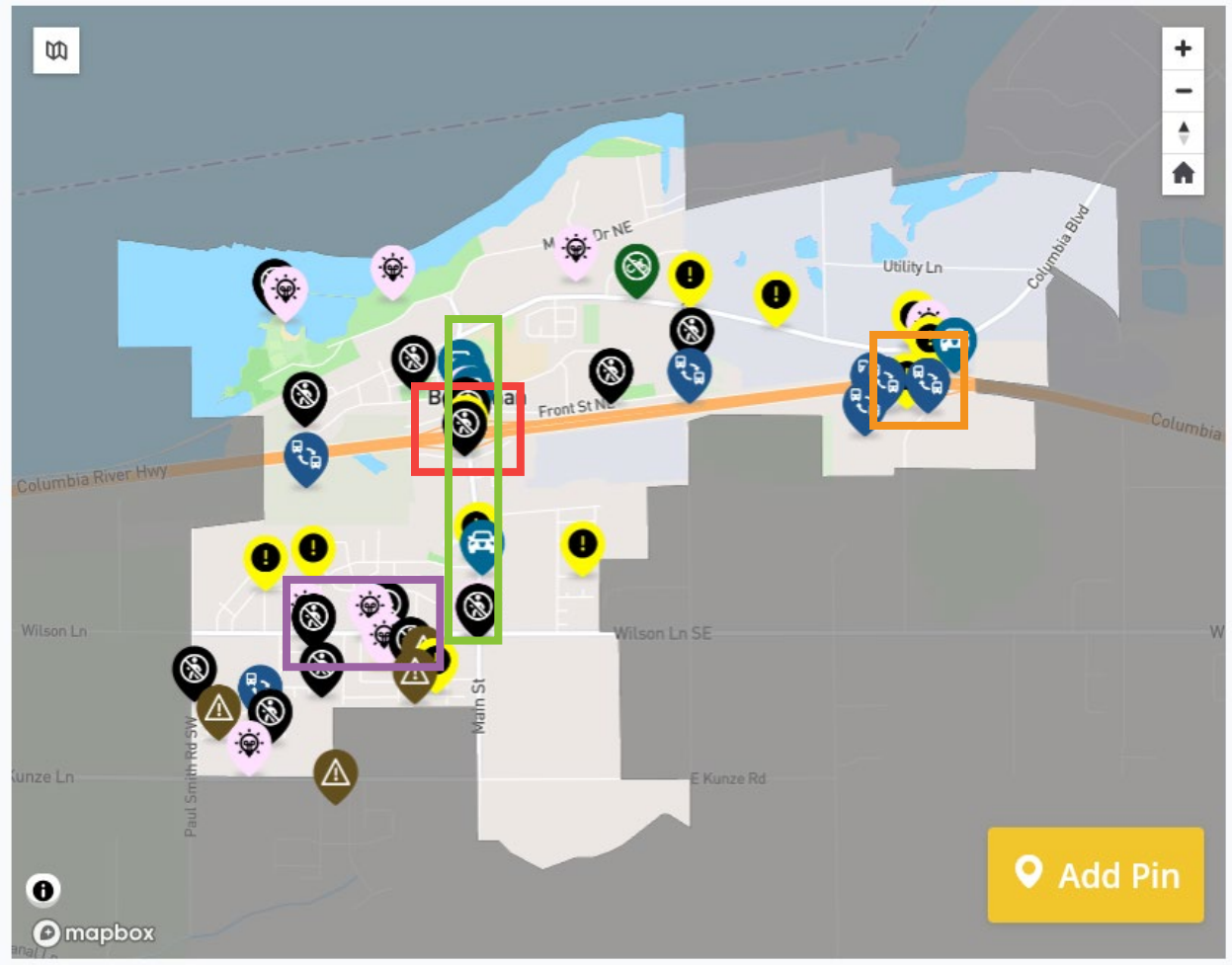


Traffic congestion occurs at the elementary schools during pick-up and drop-off periods.

Location-specific takeaways

The project team received 59 map comments at in-person events and through the online engagement site. A summary of key takeaways is provided below with a visual of concentrated areas of comments shown in the map in Figure 1.

Figure 1: Screencap of the online comment map with areas of concentrated comments outline using rectangles



Travelling along and crossing Main Street (green shape on the map)

- Turning on and off of Main Street to get to important destinations like Harvest Foods and the gas stations feels unsafe.
- Main Street is always congested, especially at the end of the workday or when High School is dismissed at the end of the day.

Main Street bridge over I-84 (red shape on the map)

- Safety concerns for walking or biking, especially during school pickup/drop-off times and end of workday.

- More street lighting is needed along the overpass and onto S Main Street.
- There is poor visibility of cars on Main Street when exiting the interstate off ramps due to fast moving vehicles on Main Street and difficult sight lines.

Laurel Lane interchange (orange shape on the map)

- There is poor visibility for cars turning off the interstate off ramps to go north and south.
- Some people suggested adding a right turn lane on the westbound off ramp.
- Several comments recommended connecting Laurel Lane to become a fully connected loop and adding a roundabout at the Laurel Lane/Columbia Boulevard intersection.
- There is heavy truck traffic in this area to and from the Port of Morrow.

Elementary school area (purple shape on the map)

- There is east-west congestion on Wilson Lane during school pickup (2:30-3:30 p.m.).
- Community suggestions to help alleviate this congestion included:
    - Adding bilingual signage (Spanish and English) for school traffic with time limits.
    - Improving awareness of pedestrian paths between neighborhoods and schools.
    - Adding a pedestrian path west of the schools near Juniper Drive for students.
    - Adding more teacher parking south of Sam Boardman Elementary School.
    - Requiring staff to park is designated lots to free up curbside space for student drop-off and pick-up.

Engagement Events

On January 29, 2025, the project team went to Sam Boardman Elementary School, Windy River Elementary School, Families First Childcare Center and Boardman City Hall to talk to people living, working, and traveling in Boardman about their experiences getting places around town. The engagement event information below summarizes key themes and impactful comments from conversations during these events.

Open House at Boardman City Hall

The project team and city staff hosted an open house at Boardman City Hall on January 29, 2025. 35 attendees shared feedback and comments on Boardman's transportation system through one-on-one conversations, a mapping activity and a priority activity.



Project staff and community member adding a comment to the map of Boardman.

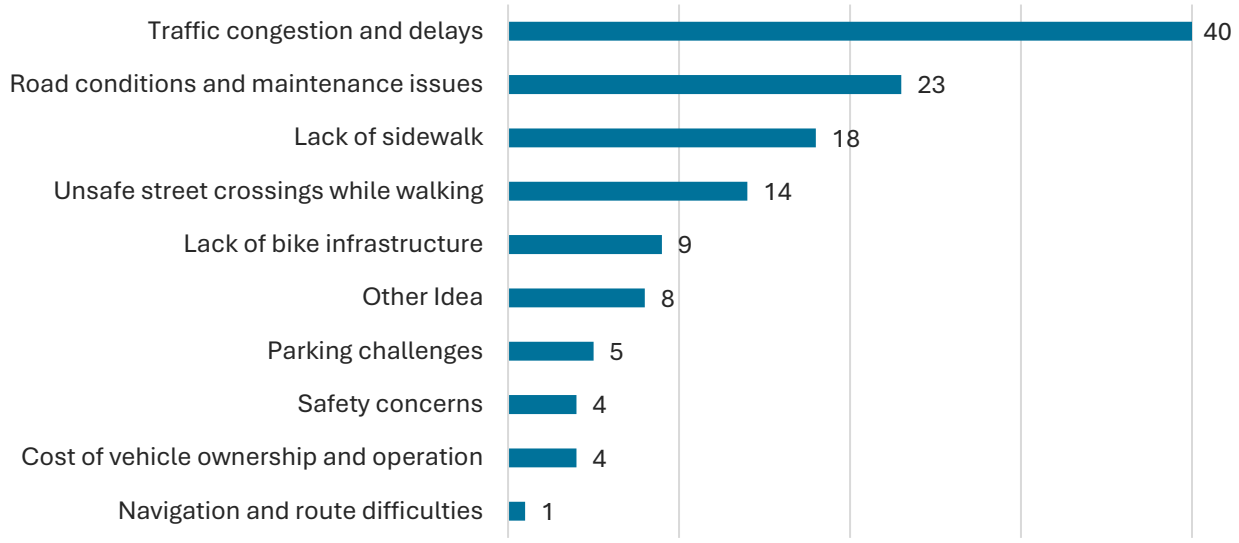
- Many people worry about drivers speeding in Boardman.
- Some food production workers use H-2A transportation services to get to workplaces.
- Tower Road has heavy traffic with drivers going at high speeds on a curvy, narrow road.
- Many people suggest adding signalized crosswalks with flashing lights to improve walking safety along Main Street and Wilson Road.
- Several people have concerns about the I-84 and Main Street overpass and use Laurel Lane to avoid traffic.

Priority activity

During the TSP Open House, attendees prioritized 5 of the 10 categories to highlight the greatest barriers to traveling in Boardman. Most of the open house attendees participated in the priority activity.

Open house attendees were asked to identify their biggest challenges navigating the transportation system in Boardman. The table/graph below summarizes how attendees ranked and prioritize these challenges.

Figure 2: Priorities for street improvements



Pop-up Event at Sam Boardman Elementary Staff Lounge

The project team visited Sam Boardman Elementary on January 29, 2025 to speak with school staff about Boardman's transportation system and the challenges they experience as residents and/or educators. 15 staff participated through one-on-one conversations and through a mapping activity.



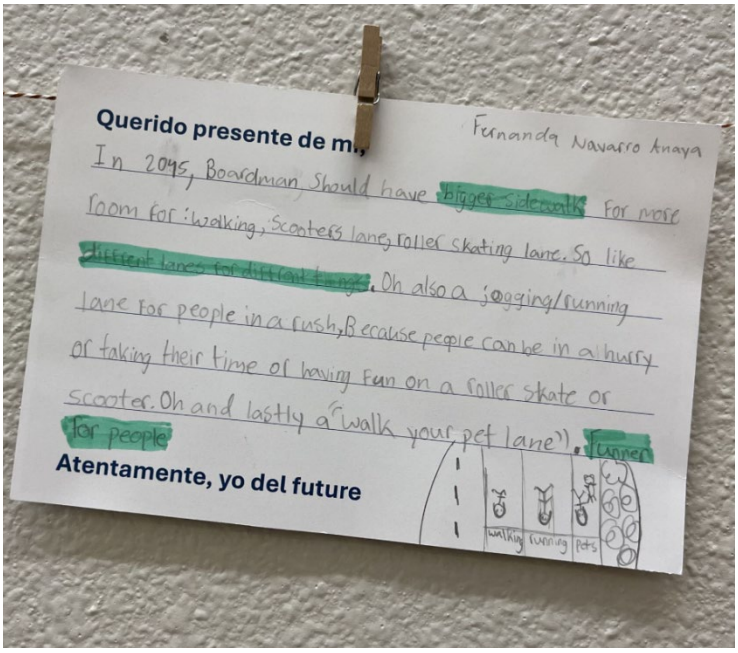
Project team and school staff member discussing traveling around town while looking at the map of Boardman.

- Several staff members walk a loop with their students from Boardman Elementary School to the library and city hall playground as a field trip, using roads with at least one sidewalk.

- Many staff wish they could cross I-84 along Main Street with kids on bikes but feel unsafe because:
    - The overpass along Main Street is too narrow for bicyclists and pedestrians
    - Bicyclists often use the sidewalk along the overpass
    - Students use this route to get to school or pick up siblings
    - Many teachers believe improving this overpass is a main priority for student safety
- Wilson Lane near Sam Boardman Elementary School gets congested during school pick-up.
- School pick-up and drop-off causes traffic backups past the fire station from 2:30 to 3:30.

Student Presentation at Windy River Elementary

The project team visited a class at Windy River Elementary on January 29, 2025 to learn about student travel patterns and their vision for Boardman's transportation in 50 years. 15 students created postcards to their future selves.



A postcard from a student at Windy River Elementary School sharing their 2045 vision for traveling in Boardman.

- Of the 13 students who participated, 11 travel to school by car, 2 by walking, and 1 by bus.
- Several students live just south of Windy River Elementary don't walk to school because they don't know a safe path.
- Many students shared that in 2045 they would like a reliable vehicle with the ability to see their friends and get to work.

- Several students talked about the importance of getting places safely, including while walking.

Pop-up Event at Families First Childcare Center

The project team visited Families First Childcare Center on January 25, 2025 to ask parents/guardians picking up their kids about travel patterns and challenges in Boardman. The project team talked to eight people.



Staff talk to a caregiver during pick-up at Families First

- Several people mentioned congestion at Boardman Ave NE and N Main Street when the High School lets out and during sporting events.
- Multiple people noted incomplete sidewalks throughout Boardman.

Online Survey

In January and February 2025, project team surveyed people about how they travel in Boardman. 26 people completed the online survey.

- 25 out of 26 people use a personal vehicle as their main way to get around Boardman.
- Carpooling, walking, and biking are popular additional transportation methods.
- 15 people identified traffic congestion and delays as a main barrier to driving.
- 15 people reported lack of sidewalks as a main barrier to walking.
- 15 people cited lack of bike infrastructure as a main barrier to biking.
- Limited bus service and hard-to-find bus stops are the main barriers to using The Loop.

Boardman Transportation System Plan

BUSINESS OWNER INTERVIEWS | SEPTEMBER 2, 2025

Introduction

In July 2025, the Boardman Transportation System (TSP) team conducted one-on-one meetings with local business owners to gather feedback on transportation. The meetings explored how transportation affects business operations and customers, including travel challenges, recent changes in travel patterns, and potential improvements. When relevant, discussions included specific Main Street design and access issues.

Meeting summaries follow below.

Interview Summaries

C&D Drive-In | July 21, 2025

- The only transportation challenge her customers face is that Main Street is getting busier so it's difficult to cross that road; hopes some of the TSP updates will improve that.
- Would like to see Boardman put out more information about local buses (stop locations, times, route map, trip planning options) since people don't really know what their bus options are currently.
- While she is losing head-in parking with the planned updates, she feels the City is doing a good job in working with her and keeping her informed; is satisfied about the new parking across the street that will be provided.

Jumpstart Java| July 21, 2025

- Biggest concern is that sales would go down if a median were put in and a convenient turn into Jumpstart Java were no longer possible; most of their customers are coming off of the freeway as the coffee shop has good visibility.
- Her customers (many of which are repeat customers) stop at Jumpstart Java while travelling between Pendleton and Portland because it's an easy stop but she fears the extra time added by the median installation would start making people go somewhere else.
- Thinks a roundabout or three-way stop on Front Street would be good alternative solutions on the southside.
- Emphasized that mirroring a median design from the northside on the southside doesn't make sense because "the landscape is just so different."

- Also brought up how the bridge over I-84 gets hit a couple of times per year and everyone could benefit from it being raised and widened (there are lots of windmills being transported which cannot fit under the bridge).

Boardman Liquor Store | July 23, 2025

- Described the size of the planned median on the southside as "ridiculous."
- Expressed strong general concern about small businesses (particularly the food carts near the Liquor Store) not being able to weather the loss of sales that will come from installing a median and right-turn-only solution on SE Front.
- When SE Front was redone earlier this year and access was cut off for a few months, that affected the sales of both his business and the food carts (some of which had to shut down or talked about shutting down during that time).
    - Mentioned how most of those food truck businesses don't own the land so they're not being notified (by landowners) about proposed changes and by the time they find out and have feedback to give, it's too late, so they end up having no say in the matter.
- Referenced how in other towns along I-84 like Hood River and The Dalles, there are several exits and bridges to get from one side of town to the other from the highway but in Boardman this is not the case.
    - Feels that there are a few property owners in town that are getting the majority of the decision-making power around transportation in Boardman in order to drive traffic to specific parts of town.
- Likes the idea of a roundabout solution somewhere - perhaps at Front Street or even at the Car Wash, but definitely not all the way at Oregon Trail Blvd.
- Feels that it's hard for him to express his frustration with this project because he is on City Council but in the long-term he wants to be advocating for the livelihood of small businesses, not for their demise.
- Ultimately he feels that the current small business owners in Boardman are being sacrificed while other (unspecified) local players are driving traffic to other particular parts of town.

Sinclair| July 24, 2025

- **Concern over median impact:** Alex's main issue with the proposed changes is the planned median on Main Street, which he believes will significantly reduce or block customer access from the freeway to his property, impacting business.
- **Mixed feelings about alternatives:** He is not opposed to a stoplight or other traffic control devices, but he doubts that alternatives like a roundabout would solve the access problem—especially given space concerns for large commercial trucks. He seemed skeptical whether a roundabout would fit within the existing right of way and may benefit from a future conversation with you, Carla, to clear this up.

- **Frustration with planning process:** He feels that current decisions/designs being implemented are based on outdated plans and that ODOT is not taking proper accountability for this. He also expressed concern that the plan didn't seem to be addressing other transportation issues like fixing the highway on and off ramps, creating designated truck routes, or raising the height of the bridge so that trucks can safely pass under it.
- **Additional safety & community concerns:** Pedestrian safety—especially at a particularly dangerous intersection where there was "a whole tragic accident years ago"—is a concern. He suggests pedestrian overpasses as he observed in Europe. He also expressed concern over the planned road changes affecting other businesses in the area, particularly along 1st Street.