Technical Memorandum #4

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To:	Project Management Team (PMT)	
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Subject:	Existing Conditions Inventory and Analysis DRAFT	

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

Executive Summary

The following summarizes the key findings identified through the existing transportation conditions assessment.

Intersection Operations Analysis Findings

- 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.
- 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 under weekday PM peak hour traffic conditions. 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.
- Non-motorized pedestrian and bicycle movements are low at most study intersections.

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. Angle and turn crashes were predominantly observed at this intersection.
- No study intersections were identified within the 2022 ODOT Region 5 top 15% Safety Priority Index System (SPIS) list.

Multimodal Analysis Findings

- Most arterial/collector streets are PLTS 4, lacking 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.
- No segments are rated PLTS 1.
- 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

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 1/4 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 another significant destination for people which features an assortment of locally important commercial uses including a grocery store, bank, pharmacy and other retail uses. There are also recreational uses 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. Creating and maintaining access to these and other similar land uses is important for ensuring a high quality of life for all segments of Boardman's population.

Figure 3. Key Destinations/Local Activity Centers

Population Demographics

The Boardman UGB has approximately 4,000 people, with most living within the city limits. 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. The community population is made up of people of all ages, abilities, and incomes with various transportation needs, and with varying access to the existing transportation system.

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), people with Limited English Proficiency (LEP), people living under the federal poverty level, people 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, extending to the UGB extents. 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

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

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. Functional Classifications

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.

As shown in Figure 6, 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.

COUNTY

Morrow County currently identifies its local roadway improvement standards in their 2012 Transportation System Plan.

STATE HIGHWAYS

The ODOT Highway Design Manual (HDM)[1] 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,

[1] Oregon Department of Transportation. (2023). *Highway Design Manual*. <https://www.oregon.gov/odot/engineering/pages/hwy-design-manual.aspx>

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.

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 1 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.

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)

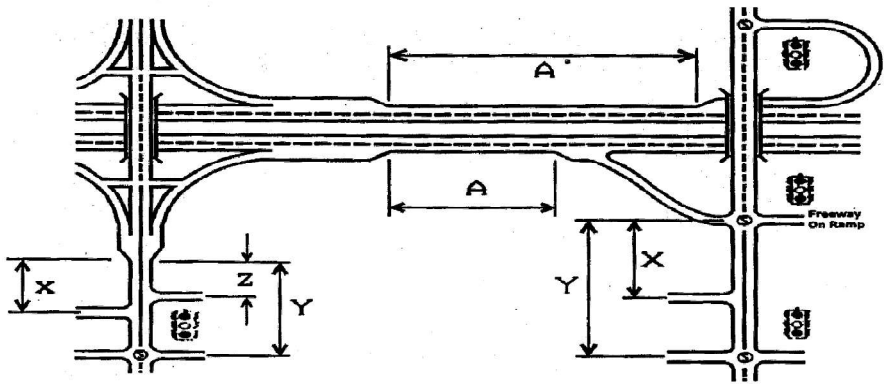
A = Distance between the start and end of tapers of adjacent interchanges

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 1. Measurement of Spacing Standards for Table 6



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

Figure 8. Number of Travel Lanes

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

Figure 10. Intersection Lane Configurations and Traffic Control

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 Union Pacific Railroad (UPRR) 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, 4 are maintained by ODOT, 1 is maintained by the City of Boardman, 2 are maintained by Union Pacific Railroad, and 1 is 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	Sufficiency Rating
Main St over UPRR	20053	City	MAIN ST	UPRR	0.33	91.5
Main St. over I-84	08946	ODOT	MAIN ST	I-84 (HWY 2)	164.16	76.7
I-84 WB over Laurel Lane Intchg	16612	ODOT	I-84 (HWY 2) WB	LAUREL LANE	165.76	92.8
I-84 EB over Laurel Lane Intchg	16611	ODOT	I-84 (HWY 2) EB	LAUREL LANE	165.76	94.2
Ullman Blvd over UPRR (Port of Morrow)	49012	UPRR	ULLMAN BOULEVARD	UPRR	0	79.2
East Columbia Ave. over UPRR (Port of Morrow)	49C18	UPRR	E. COLUMBIA AVE	UPRR	0	73.6
Marine Drive Bridge	No Data	Port of Morrow	MARINE DR	UPRR	No Data	>80

Figure 11. Bridges by Owner and Sufficiency Rating

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

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

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

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[2] and Reduction Review Route[3]. 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[4], 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, food processing facilities, 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 can't clear the Main Street bridge, so they exit, pass through town, and 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 Columbia River High, Wide, and Heavy Corridor is a proposed infrastructure initiative designed to improve multi-modal transportation for oversized cargo. The route would stretch along the Columbia River from the Port of Longview to Umatilla, where it would connect to truck routes extending to Minnesota and Alberta, Canada. This corridor aims to offer shippers substantial time and cost savings while reducing oversized freight traffic on roadways.

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[2] 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.

[3] High Clearance Routes are established by ODOT as routes that are critical for movement of oversize freight loads, especially tall loads.

[4] Oregon Department of Transportation. (2023). *Oregon Freight Plan*, 2023.

Figure 15. Freight Routes and Railroad Crossings

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[5] 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.

[5] 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. Located at the northeast corner of Ulma Boulevard and Industrial Way, this gas plant is owned by Portland General Electric. 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.

Existing System Conditions Analysis

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 16 and Figure 17 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 18 and Figure 19 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 18 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.

Table 9. Study Intersection Performance Summary – Existing Traffic Operations

ID	Intersection	Owner	Exceeds Operational Standard	
			Weekday AM Peak Hour	Weekday PM Peak Hour
1	N Main Street / Marine Drive	City		
2	N Main Street / Columbia Avenue	City		
3	N Main Street / Boardman Avenue	City	✓	
4	N Main Street / N Front Street	City	✓	✓
5	N Main Street / I-84 Westbound Ramp Terminal	ODOT		✓
6	S Main Street / I-84 Eastbound Ramp Terminal	ODOT		
7	S Main Street / S Front Street	City	✓	✓
8	S Main Street / Oregon Trail Boulevard	City		
9	S Main Street / Kinkade Road	City		
10	S Main Street / Wilson Lane	City		
11	Olson Street / Columbia Avenue	City		
12	Laurel Lane / Columbia Avenue	City		
13	Laurel Lane / I-84 Westbound Ramp Terminal	ODOT		
14	Laurel Lane / I-84 Eastbound Ramp Terminal	ODOT		

Figure 16. Existing Intersection Operations, Weekday AM Peak Hour

Figure 17. Existing Intersection Operations, Weekday PM Peak Hour

Figure 18. Existing Traffic Operations, Weekday AM Peak Hour

Figure 19. Existing Traffic Operations, Weekday PM Peak Hour

Table 10 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 10. 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 11 presents crash type and severity summaries for the data whereas Table 12 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 11. 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 12 summarizes the crash rate assessment for each intersection and compares those values to the observed crash rate.

Table 12. 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 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 2022 SPIS list was 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. The SPIS score is calculated based on three factors:

- 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 2022 ODOT Region 5 top 15% SPIS list.

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. Table 4 summarizes the results of the PLTS analysis. Figure 20 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 20, most arterial and collector streets in Boardman have segments are rated PLTS 4. Most of these 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 and Ullman Boulevard. Per the APM, these segments are automatically rated PLTS 3 or 4 given the auto-oriented nature of these land uses. There are no segments rated PLTS 1.

Attachment E contains detailed information on the PLTS analysis results.

Figure 20: Pedestrian Level of Traffic Stress (PLTS) Analysis Results

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. Table 5 summarizes the results of the BLTS analysis. Figure 21 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 21, 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 21: Bicycle Level of Traffic Stress (BLTS) Analysis Results

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

Attachment B – Existing Traffic Operations Worksheets

Attachment C – ODOT Crash Data

Attachment D – Crash Analysis Worksheet

Attachment E – Detailed Pedestrian and Bike Level of Traffic Stress Results