CITY OF ONTARIO

Active Transportation Plan Update and East Idaho Avenue Refinement Area Plan

February 16, 2021

Oregon Department of Transportation

ONTARIO
OREGON
THE GATEWAY TO ADVENTURE
1884

ACKNOWLEDGEMENTS

The development of this plan was guided by the Project Management Team (PMT), Technical Advisory Committee (TAC), and members of the public. Each individual devoted their time and effort to provide valuable input and feedback and their participation was instrumental in the development of the plan.

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EXECUTIVE SUMMARY

The City of Ontario, in partnership with the Oregon Department of Transportation (ODOT), has completed the following two transportation planning efforts:

- An ***active transportation plan*** that will improve walking, biking, and access to public transportation in Ontario; and
- A ***refinement plan*** for East Idaho Avenue from Interstate 84 to the Snake River that will improve safety and mobility for all people, as well as the aesthetics of the corridor.

These planning efforts will be incorporated by reference into the City's Transportation System Plan (Reference 1).

Active Transportation Plan Update

The Ontario Active Transportation Plan Update envisions a comprehensive active transportation network that provides safe and comfortable mobility options for all of Ontario's residents, employees, and visitors. A citywide needs and deficiencies analysis was completed and used to develop walking/rolling and biking project lists. The resulting walking/rolling projects are shown in Figure 1 and biking projects are shown in Figure 2.

The Ontario Active Transportation Plan update also includes updates to the City's cross-sectional street standards that can be used to guide new roadway construction, as well as reconstruction of existing roadways.

E Idaho Avenue Refinement Area Plan

The East Idaho Avenue Refinement Area Plan identifies multimodal connections between downtown and the East Idaho Avenue commercial area and streetscape enhancement on East Idaho Avenue. The East Idaho Avenue Refinement Area design concept leverages planned intersection improvements on East Idaho Avenue and available ODOT right-of-way south of the roadway, to implement upgrades outside the roadway that would benefit people walking and biking and enhance the identity of Ontario. The concept includes a shared-use path south of the road, gateway treatments, future connections to the planned trail along the Snake River, and an overlook of the river. The concept is shown in Figure 3.

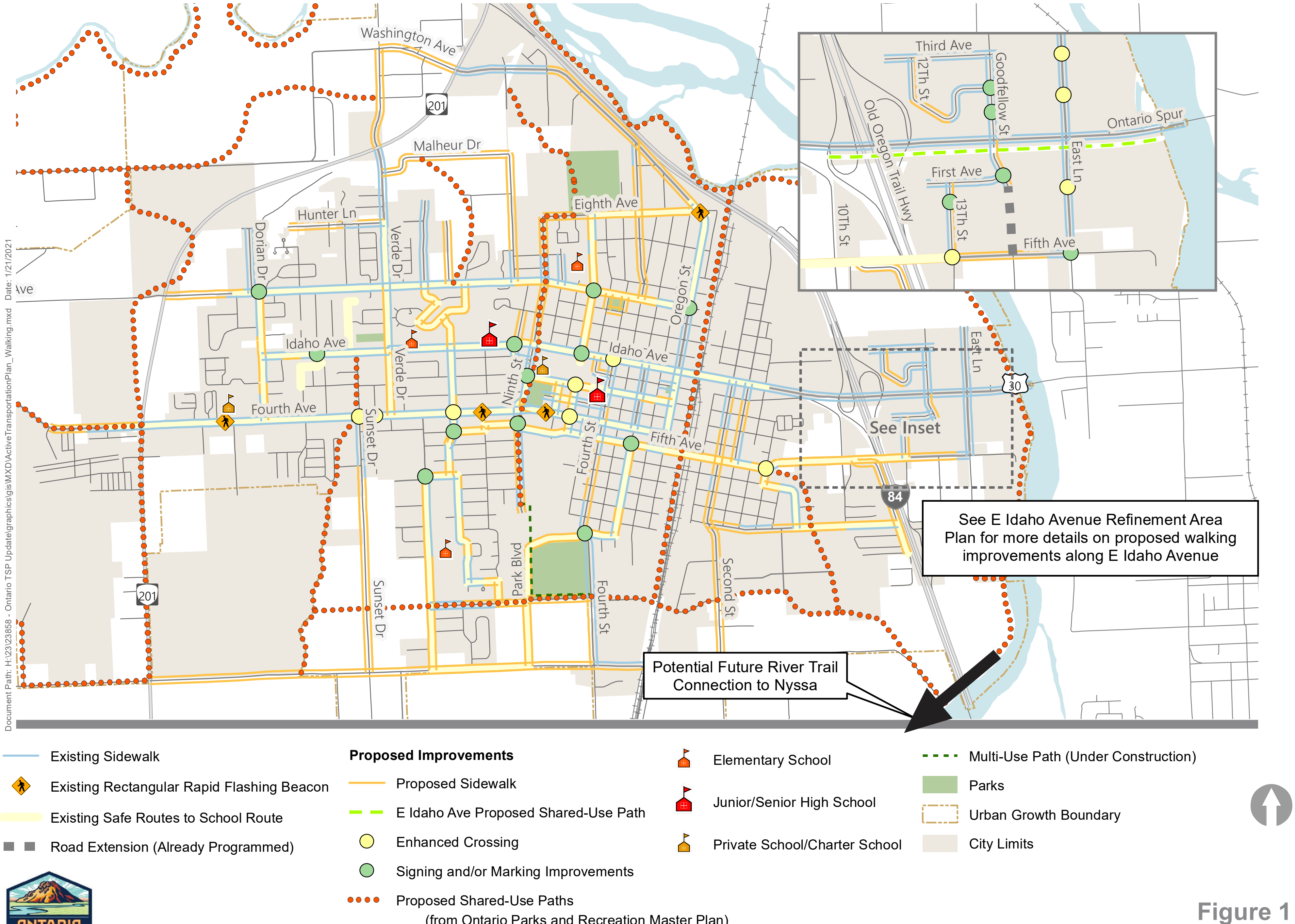
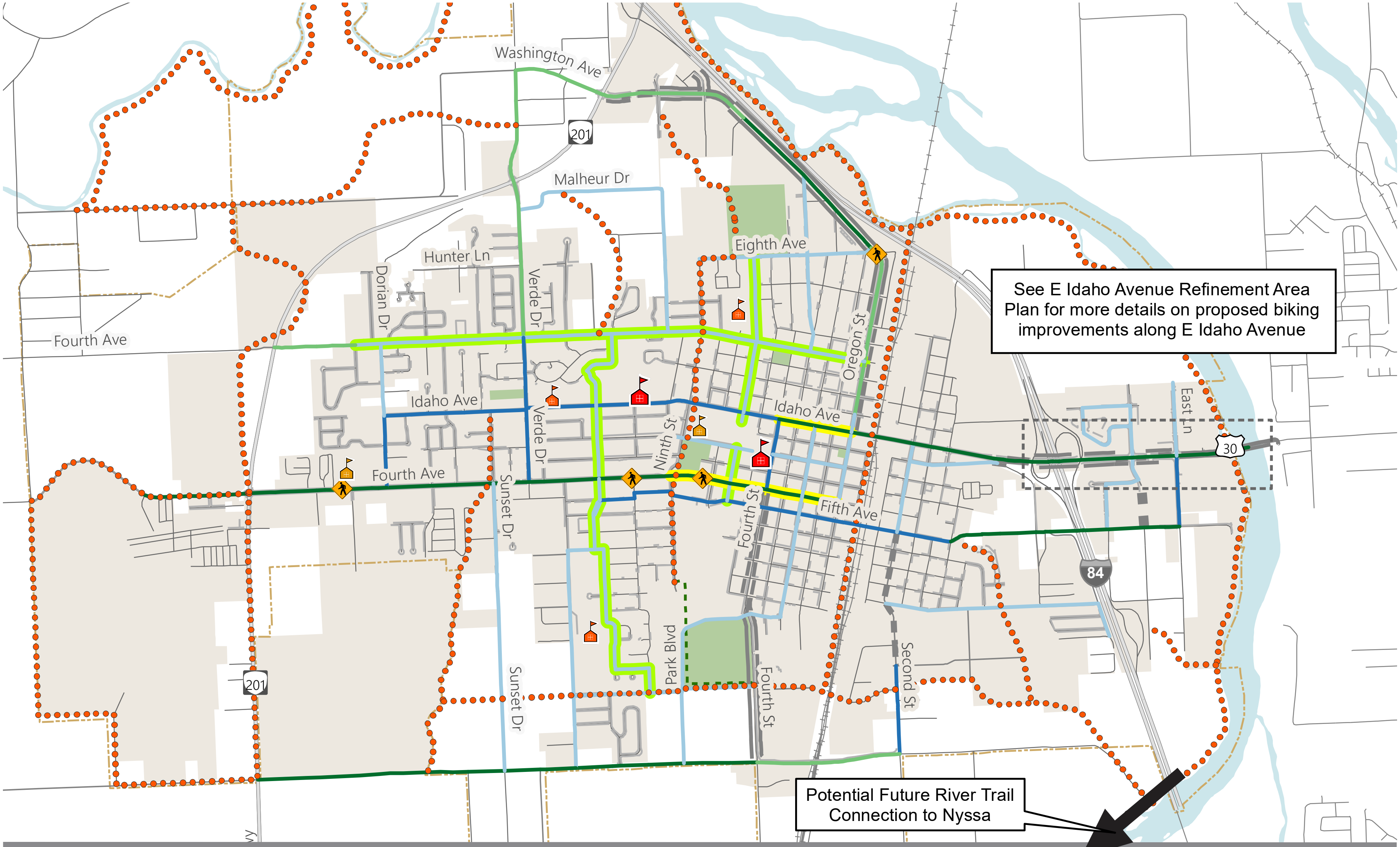


Figure 1
City of Ontario Active Transportation Plan
Walking/Rolling and Crossing Projects



Existing Infrastructure

- Existing Bike Lane
- Multi-Use Path (Under Construction)
- Sidewalks
- Rectangular Rapid Flashing Beacon
- Road Extension (Already Programmed)
- Bike Lanes (Under Construction)

Proposed Bike Treatment

- Shared-Use Path or Protected Bike Lane
- Buffered Bike Lane
- Bike Lane
- Shared Lane Bike Route
- Potential Roadway Reconfiguration
- Enhanced Bike Route
- Proposed Shared-Use Paths (from Ontario Parks and Recreation Master Plan)

- Elementary School
- Junior/Senior High School
- Private School/Charter School

- Parks
- Urban Growth Boundary
- City Limits

Figure 2
City of Ontario Active Transportation Plan
Biking Projects

LEGEND

TYPE 1 LANDSCAPE: ENHANCED IRRIGATED PLANTING

TYPE 2 LANDSCAPE: BASIC IRRIGATED - STREET TREES & PLANTS OR GRAVEL MULCH

TYPE 3 LANDSCAPE: NON-IRRIGATED FIELD GRASS

TYPE 4 LANDSCAPE: STORMWATER TREATMENT AREA PLANTING

PROPOSED STREET TREE

EXISTING STREET TREE

PRIMARY GATEWAY ELEMENT

SECONDARY GATEWAY ELEMENT

WAYFINDING ELEMENT

PROPOSED SHARED-USE PATH

FUTURE RIVERFRONT TRAIL

N

0 75 150 300

SCALE: 1" = 150'

Figure 3

OVERALL PLAN

EAST IDAHO AVENUE REFINEMENT AREA PLAN

Oregon Department of Transportation

ONTARIO

02.15.2021

INTRODUCTION

Project Description

The City of Ontario, in partnership with the Oregon Department of Transportation (ODOT), has completed the following two transportation planning efforts:

- An ***active transportation plan*** that will improve walking, biking, and access to public transportation in Ontario; and
- A ***refinement plan*** **for** East Idaho Avenue from Interstate 84 to the Snake River that will improve safety and mobility for all people, as well as the aesthetics of the corridor.

These planning efforts will be incorporated by reference into the City's Transportation System Plan (Reference 1).

The Ontario Active Transportation Plan Update will develop a comprehensive active transportation network that provides safe and comfortable mobility options for all of Ontario's residents, employees, and visitors, thereby enhancing the City's economic vibrancy and promoting a healthy lifestyle for the Ontario community.

The East Idaho Avenue Refinement Area Plan will create multimodal connections between downtown and the East Idaho Avenue commercial area and enhance the streetscape on East Idaho Avenue, thereby better connecting Ontario residents and visitors to employment opportunities and enhancing the economic vibrancy of the East Idaho Avenue corridor.

Goals and Objectives

The vision established for the City of Ontario's Active Transportation Plan by the project's Technical Advisory Committee (TAC) is to:

> *Develop a comprehensive active transportation network providing safe and comfortable mobility options for all of Ontario's residents, employees, and visitors, thereby enhancing the City's economic vibrancy and promoting a healthy lifestyle for the Ontario community.*

The vision established for the East Idaho Avenue refinement area by the TAC is to:

> *Create multimodal connections between downtown and the East Idaho Avenue commercial area and enhance the streetscape of the East Idaho Avenue corridor, thereby better connecting Ontario residents and visitors to employment opportunities and enhancing the economic vibrancy of the East Idaho Avenue corridor.*

The following goals and objectives support the two vision statements for these projects.

Goal 1: Mobility

Provide a balanced, safe, and efficient multimodal transportation system for all members of the community

- Develop an integrated approach for providing travel choices in and around City to support a healthy lifestyle and more vibrant community.
- Support mobility choices for all, especially the underserved and those with limited options.
- Extend trail networks, convenient pathways, greenway access points, and open space connections.
- Interconnect high quality safe routes to school, transit infrastructure and access to downtown.

Goal 2: Safety

Improve the multimodal transportation system to enhance safety for all users, skill levels, and ages

- Improve safety, user-friendliness and comfort of active transportation modes for all ages.
- Add safe and more inviting walking and bicycling facilities between the east and west sides of the Interstate.

Goal 3: Environment *(East Idaho Avenue Only)*

Mitigate the impacts of the East Idaho Avenue corridor on the environment

- Design an improved streetscape for East Idaho Avenue to create a cohesive look, better multimodal links and integrate sustainable stormwater management practices.

The Vision Statement and Guiding Principles Memorandum contains more information about the goals, objectives, and evaluation criteria used to guide the project and is contained in Appendix "A."

Project Process

Figure 4 shows the project's process.

Figure 4. Project Schedule

At each step along the way, ODOT and City staff, community partners, and the general public were consulted to better understand their transportation needs and barriers, how they travel, and what they would change or improve about the proposed projects. The project was guided by a project management team (PMT) consisting of City and ODOT staff.

Public Involvement

The project was informed by several public involvement activities that reached different groups and interests in Ontario. This section discusses key public involvement activities and their outcomes.

A Technical Advisory Committee (TAC) was engaged through a series of virtual meetings to provide input on project materials and to guide the development of the project. The TAC consisted of staff from the City, ODOT, and other local agencies with an interest in transportation, local property and business representatives, and other community stakeholders.

In March 2020, Governor Kate Brown issued a statewide "Stay Home, Save Lives" executive order to limit the spread of COVID-19 (Reference 2). While this executive order eventually expired and guidance was set on a countywide basis, the ongoing COVID-19 pandemic shifted most of the project's public involvement activities into an online environment. *The in-person and virtual outreach efforts are described below and Appendix "B" includes more detailed summaries of public involvement activities.*

Virtual Open Houses

The project team hosted three online workshops at different stages in the project to seek community feedback and direction for the project.

The first online workshop was held in June 2020. The workshop provided information about the project, the project schedule, goals and objectives, maps showing existing walking, biking, and transit networks in the city, maps showing the East Idaho Avenue corridor with traffic operations and crash history, and a link to a survey specifically on transit use. Comments related to the Active Transportation Plan included:

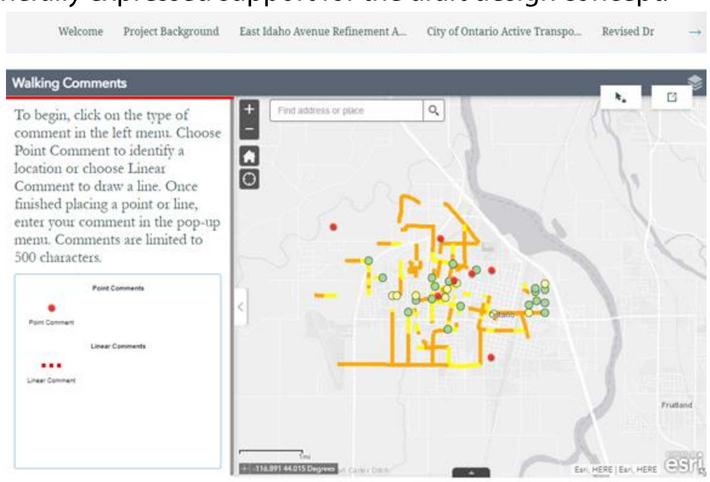
- Support for the Treasure Valley Connector Trail
- A desire for sidewalks on SE 5th Avenue
- A lack of safe crossing options on SE 4th Avenue
- Desire for bike and pedestrian improvements around the city

Comments related to the East Idaho Avenue corridor included:

- An improved streetscape
- More family-friendly access to the corridor
- Congestion problems related to driveway traffic.

A second online workshop was held in August 2020. This workshop presented the East Idaho Avenue Draft Design Concept, Safe Routes to School findings, proposed updated street standards, and the healthy communities impact assessment. The online workshop also provided an opportunity for attendees to provide feedback on the materials. Comments received generally expressed support for the draft design concept.

A third online workshop was held in October 2020. This workshop presented the revised design concept for East Idaho Avenue and presented proposed intersection crossing, walking/rolling, and biking projects across the city. Survey respondents were supportive of the proposed design concept and generally confirmed the project list.



Screenshot from Virtual Open House #3

Saturday Market Outreach

The project team was able to conduct in-person outreach twice at the Ontario Saturday Market (held at Moore Park). The first instance was on August 8, 2020. During this time, the team presented similar content as the second virtual open house. The project team spoke with approximately 44 attendees.

The second Saturday Market outreach was held on September 26, 2020 in conjunction with the third online virtual open house. The project team spoke with approximately 40 attendees at this event.

Saturday Market Booth

Generally, attendees were supportive of the East Idaho Avenue Draft Design Concept and were glad to see proposed improvements to walking and biking in the area, especially if the proposed pathway connected to a river trail. They were also supportive of the proposed capacity improvements at the East Lane intersection.

Youth Workshops

The project team and City of Ontario conducted virtual youth workshops with high school and elementary school students from the Four Rivers Community School. The purpose of the workshops was to solicit feedback from the students on walking and biking in Ontario and to teach the students about the project and the role the City plays in maintaining transportation facilities. The students shared their general experiences walking and biking in Ontario and identified specific locations where they thought walking and biking was challenging.

The high school workshop was held on November 18, 2020 and was attended by approximately 90 high-school students in grades 9, 10, 11 and 12. General feedback received from the high school workshop includes:

- The students generally prefer to bike on sidewalks rather than on bike lanes or in roadways.
- The students identified roadways that they think need sidewalks, crossings, and/or improved lighting

The elementary school workshop was held on November 24, 2020 and was attended by approximately 40 high-school students in grades 4 and 5. General feedback received from the elementary school workshop includes:

- The students walk to a variety of locations in Ontario, including parks, stores, and school
- Most students indicated that they don't bike to school, the majority of students also indicated that they didn't bike on the road because they felt it was too dangerous and preferred biking on sidewalks
- The students identified roadways that they feel unsafe walking or biking on

East Idaho Avenue Stakeholder Meeting

The project team conducted a meeting with East Idaho Avenue stakeholders in May 2020. Attendees included representatives from the City of Ontario, City of Fruitland, ODOT, the Idaho Transportation Department, and local businesses and properties. The purpose of the meeting was to better understand what elements of East Idaho Avenue were functioning well and what could be improved about the street to better serve business customers and area residents and visitors.

Key feedback received during this meeting included:

- Enhanced walking and biking facilities would be helpful given the amount of traffic on East Idaho Avenue.
- Traffic can stack up beyond the available storage for the eastbound left-turn lane at East Lane.

    - There is a desire for a second eastbound left-turn lane here.
- This area is a gateway to Ontario and the Treasure Valley and it would be desirable to recognize this.
- More connections in the area are desired, including extending Goodfellow Street to SE 5th Avenue.
- The current bus stops in the area will be reviewed as part of an upcoming planning effort.

ONTARIO ACTIVE TRANSPORTATION PLAN

This section describes the Ontario Active Transportation Plan, including the existing conditions analysis, project list, project prioritization, street cross-sectional standards updates, and development code updates.

Existing Conditions Analysis

This section catalogs the steps to identify gaps and other needs in the City's walking and biking networks, from inventorying the existing conditions to examining the City's Safe Routes to School network. The gaps and deficiencies identified in this analysis were used to identify and prioritize active transportation projects.

Existing Conditions

Most local and collector streets in the City have sidewalks. However, sidewalks are absent from most arterials and highways where the need for them is the greatest. Further, the presence of a sidewalk does not guarantee it is accessible to all or that it provides a complete connection to a destination. Some sidewalks are also in disrepair and may not be suitable for individuals with disabilities.

The existing network of bike lanes in Ontario is intermittent and does not provide continuous connections for people biking to local amenities. Most of the existing bike lanes are located along the East Idaho Avenue, Oregon Street, and 4th Street corridors. Bike lanes are supplemented by areas with continuous sections of local roads that can provide for a low-stress bicycling environment even when sharing the road with motor vehicles.

Level of Traffic Stress Analysis

A Level of Traffic Stress (LTS) analysis is a qualitative measure that estimates the amount of stress people walking, rolling, or biking will have on or along a given roadway. An LTS analysis ranges from LTS 1 (little to no traffic stress) to LTS 4 (high traffic stress for all users). This project ran separate pedestrian and bicycle LTS analyses based on guidance in ODOT's *Analysis Procedures Manual* to understand where it is stressful or challenging for people to walk or bike in Ontario. These findings were used to identify potential locations for walking, rolling, and biking improvements. *Further information on the LTS analyses can be found in the Baseline Transportation Assessment in Appendix "C."*

Safe Routes to School Network Gaps

The City's Safe Routes to School (SRTS) network was compared to the walking and biking LTS analyses discussed above. SRTS gaps were identified and prioritized in the multimodal network.

Missing Connections in Citywide Network

Walking and biking infrastructure was also examined along the City's arterial and collector roadway network to identify outstanding gaps that had not been captured by any of the above analyses.

Health Impact Assessment

The City's *Healthy Community Impact Assessment* examines six ways that transportation affects people's health. These include:

- The ability to walk, bike, and take transit
- Safe access for people walking and biking
- Access to health-supportive resources
- Access to jobs and schools
- Community wellness and social connectivity
- Air quality

The Healthy Community Impact Assessment contains more details on the challenges and opportunities for Ontario related to each of the six transportation impacts on health and is shown in Appendix "D"

City of Ontario Parks and Recreation Master Plan Paths

In 2018, the City of Ontario completed its *Parks and Recreation Master Plan* (Reference 3). This plan included 14 trail recommendations in and around Ontario. Several trail projects coincide with proposed walking and biking improvements. These include:

- The Treasure Valley Connector Trail along Park Boulevard

- The North-South Connector along NW/SW 9th Avenue from Lions Park to the Malheur County Fairgrounds
- The Cross Town Trail on SW 14th Avenue

Open Ditches Along Roadways

Open Ditch Along Dorian Dr. *(Source: Google Streetview)*

There are open ditches along some streets in the city. These ditches constrain the space available for people walking along the road. Some community members have also expressed concern they present a potential hazard for people to fall into. Where sidewalk projects and these ditches overlap, the City may need to coordinate with the adjacent property owner(s) to obtain right-of-way and to develop a solution for transporting the water carried by these ditches.

Identified Projects

The project team developed project alternatives to address the gaps and deficiencies identified in the Existing Conditions Analysis. The bikeway selection guidance provided in ODOT's *Blueprint for Urban Design* (Reference 4) informed the selected bikeway treatments. Projects were then categorized by type (i.e., walking/rolling, biking, and crossing) and prioritized as short-, medium-, and long-term projects, with each timeframe having approximately similar numbers of projects.

The Transportation Solutions Memorandum includes additional information on proposed treatments, as well as on prioritization and the proposed list of intersection crossing, walking/rolling, and biking projects and is shown in Appendix "E."

Prioritization Criteria

Table 1 shows the four criteria that were used to prioritize intersection crossing, walking/rolling, and biking projects in Ontario. The four criteria – safety, equity, connectivity and accessibility, and cost and implementation – were weighted equally.

Table 1. Prioritization Criteria

Factor	Criteria	Detail
Safety	ODOT Bicycle/Pedestrian Safety Plan Draft Criteria (Reference 5) • Roadway classification • Number of roadway lanes • Posted speed • Bike lane presence/ sidewalk presence • Mixed-Use zoning • Proximity to schools • Proximity to transit stops • High population of residents over the age of 64	This criterion is a summation of transportation and land use elements that have been shown to impact crash risk for people walking and biking. The resulting index scores were split so that an approximately equal number of segments fell into each of the high, medium, and low categories.
Equity	Transportation Disadvantaged Populations Index	This criterion comes from ODOT's Active Transportation Needs Inventory (ATNI – Reference 6). This index is designed to prioritize improvements on highway segments that serve areas with high numbers of transportation disadvantaged residents and environmental justice communities. It uses American Community Survey block group data for the following attributes: • Elderly populations (65 and older) • Youth populations (under 18) • Non-white and Hispanic populations • Low-income population (households earning less than 200% of the poverty level as determined by the census) • Limited English proficiency population (combined census populations who speak English "not well" or "not at all") • Households without access to a vehicle • People with a disability (severe or non-severe disability) Each block group received a single TDP score that applied to all segments within the block group. If a segment touched more than one block group, then the block group that contained the majority of the segment was used.
Connectivity and Accessibility	Access to key destinations	This criterion examines whether a proposed pedestrian or bicycle project would provide a connection to a key destination (defined as schools, parks, and major job locations). Segments that provide a connection to such a destination received a score of 1 and all other segments received a score of 0.
Cost and Implementation	Project cost and project implementation/ feasibility	This criterion examines the relative cost of projects and whether there are any significant physical and legal barriers (i.e. right-of-way). Pedestrian segments were scored on a -1, 0, and 1 scale based on how complete the existing sidewalk segment was (segments received a score of -1 if very little to no sidewalk existed). Since sidewalk construction costs are assumed to be relatively similar, the pedestrian prioritization examines significant physical barriers only. Bike segments were scored on: 1. Relative costs scored protected bike lanes as the most costly, buffered bike lanes and standard bike lanes as moderately costly, and shared lanes as the least costly. 2. Physical and legal barriers were assessed on a similar three-tier scale from lacking curb-to-curb width or right-of-way for the specified treatment to having adequate space to implement the treatment. These combined scores (each were scored on a -1, 0, and 1 scale) were added together for an overall bike cost and implementation score.

Intersection Crossing Treatments

Intersection crossing treatments include rectangular rapid flashing beacons, striped crosswalks, curb ramps, stop bars for pedestrian crossings with signage, and intersection traffic control.

All identified crossing projects are based on a preliminary review of the site. An engineering study consistent with the Manual on Uniform Traffic Control Devices (MUTCD) would be conducted prior to installing any crossing treatments.

The images in this page showcase some of the intersection crossing treatments identified for Ontario. From top to bottom: a rectangular rapid flashing beacon, an advanced STOP bar for pedestrians, a continental-style crosswalk, and a curb ramp.

Ontario, OR

Source: pedbikesafe.org

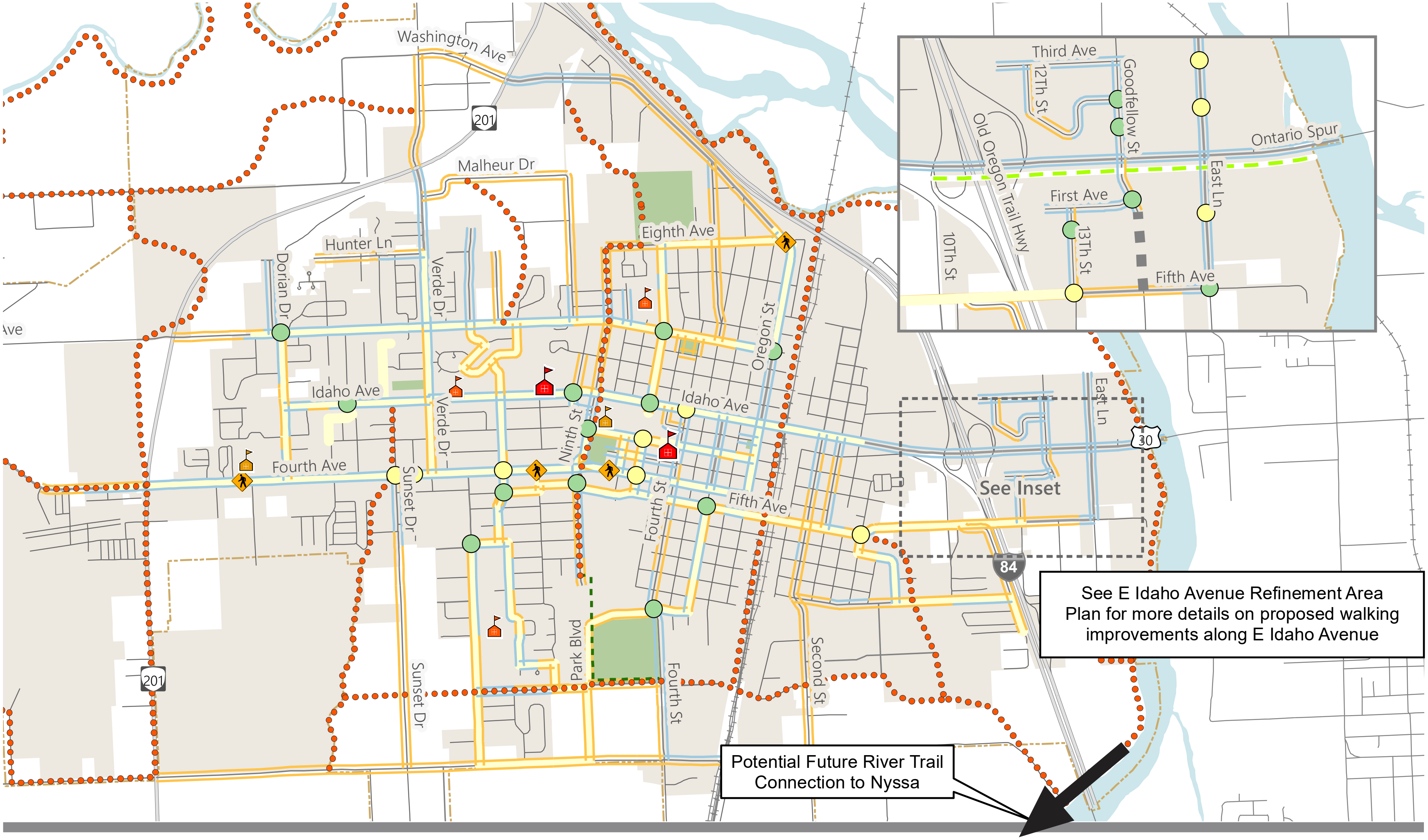
Ontario, OR

Ontario, OR

Walking/Rolling Treatments

Walking and rolling treatments include sidewalk infill (where there is some existing sidewalk), sidewalk construction (where there is little to no existing sidewalk), installing barriers with sidewalk construction to control debris accumulation, and shared-use paths.

All proposed locations with intersection crossing and walking/rolling projects are shown in Figure 5. The following sections discuss project prioritization for intersection crossing projects and walking/rolling projects.



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Existing Sidewalk

Existing Rectangular Rapid Flashing Beacon

Existing Safe Routes to School Route

Road Extension (Already Programmed)

Proposed Improvements

Proposed Sidewalk

E Idaho Ave Proposed Shared-Use Path

Enhanced Crossing

Signing and/or Marking Improvements

Proposed Shared-Use Paths (from Ontario Parks and Recreation Master Plan)

Elementary School

Junior/Senior High School

Private School/Charter School

Multi-Use Path (Under Construction)

Parks

Urban Growth Boundary

City Limits

ONTARIO

Figure 5
City of Ontario Active Transportation Plan
Walking/Rolling and Crossing Projects

Intersection Crossing Projects

There are 28 proposed crossing projects shown in Figure 5. These projects are divided into short-term, mid-term, and long-term priority locations in Table 2 and Figure 6 using the criteria from Table 1.

Table 2. Intersection Crossing Projects

ID	Intersection	Proposed Project
High-Priority Projects		
I1	Sunset Dr and SW 4th Ave	Install a rectangular rapid flashing beacon across SW 4th Ave at the existing marked crosswalk
I2	Hillcrest Dr and SW 4th Ave	Install a rectangular rapid flashing beacon across SW 4th Ave at the existing marked crosswalk
I3	SW 12th St and SW 4th Ave	Install a rectangular rapid flashing beacon across SW 4th Ave at existing marked crosswalk
I4	SW 6th St and SW 4th Ave	Install a rectangular rapid flashing beacon across SW 4th Ave on the west side of the intersection at existing marked crosswalk
I5	SE 5th Ave and East Ln	Create all-way stop by removing free southbound right turn
I6	GameStop Lot/Walmart Lot and East Ln	Mark crosswalk and install a rectangular rapid flashing beacon across East Ln on the south side of the intersection
I7	Waremart Lot and East Ln	Mark crosswalk and install a rectangular rapid flashing beacon across East Ln on south side of the intersection with the existing pedestrian path through the parking lot, install curb ramps on both sides of the street at the new crosswalk location
I8	SW 9th St and SW 2nd Ave	Stripe crosswalks and complete curb ramp installation on the south side of the intersection
I9	SW 6th St and W Idaho Ave	Add stop bar for pedestrian crossing and improve pedestrian crossing signage (W11-2 or R1-5b/R1-5c) on W Idaho Ave approaches
I10	Park Blvd and SW Fifth Ave	Stripe crosswalk across Park Blvd to connect offset intersection, stripe crosswalks across SW Fifth Ave in both locations to connect to existing sidewalks, and complete curb ramp installation at all corners without curb ramps (2)
Medium-Priority Projects		
I11	Alameda Dr and SW 8th Ave	Stripe crosswalk across Alameda Dr to connect offset intersection, complete curb ramp installation on west side of Alameda Dr
I12	SW 10th St and W Idaho Ave	Add stop bar for pedestrian crossing and improve pedestrian crossing signage (W11-2 or R1-5b/R1-5c) on W Idaho Ave approaches, complete curb ramp installation on south side of W Idaho Ave
I13	SW 6th St and SW 2nd Ave	Study intersection for all-way stop-control; uncontrolled intersection is located at a major hub for Ontario Middle School
I14	SW 4th St and W Idaho Ave	Study intersection for all-way stop control, install a rectangular rapid flashing beacon across W Idaho Ave on the west side of the intersection
I15	SW 4th St and SW 11th Ave	Add stop bar for pedestrian crossing and improve pedestrian crossing signage (W11-2 or R1-5b/R1-5c) on SW 4th St approaches, complete curb ramp installation at northeast corner of the intersection
I16	SW 12th St and SW 5th Ave	Stripe crosswalks across the north and east side of the intersection, install curb ramps at all intersection corners
I17	SE 5th Ave and SE 13th St	Study intersection for potential enhanced crossing alternatives
I18	Staples Lot and SE 13th St	Stripe crosswalk across SE 13th Ave, install curb ramp at the location of the crosswalk on the east side of the street

ID	Intersection	Proposed Project
I19	SE 1st Ave and Goodfellow St	Stripe crosswalks across Goodfellow St on the south side of the intersection, install curb ramp at southeast corner of intersection with new crosswalk
I20	Dairy Queen Lot and Goodfellow St	Stripe crosswalk across Goodfellow St, install curb ramps on both sides of the street at the new crosswalk location
Low-Priority Projects		
I21	SW 2nd St and SW 5th Ave	Stripe crosswalk across SW 5th Ave on the west side of the intersection, install curb ramps at all corners of the intersection
I22	SE 5th St and SE 5th Ave	Install a rectangular rapid flashing beacon across SW 5th Ave at existing marked crosswalk, complete curb ramp installation at all corners without curb ramps (2)
I23	Tapadera Ave and Goodfellow St	Stripe crosswalk across Goodfellow St on north side of the intersection, install curb ramps on both sides of the street at the new crosswalk location
I24	NW 6th St and NW 4th Ave	Stripe crosswalk across NW 6th St on the north side of the intersection, install curb ramps at all corners of the intersection
I25	NE 18th St and W Idaho Ave	Stripe crosswalks across W Idaho Ave, complete curb ramp installation on north side of the intersection
I26	Dorian Dr and NW 4th Ave	Stripe crosswalk across NW 4th Ave on the west side of the intersection
I27	N Oregon St and NW 4th Ave	Add stop bar for pedestrian crossing and improve pedestrian crossing signage (W11-2 or R1-5b/R1-5c) on N Oregon St approaches
I28	Walmart Lot and East Ln	Restripe existing crossing across East Ln with continental striping, add signage on East Ln approaches

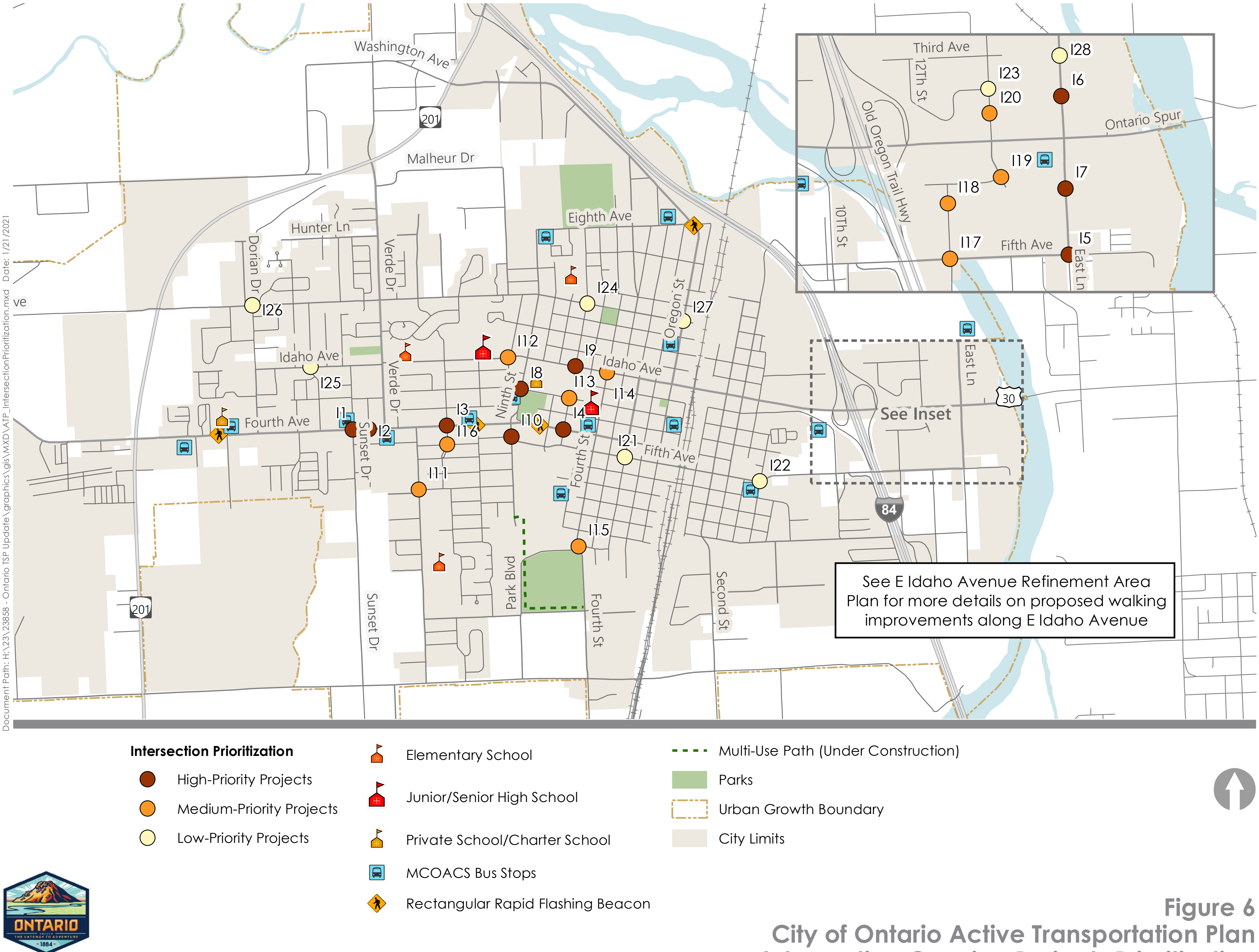

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Figure 6
City of Ontario Active Transportation Plan
Intersection Crossing Projects Prioritization

Walking/Rolling Projects

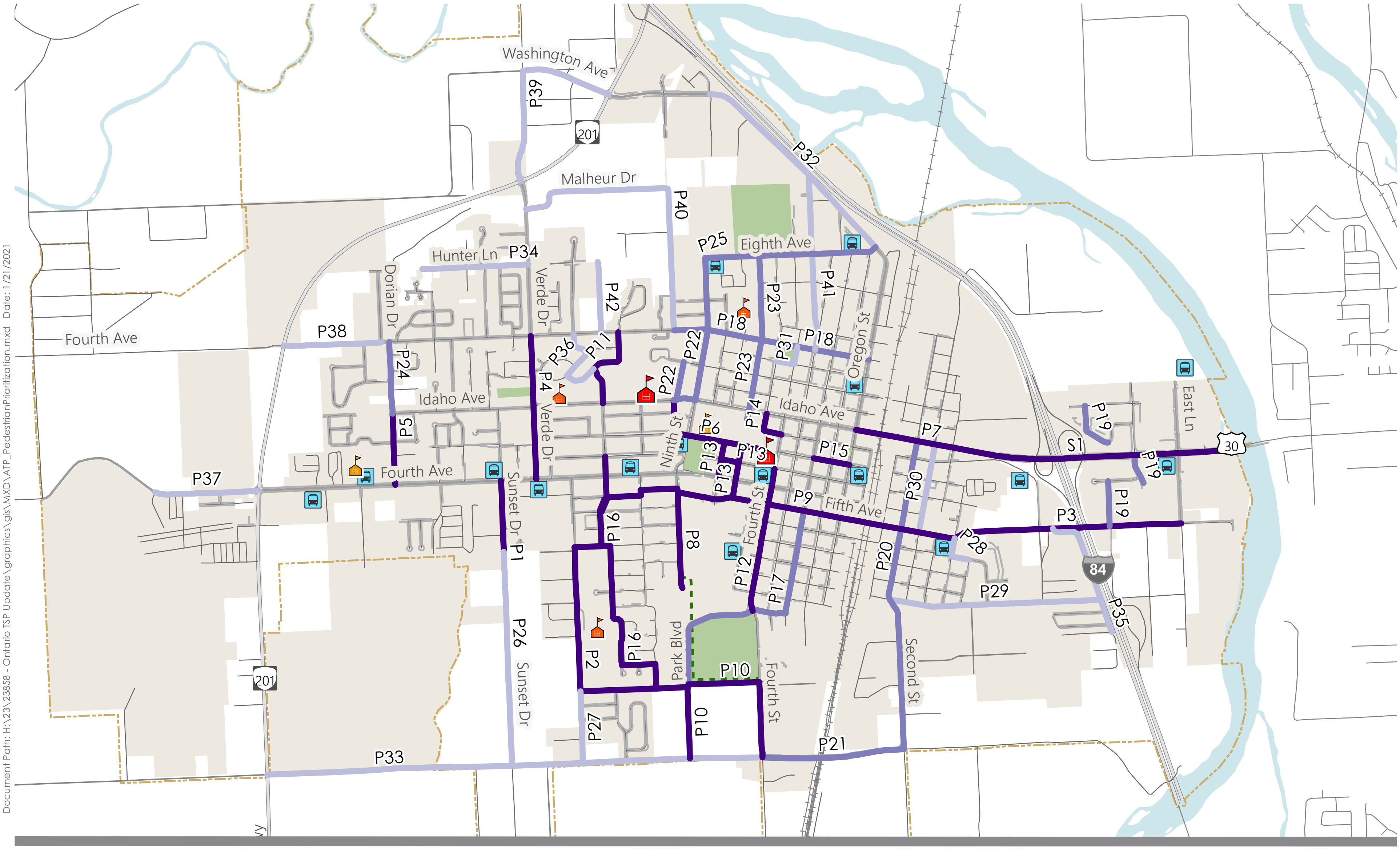
There are 42 sidewalk and shared-use path projects identified in Figure 5. Table 3 and Figure 7 prioritize these projects into high-priority, medium-priority, and low-priority projects using the criteria identified in Table 1.

Table 3. Walking/Rolling Projects

ID	Intersection	Segment	Proposed Project
High-Priority Projects			
S1	E Idaho Ave	I-84 eastbound ramps to Snake River	Build shared-use path on south side of roadway
P1	Sunset Dr	SW 4th Ave to City Limits	Infill sidewalk on both sides of roadway
P2	SW 8th Ave/ Alameda Dr/SW 14th Ave	SW 8th Ave: Alameda Dr to SW 12th St Alameda Dr: SW 8th Ave to SW 14th Ave SW 14th: Alameda Dr to Park Blvd	Build shared-use path with parallel parking on Alameda Drive from SW 8th Avenue to SW 14th Avenue, infill sidewalk on both sides of roadway along rest of segment
P3	SE 5th Ave	SE 5th St to East Ln	Construct sidewalk on both sides of roadway
P4	Verde Dr	NW 4th Ave to SW 4th Ave	Construct sidewalk on both sides of roadway
P5	S Dorian Way	W Idaho Ave to SW 4th Ave	Infill sidewalk on both sides of roadway
P6	SW 10th St/SW 2nd Ave	SW 10th St: W Idaho Ave to SW 2nd Ave SW 2nd Ave: SW 10th St to Ontario Middle School	Infill sidewalk on both sides of roadway
P7	E Idaho Ave	Oregon St to I-84 eastbound ramps	Reconstruct sidewalks where necessary and install barriers to prevent dirt and debris from washing over the sidewalks
P8	Park Blvd	SW 5th Ave to Evergreen Cemetery	Construct shared-use path on the east side of the road
P9	SW 5th Ave	SW 12th St to SE 5th St	Construct sidewalk on both sides of roadway
P10	SW 14th Ave/SW 4th St/Park Blvd	SW 14th Ave: Park Blvd to SW 4th St SW 4th St: SW 14th Ave to SW 18th Ave Park Blvd: SW 14th Ave to SW 18th Ave	Construct sidewalk on both sides of roadway.
P11	Sears Dr/NW 12th St	Sears Dr: NW 4th Ave to NW 12th St NW 12th St: Sears Dr to W Idaho Ave	Construct sidewalk on both sides of roadway
P12	SW 4th St	SW 3rd Ave to SW 11th Ave	Infill sidewalk on both sides of roadway
P13	SW 7th St/SW 6th St/ SW 3rd Ave	SW 7th St: SW 2nd Ave to SW 4th Ave SW 6th St: SW 2nd Ave to SW 5th Ave SW 3rd Ave: SW 7th St to SW 6th St	Infill sidewalk on both sides of roadway
P14	SW 5th St/SW 1st Ave	SW 5th St: W Idaho Ave to SW 1st Ave SW 1st Ave: SW 5th St to SW 4th St	Infill sidewalk on both sides of roadway
P15	SW 2nd Ave	SW 2th St to S Oregon St	Infill sidewalk on both sides of roadway
P16	SW 12th St /Locust Way/SW 11th St	SW 12th St: SW 3rd Ave to Locust Way Locust Way: SW 12th St to SW 11th St SW 11th St: Locust Way to SW 14th Ave	Infill sidewalk on both sides of roadway
Medium-Priority Projects			

ID	Intersection	Segment	Proposed Project
P17	SW 2nd St/SW 11th Ave/Park Blvd	SW 2nd St: SW 5th Ave to SW 11th Ave SW 11th Ave: SW 2nd St to Park Blvd Park Blvd: SW 11th Ave to SW 14th Ave	Construct sidewalk on both sides of roadway
P18	NW 4th Ave	N Park Blvd to N Oregon St	Construct sidewalk on both sides of roadway
P19	E Idaho Ave Area Sidewalks	Tapadera Ave: Lincoln Ave to Clarion Inn Access SW 13th St: SE 1st Ave to SE 5th Ave Goodfellow St: E Idaho Ave to End of Roadway	Infill sidewalk on both sides of roadway
P20	SE 2nd St	E Idaho Ave to SE 18th Ave	Construct sidewalk on both sides of roadway
P21	SW 18th Ave	Sunset Dr to SE 2nd Ave	Construct sidewalk on both sides of roadway
P22	NW 9th St/NW 10th St/W Idaho Ave	NW 9th St: NW 4th Ave to W Idaho St NW 10th St: NW 2nd Ave to W Idaho St W Idaho Ave: NW 9th St to NW 10th St	Construct sidewalk on both sides of roadway, construct North-South Connector Trail on east side of NW 9th St
P23	NW 6th St	NW 8th Ave to Ontario Middle School	Construct sidewalk on both sides of roadway
P24	Dorian Dr	NW 4th Ave to W Idaho Ave	Infill sidewalk on both sides of roadway.
P25	NW 8th Ave/NW 9th St	NW 8th Ave: NW 9th St to N Oregon St NW 9th St: NW 8th Ave to NW 4th Ave	Construct sidewalk on both sides of roadway, construct North-South Connector Trail on east side of NW 9th St
Low-Priority Projects			
P26	Sunset Dr	City Limit to SW 18th Ave	Construct sidewalk on both sides of roadway.
P27	Alameda Dr	SW 14th Ave to SW 18th Ave	Construct sidewalk on both sides of roadway
P28	SE 5th St/SE 6th Ave	SE 5th St: SE 5th Ave to SE 6th Ave SE 6th Ave: SE 5th St to SE 6th St	Construct sidewalk on both sides of roadway
P29	SE 9th Ave	SE 2nd St to SE Claude Road	Construct sidewalk on both sides of roadway
P30	SE 3rd St	E Idaho Ave to SE 5th Ave	Infill sidewalk on both sides of roadway
P31	NW 5th St/NW 3rd Ave/NW 4th St	NW 5th St: NW 4th Ave to NW 3rd Ave NW 4th St: NW 4th Ave to NW 3rd Av NW 3rd Ave: NW 5th St to NW 4th St	Construct sidewalk on both sides of roadway
P32	N Oregon St	NW 9th St to NW 8th Ave	Construct sidewalk on both sides of roadway
P33	SW 18th Ave	Sunset Dr to Highway 201	Construct sidewalk on both sides of roadway
P34	Hunter Ln	Western End of Road to Verde Dr	Construct sidewalk on both sides of roadway
P35	SE Claude Rd	SE 5th Ave to SE 13th Ave	Construct sidewalk on west side of roadway
P36	Rieter Dr/Arata Way/Sears Dr	Rieter Dr: NW 4th Ave to Arata Way Arata Way: Reiter Dr to Sears Dr Sears Dr: Arata Way to NW 12th St	Construct sidewalk on both sides of roadway
P37	SW 4th Ave	SW 33rd St to Highway 201	Construct sidewalk on south side of roadway
P38	NW 4th Ave	Highway 201 to N Dorian Dr	Construct sidewalk on both sides of roadway
P39	Washington Ave/ Verde Dr	Washington Ave: Verde Dr to Highway 201 Verde Dr: Washington Ave to Highway 201	Construct sidewalk on both sides of roadway
P40	Malheur Dr/Park Blvd	Malheur Dr: Verde Dr to Park Blvd Park Blvd: Malheur Dr to NW 4th Ave	Construct sidewalk on both sides of roadway.

ID	Intersection	Segment	Proposed Project
P41	Fortner St	N Oregon St to NW 4th Ave	Construct sidewalk on both sides of roadway
P42	NW 12th St	North End of Roadway to NW 4th Ave	Construct sidewalk on both sides of roadway



Pedestrian Prioritization

- High-Priority Projects
- Medium-Priority Projects
- Low-Priority Projects
- Elementary School
- Junior/Senior High School
- Private School/Charter School
- MCOACS Bus Stops
- Parks
- Multi-Use Path (Under Construction)
- Sidewalks
- Urban Growth Boundary
- City Limits

ONTARIO

Figure 7
City of Ontario Active Transportation Plan
Walking/Rolling Projects Prioritization

Biking Treatments

Biking treatments include a shared-use path, protected bike lanes, buffered bike lanes, standard bike lanes, and shared lane routes. Shared lane routes are low-vehicle volume and speed roads where people biking and motor vehicle traffic can comfortably share the same space. This plan identified two classes of these routes, standard shared routes and enhanced bike routes. Enhanced bike routes are where bicycle travel should be elevated to a higher priority than motor vehicle traffic, typically accomplished using traffic calming/diversion techniques. The proposed routes are based on several factors, including motor vehicle volumes, roadway classification, number of lanes, travel speeds, street network connectivity, and surrounding land use and the project's goal to create bicycle routes that are comfortable for a wide range of ages and abilities.

Some projects can be implemented by marking and signing the new facilities, while other projects may require widening the existing pavement or studying whether it's possible to reallocate the existing roadway space (e.g., on some streets, it may be possible to reduce the number of motor vehicle lanes in order to add in the proposed bicycling facility).

The images in this page showcase the various bike treatments identified for Ontario. Clockwise from top: a shared-use path, a protected bike lane, a buffered bike lane using paint, a standard bike lane, and a shared lane roadway.


Powder River Trail, *Baker City, OR*


Klamath Falls, OR


Source: movingahead.org

Biking Projects

Figure 8 contains the biking projects. The 42 proposed biking projects are divided into short-term, mid-term, and long-term priority locations in Table 4 and Figure 9 using the criteria from Table 1.

Project B27, which continues the shared-use path on the south side of E Idaho Avenue from the I-84 interchange to N Oregon Street, is a long-term goal for the city that will require additional right-of-way under the railroad bridge or a reconstruction of the railroad bridge. The city recognizes this project as an important connection, but given the funding and right-of-way constraints, the surface street railroad crossing (represented in projects B11, B19, and B21) is a more feasible solution in the short- to mid-term period.


Boise, ID

Redmond, OR

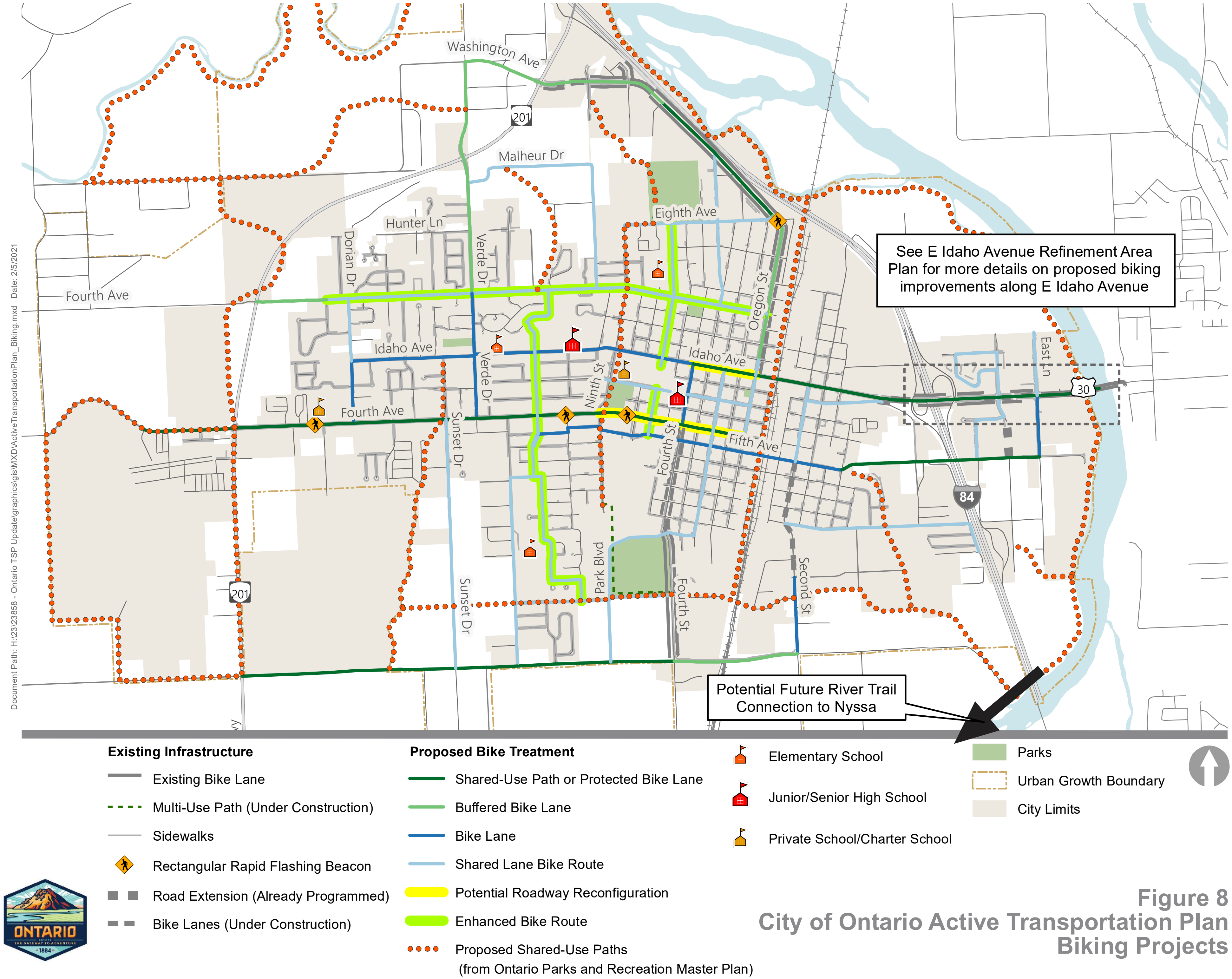


Figure 8
City of Ontario Active Transportation Plan
Biking Projects

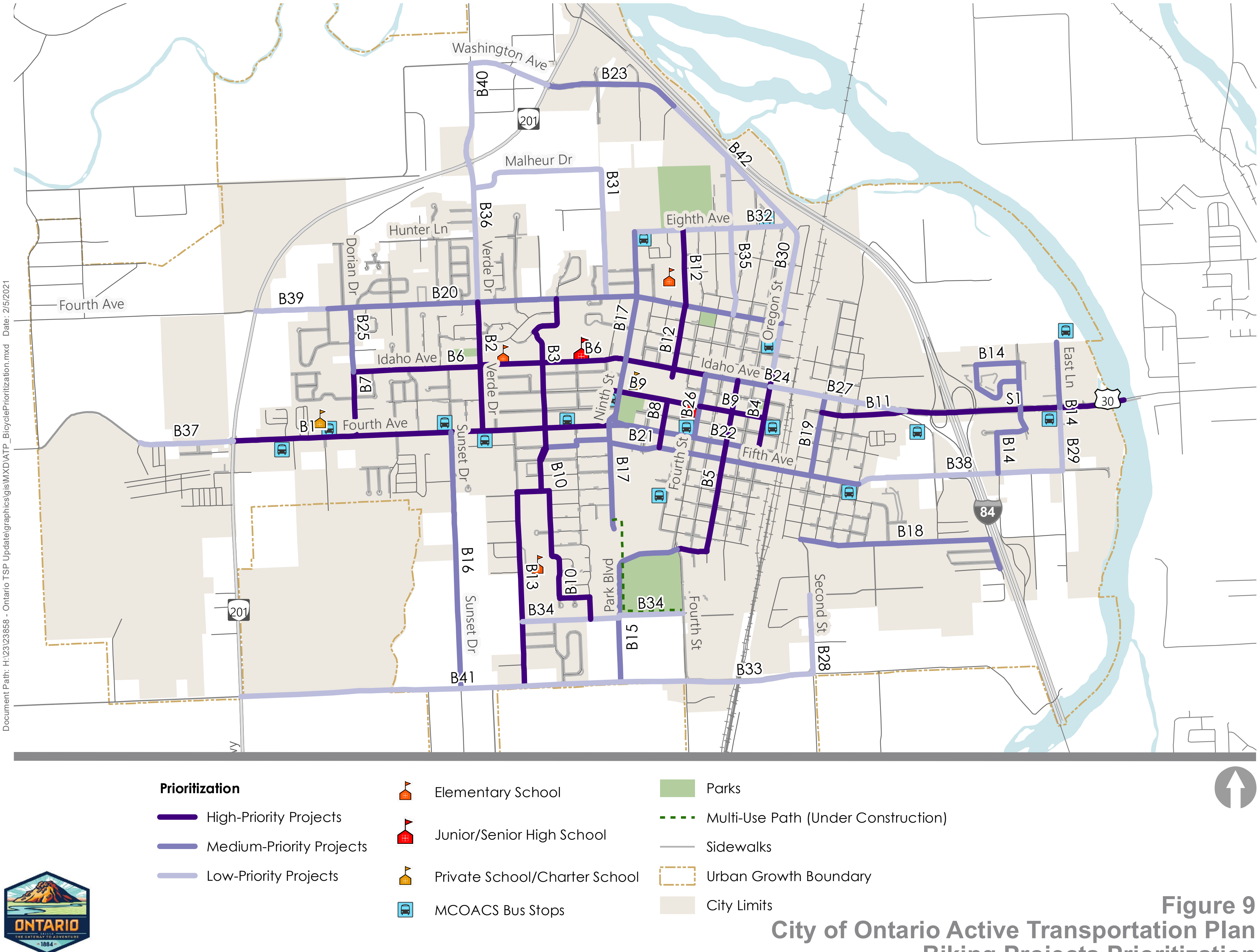


Figure 9
City of Ontario Active Transportation Plan
Biking Projects Prioritization

Table 4. Biking Projects

ID	Intersection	Segment	Proposed Project
High-Priority Projects			
S1	E Idaho Ave	I-84 eastbound ramps to Snake River	Construct shared-use path on south side of road
B1	SW 4th Ave	Highway 201 to 9th St	Construct protected bike lanes
B2	Verde Dr	NW 4th Ave to SW 4th Ave	Stripe bike lanes
B3	Sears Dr/NW 12th St	Sears Dr: NW 4th Ave to NW 12th St NW 12th St: Sears Dr to SW 4th Ave	Create enhanced bike route through shared lane markings, wayfinding signage, and enhanced crossings and traffic calming, if necessary
B4	S Oregon St	NW 1st Ave to SW 4th Ave	Add shared lane markings and wayfinding signage
B5	SW 2nd St/SW 11th Ave	SW 2nd St: W Idaho Ave to SW 11th Ave SW 11th Ave: SW 2nd St to SW 4th St	Add shared lane markings and wayfinding signage
B6	W Idaho Ave	Dorian Way to SW 4th St	Stripe bike lanes
B7	Dorian Way	W Idaho Ave to SW Fourth Ave	Stripe bike lanes
B8	SW 6th St	SW 2nd Ave to SW 5th Ave	Create enhanced bike route through shared lane markings, wayfinding signage, and enhanced crossings and traffic calming, if necessary
B9	SW 2nd Ave	SW 10th St to S Oregon Ave	Add shared lane markings and wayfinding signage
B10	SW 12th St/Locust Way/SW 11th St	SW 12th St: SW 4th Ave to Locust Way Locust Way: SW 12th St to SW 11th St SW 11th St: Locust Way to SW 14th Ave	Create enhanced bike route through shared lane markings, wayfinding signage, and enhanced crossings and traffic calming, if necessary
B11	E Idaho Ave/SE 1st Ave	E Idaho Ave: I-84 eastbound ramps to 650 feet west of ramps SE 1st Ave: SE 2nd St to E Idaho Ave	Construct shared-use path on south side of E Idaho Avenue, connect E Idaho Avenue and SE 1st Avenue at the narrowest point between the two roads with a path across the vacant lot, and add shared lane markings and wayfinding signage on SE 1st Avenue
B12	NW 6th Ave	NW 8th Ave to Ontario Middle School	Create enhanced bike route through shared lane markings, wayfinding signage, and enhanced crossings and traffic calming, if necessary
B13	SW 8th Ave/Alameda Dr	SW 8th Ave: Alameda Dr to SW 12th St Alameda Dr: SW 8th Ave to SW 18th Ave	Add shared lane markings and wayfinding signage
Medium-Priority Projects			
B14	E Idaho Ave Area Roadways	East Ln: North End of Road to W Idaho Ave Goodfellow St: North End to South End of Road Lincoln Ave: Tapadera Ave to Goodfellow St Tapadera Ave: Lincoln Ave to Goodfellow St SE 1st Ave: Goodfellow St to SE 13th St SE 13th St: SE 1st Ave to SE 5th Ave	Add shared lane markings and wayfinding signage
B15	SW 11th Ave/Park Blvd	SW 11th Ave: SW 4th St to Park Blvd Park Blvd: SE 11th Ave to SE 18th Ave	Add shared lane markings and wayfinding signage
B16	Sunset Dr	SW 4th Ave to SW 18th Ave	Add shared lane markings and wayfinding signage or construct shared-use path
B17	NW 9th St/SW 9th St/ Park Blvd/	NW/SW 9th St: NW 8th Ave to SW 4th Ave Park Blvd: SW 4th Ave to End of Road	Construct shared-use path as outlined in the City of Ontario's Parks and Recreation Master Plan

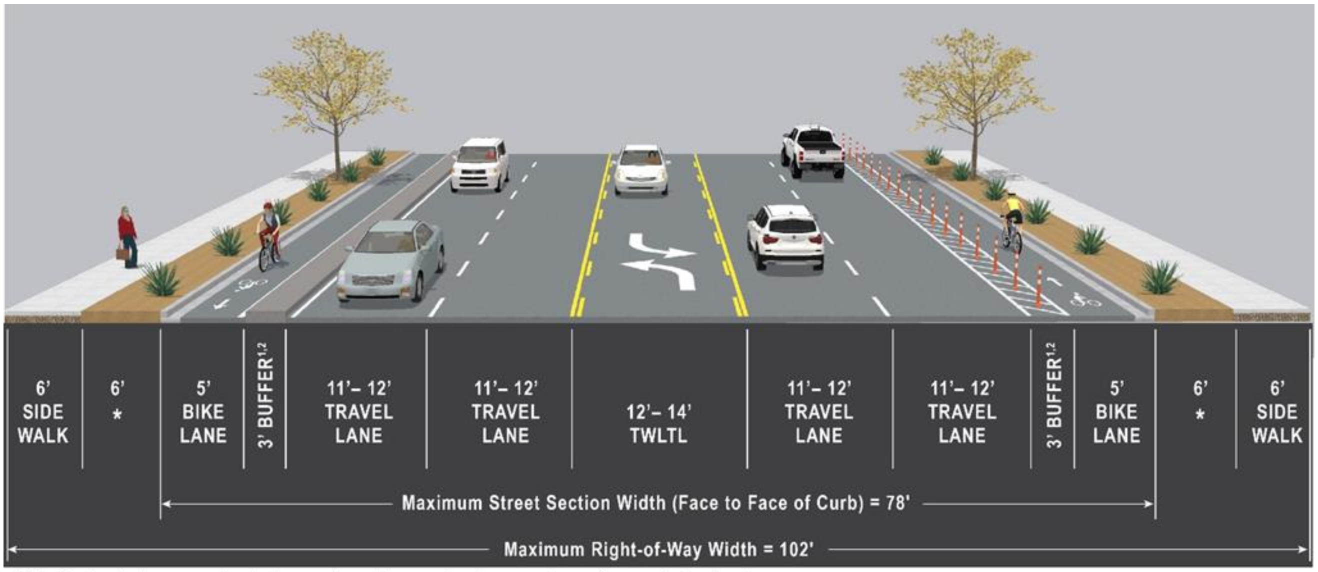
ID	Intersection	Segment	Proposed Project
B18	SE 9th Ave/SE Claude Road	SE 9th Ave: SE 2nd Ave to SE Claude Road SE Claude Road: SE 9th Ave to SE 13th Ave	Add shared lane markings and wayfinding signage
B19	SE 2nd St	E Idaho Ave to SE 5th Ave	Add shared lane markings and wayfinding signage
B20	NW 4th Ave	Tori Dr to N Oregon St	Create enhanced bike route through shared lane markings, wayfinding signage, and enhanced crossings and traffic calming, if necessary
B21	SW/SE 5th Ave	SW 12th St to SE 5th St	Stripe bike lanes, improve rail crossing for bicyclists
B22	SW 4th Ave	SW 9th St to S Oregon St	Construct protected bike lanes - this will likely require removing one or more motor vehicle lanes
B23	Washington Ave	Highway 201 to NW 8th St	Construct buffered bike lanes
B24	Idaho Ave	SW 4th St to I-84 EB Ramps	Construct protected bike lanes – this will likely require removing one or more motor vehicle lanes
B25	Dorian Dr	NW 4th Ave to W Idaho Ave	Add shared lane markings and wayfinding signage
B26	SW 4th St	W Idaho Ave to SW 4th Ave	Stripe bike lanes
Low-Priority Projects			
B27	E Idaho Ave	N Oregon St to Western Terminus of Project S1	Construct shared-use path on south side of road.
B28	SE 2nd St	SE 12th Ave to SE 18th Ave	Stripe bike lanes
B29	East Ln	E Idaho Ave to south end of road	Stripe bike lanes
B30	N Oregon St	NW 1st Ave to NW 8th Ave	Construct buffered bike lanes
B31	Malheur Drive/Park Blvd	Verde Dr to NW 4th Ave	Add shared lane markings and wayfinding signage
B32	NW 8th Ave	NW 9th St to N Oregon St	Add shared lane markings and wayfinding signage
B33	SW/SE 18th Ave	SW 4th St to SE 2nd St	Construct buffered bike lanes
B34	SW 14th St	Alameda Dr to SW 4th St	Add shared lane markings and wayfinding signage
B35	Fortner St	N Oregon St to NW 4th Ave	Add shared lane markings and wayfinding signage
B36	Verde Dr	Highway 201 to NW 4th Ave	Construct buffered bike lanes
B37	SW 4th Ave	SW 33rd St to Highway 201	Construct protected bike lanes
B38	SE 5th Ave	SE 5th St to East Ln	Construct protected bike lanes
B39	NW 4th Ave	Highway 201 to Tori Dr	Construct buffered bike lanes
B40	Washington Ave/Verde Dr	Washington Ave: Verde Dr to Highway 201 Verde Dr: Washington Ave to Highway 201	Construct buffered bike lanes
B41	SW 18th Ave	Highway 201 to SW 4th St	Construct protected bike lanes
B42	N Oregon St	NW 8th St to NW 8th Ave	Construct protected bike lanes

Street Standards Revisions

The City's 2006 TSP defines cross-sectional street standards for different roadway functional classifications. This Active Transportation Plan Update changes many of these sections to incorporate best practices for active transportation design and stormwater drainage and to meet City fire code requirements. Table 5 summarizes the changes to the sections from the 2006 TSP. Figures 10-17 show the updated cross-section standards.

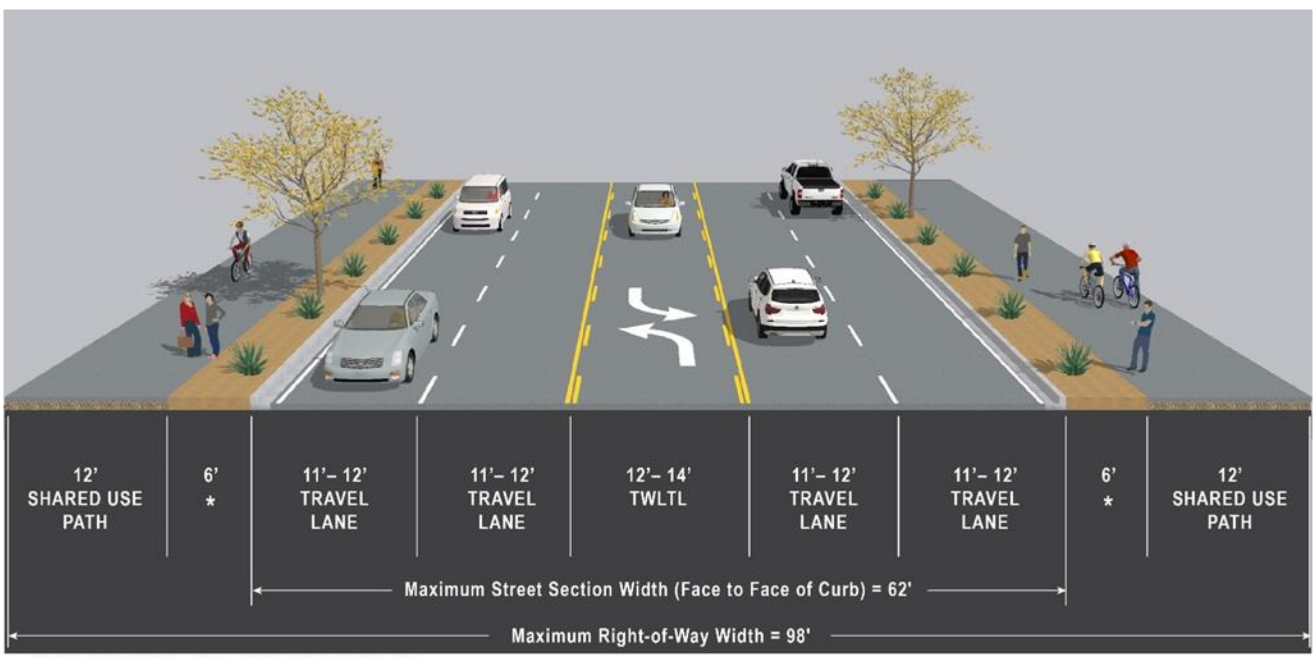
Table 5. Proposed Street Standard Updates

Roadway Functional Classification	Updates
Principal Arterial and Five-Lane Minor Arterial	• Replace conventional bike lane with a separated bike lane or shared use path. • Change travel lane width from 12 feet to a range of 11 feet to 12 feet. • Change two-way-left-turn-lane (TWLTL) width from 14 feet to range of 12 feet to 14 feet.
Three-Lane Minor Arterial	• Add 3-foot wide painted buffer between bike lane and outside travel lane • Change travel lane width from 12 feet to a range of 11 feet to 12 feet. • Change two-way-left-turn-lane (TWLTL) width from 14 feet to range of 11 feet to 12 feet.
Collector with Bike Lanes	• Same as Three-Lane Minor Arterial, but painted buffer shown as optional
Neighborhood Collector	• No changes to this section, but an additional cross-section for "Neighborhood Collector with Bike Lanes" is added
Local Streets	• Change sidewalk widths to 5 feet
Skinny Local Streets	• Cross-section removed to meet Fire Code Requirements
Local Streets with Grades Equal or Less Than 2 percent	• Cross-section added to address drainage options



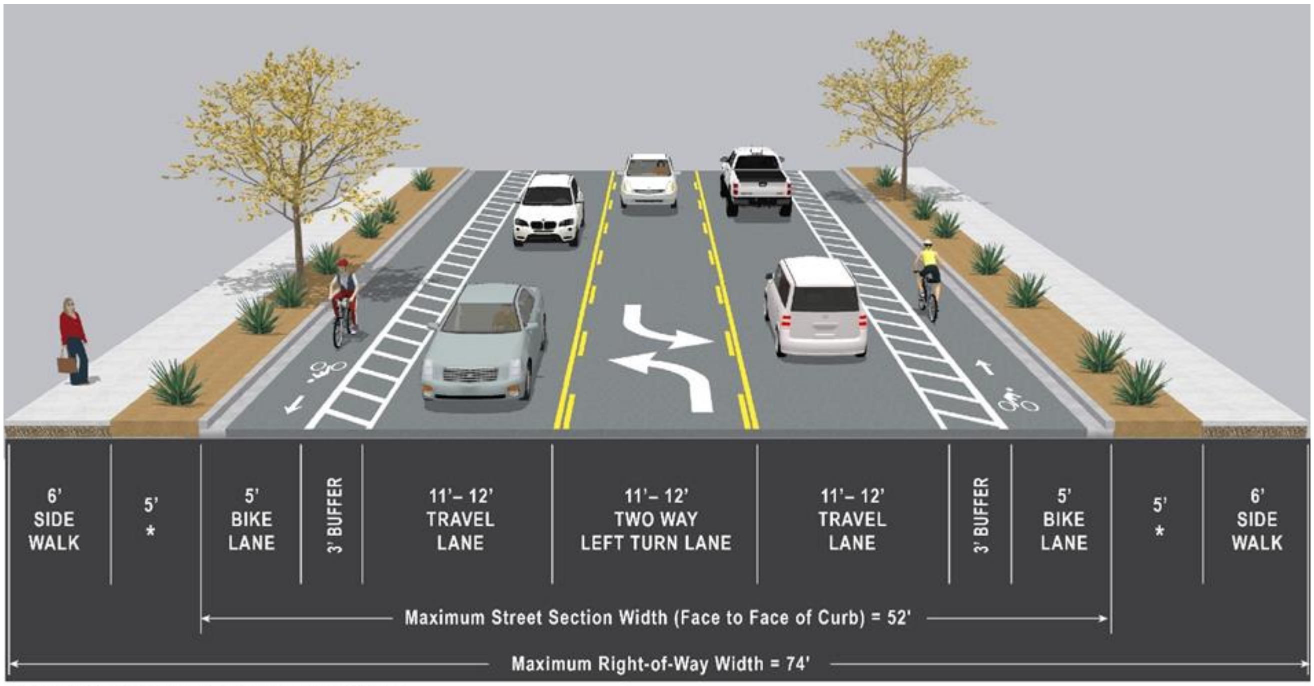
[1] Buffer includes a vertical element, such as raised concrete or flexposts/bollards.
[2] If the bike lane is grade separated (i.e., a raised bike lane) the buffer can be reduced to the curb separating the bike lane from the motor vehicle lane.
* Bioretention Swales or Landscape Buffer

Figure 10 Principal Arterial and Five-Lane Minor Arterial Cross-Section



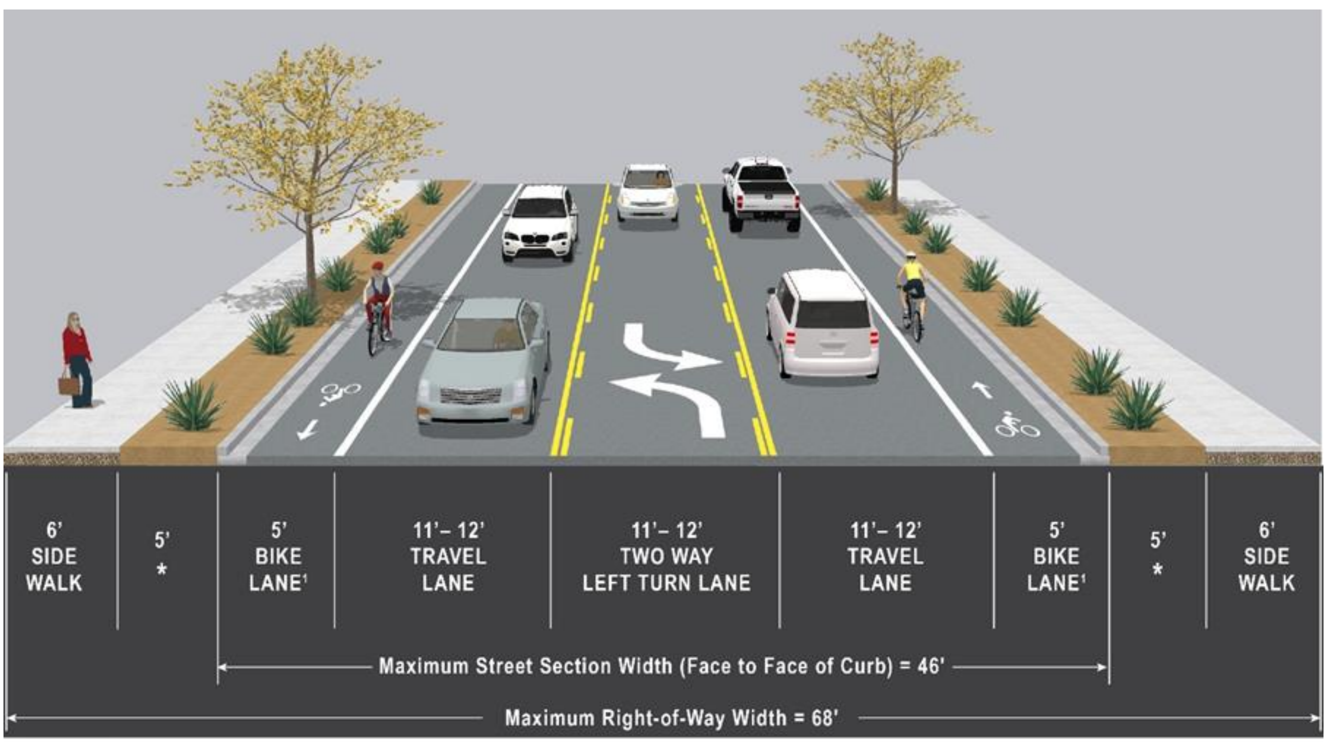
* Bioretention Swales or Landscape Buffer

Figure 11 Principal Arterial and Five-Lane Minor Arterial Cross-Section – Shared-Use Path Option



* Bioretention Swales or Landscape Buffer

Figure 12 Three-Lane Minor Arterial Cross-Section



* Bioretention Swales or Landscape Buffer

[1]Bike lane buffer recommended when roadway width is available

Figure 13 Three-Lane Collector Cross-Section

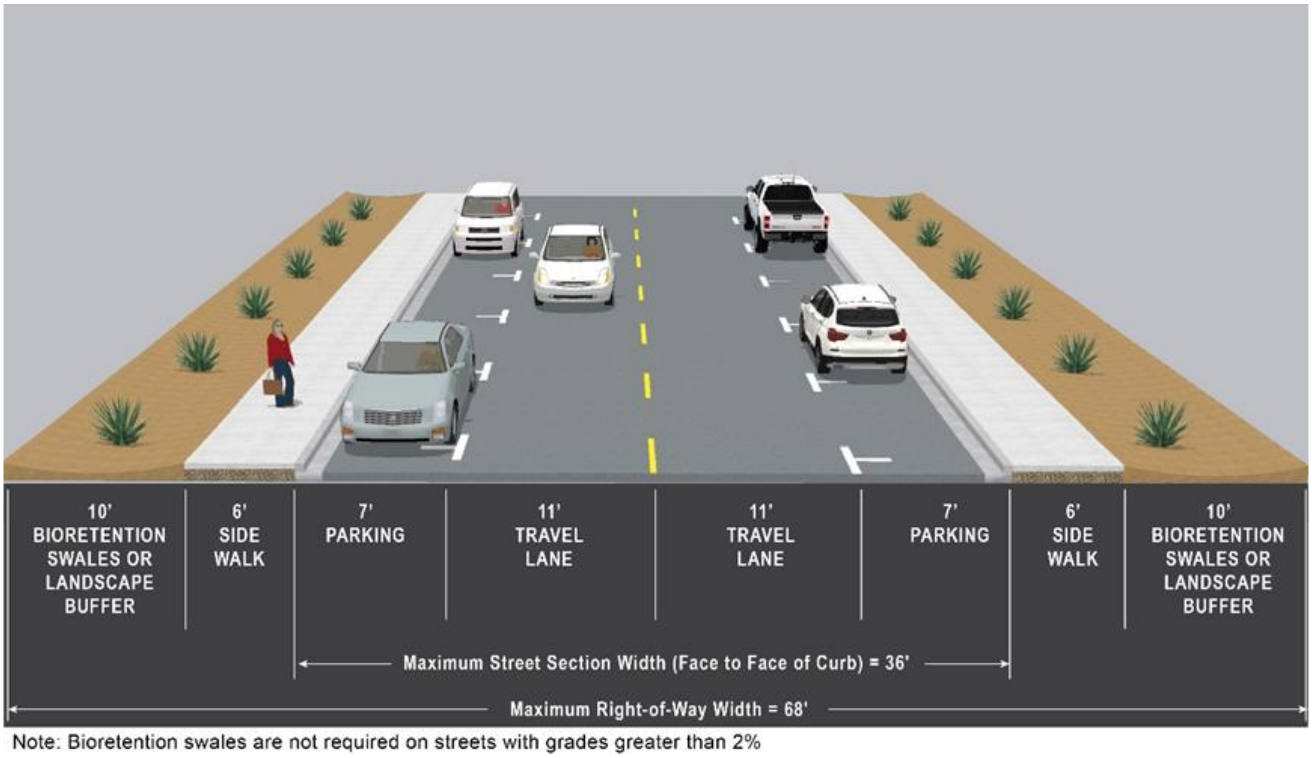


Figure 14 Neighborhood Collector Cross-Section

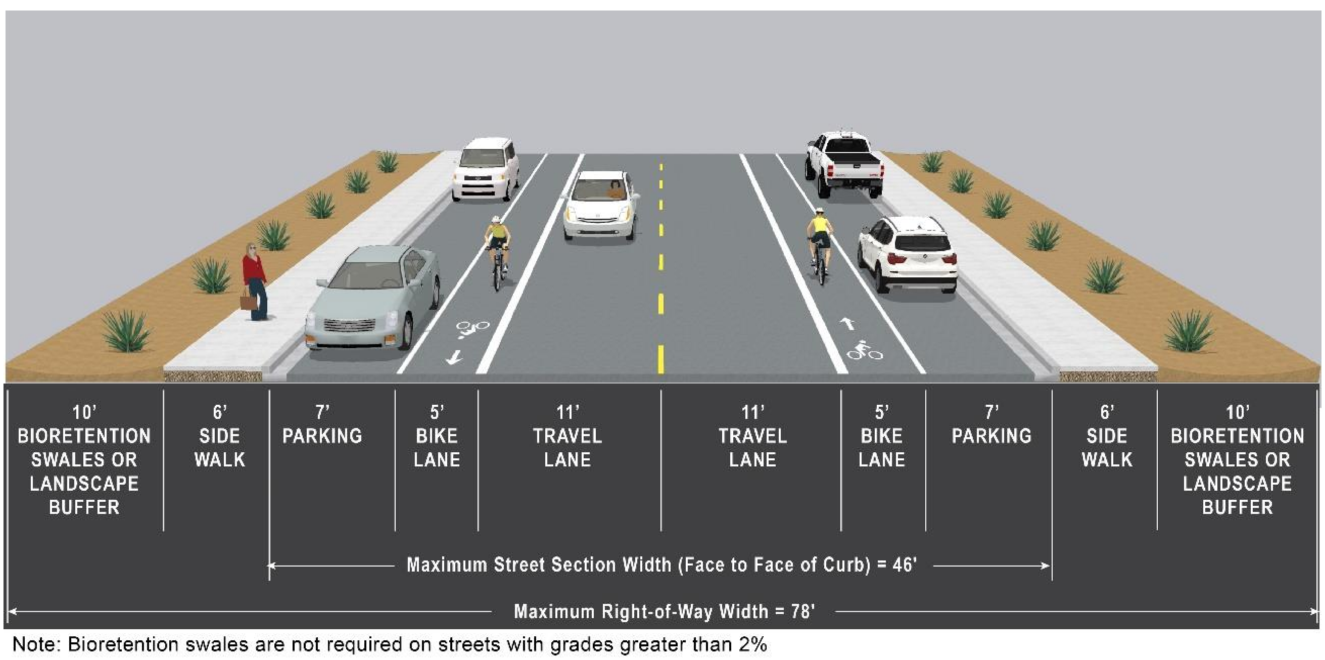
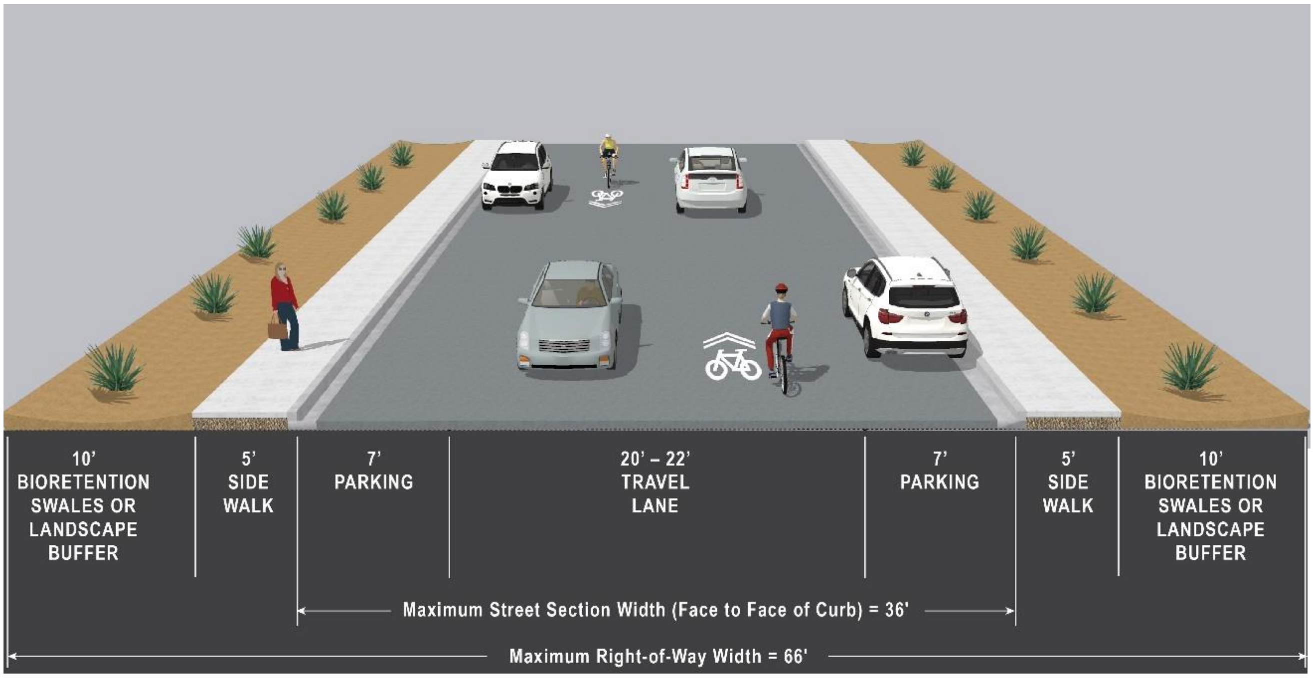
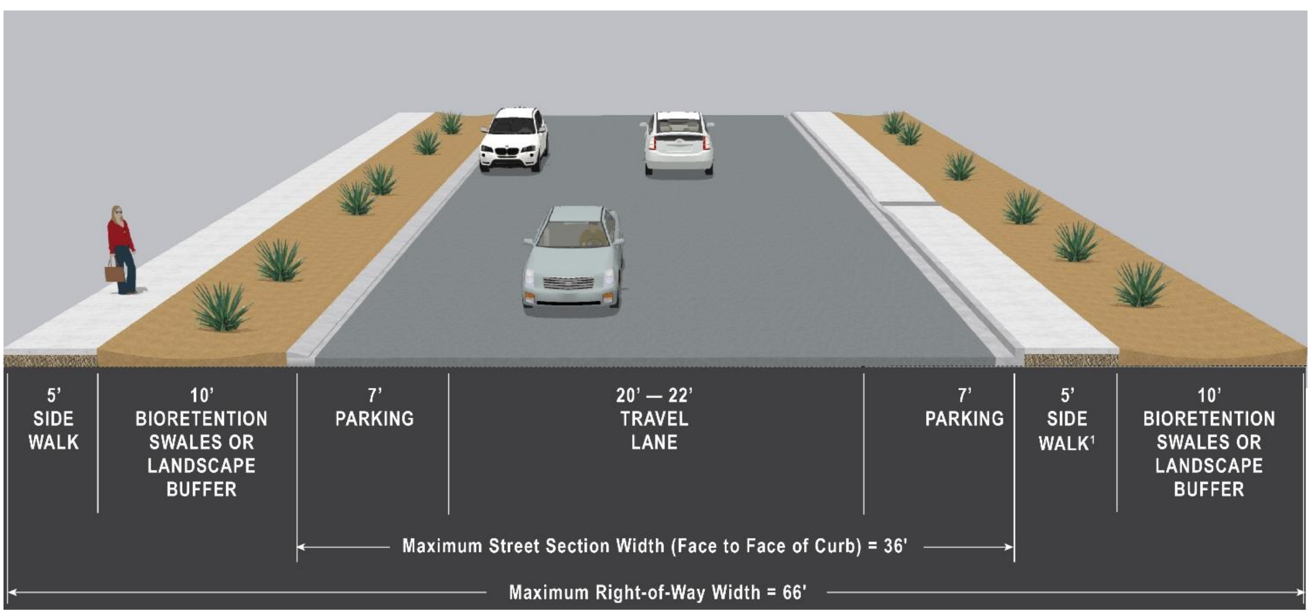


Figure 15 Neighborhood Collector with Bike Lanes Cross-Section



Note: Bioretention swales are not required on streets with grades greater than 2%

Figure 16 Local Street (With Optional Bikeway Designation) Cross-Section



[1] Curb opening drainage channel through sidewalk with expanded metal cover.

Notes: Ribbon curbs or curb openings with drainage channels can be used for final street sections.
Sidewalks can be detached from the roadway (shown at left) or curb-tight to the roadway (shown at right). Both types are shown for illustrative purposes in this example.

Figure 17 Local Streets with Grades Equal or Less Than 2 Percent

Development Code Updates

This plan also includes targeted updates to the City's development code. These updates are intended to improve walking and biking conditions in the city, in line with the vision set by this plan. The project team developed the code updates in conjunction with City staff and drawing on best practices for small cities, including the *Model Development Code for Small Cities* (Reference 7).

Table 6 summarizes the amendments to the City's Zoning Regulations.

The objectives and rationale for the amendments are described in more detail in Appendix "F," the East Idaho Refinement Area Land Use Assessment Memorandum, and in Appendix "G," the Draft Design Concepts Memorandum.

Table 6. Zoning Regulations Updates Summary

Topic	Summary	Code Section
Mixed-use Provisions in C-2-H	Permitting multi-family buildings in commercial areas allow developers to respond to several market conditions simultaneously. The C-2-H zone is recommended to allow high density residential and mixed-commercial/residential uses as a conditional use.	10A-31-10 - CONDITIONAL USES. 10A-31-30 - SPECIAL USE LIMITATIONS (new)
Enhanced Landscaping Standards	Landscaping should be provided between parking areas and adjacent pathways and adjacent streets to provide separation between active transportation users and vehicles. The landscape provisions relate to xeriscaping (drought-tolerant landscaping) and apply to new commercial uses and multi-family dwellings.	10A-57-55 - LANDSCAPING, PERFORMANCE STANDARDS.
More Efficient Use of Parking	Reducing the minimum parking requirements allows commercial developers the opportunity to use less space for parking and/or to construct other buildings for other uses or businesses. It also helps reduce the overall cost of construction.	10A-57-75 - PARKING SPACES REQUIRED, GROUP A USES. 10A-57-80 – PARKING SPACES REQUIRED; GROUP B USES.
Large Format Development Standards	Include special building design provisions for large-format developments (i.e. big box developments).	10-57-210 – DESIGN STANDARDS.
Enhanced Pedestrian Connections	Amendments seek to increase on-site connections between adjacent buildings and sidewalks to encourage people to walk or use bicycles.	10C-25.04 – BICYCLE AND PEDESTRIAN STANDARDS
Revised Street Design Standards	Replace/update street design standards for selected street classifications.	10C-25.08 – STREET STANDARDS

FUNDING CONSIDERATIONS

Project Costs

The project team put together cost estimates for each project identified in Table 2, Table 3, and Table 4. The cost estimates are high-level planning estimates that include basic construction costs. They may not capture all site-specific needs, such as right-of-way, roadway widening, or utility relocations, which may increase project costs.

Table 7, Table 8, and Table 9 show the cost estimates for intersection crossing projects, walking/rolling projects, and biking projects, respectively, by prioritization level.

The Revised Policy Framework and Code Amendments Memorandum in Appendix "H" contains cost estimates for each project and more information on how the costs were developed and applied.

Table 7. Intersection Crossing Plan Implementation Details

ID	Intersection	Proposed Project	Benefits	Cost	Considerations	Potential Funding Sources
High-Priority Projects						
I1	Sunset Dr and SW 4th Ave	Install a rectangular rapid flashing beacon across SW 4th Ave at the existing marked crosswalk	Provides higher level of safety for pedestrians crossing a five-lane arterial and connects with existing sidewalks on all roads approaching the intersection while also connecting to bus service in Ontario.	$40,000	Adding a pedestrian refuge island in the middle, similar to the crossing across SW 4th Avenue between SW 7th Street and SW 9th Street, provides greater protection to pedestrians.	City of Ontario, Private Development Funds
I2	Hillcrest Dr and SW 4th Ave	Install a rectangular rapid flashing beacon across SW 4th Ave at the existing marked crosswalk, install curb ramp at south side of crosswalk (1)	Provides higher level of safety for pedestrians crossing a five-lane arterial and connects.	$45,000	Further study should examine whether the crossing should be on the west side of the intersection (where westbound left-turning vehicles will queue) or on the east side of the intersection (where southbound left-turning vehicles will turn).	City of Ontario, Private Development Funds
I3	SW 12th St and SW 4th Ave	Install a rectangular rapid flashing beacon across SW 4th Ave at existing marked crosswalk	Provides higher level of safety for pedestrians crossing a five-lane arterial and connects with bus service in Ontario.	$40,000	Could be built together with Project P16 to create a complete sidewalk network for people crossing SW 4th Avenue at this location.	City of Ontario, Private Development Funds
I4	SW 6th St and SW 4th Ave	Install a rectangular rapid flashing beacon across SW 4th Ave on the west side of the intersection at existing marked crosswalk	Provides higher level of safety for pedestrians crossing a five-lane arterial and connects with downtown Ontario as well as Treasure Valley Community College	$40,000	Could be built together with Project P13 to create a complete sidewalk network for people crossing SW 4th Avenue at this location.	City of Ontario
I5	SE 5th Ave and East Ln	Create all-way stop by removing free southbound right turn	Eliminates a free right-turn for vehicles turning onto SE 5th Avenue, which is a 35 MPH facility, and improves safety for pedestrians in a dense commercial area	$5,000	Could be built together with Projects P3 to create a complete sidewalk network on SE 5th Avenue. Provides an opportunity to stripe crosswalks and create an expectation that there may be pedestrians.	City of Ontario, Private Development Funds

ID	Intersection	Proposed Project	Benefits	Cost	Considerations	Potential Funding Sources
					May require temporary signage alerting drivers to a new traffic pattern.	
I6	GameStop Lot/Walmart Lot and East Ln	Mark crosswalk and install a rectangular rapid flashing beacon across East Ln on the south side of the intersection	Allows shoppers to more easily walk between stores without needing to drive to a new parking lot while helping people who are not drivers (such as transit riders) navigate to their shopping destinations.	$42,000	May need to work with property owners, especially on the east side of the intersection, to create sidewalks to and from the intersection.	City of Ontario, Private Development Funds
I7	Waremart Lot and East Ln	Mark crosswalk and install a rectangular rapid flashing beacon across East Ln on south side of the intersection with the existing pedestrian path through the parking lot, install curb ramps on both sides of the street at the new crosswalk location (2)	Creates a pedestrian connection to a major grocery store in the city, making it easier for people to not drive from parking lot to parking lot and making it easier for people without vehicles (such as transit riders) to complete their shopping trips.	$50,000	May need to work with property owners, especially on the east side of the intersection, to create sidewalks to and from the intersection.	City of Ontario, Private Development Funds
I8	SW 9th St and SW 2nd Ave	Stripe crosswalks and complete curb ramp installation on the south side of the intersection (2)	Improves access to Lions Park and St. Peter Catholic School while also creating a safer intersection crossing on the city's Safe Routes to School network.	$9,000	Could be built together with Project P5 to create a complete sidewalk network for people crossing SW 9th Street at this location.	City of Ontario, ODOT SRTS Grants
I9	SW 6th St and W Idaho Ave	Add stop bar for pedestrian crossing and improve pedestrian crossing signage (W11-2 or R1-5b/R1-5c) on W Idaho Ave approaches	Creates driver awareness that pedestrians (and especially middle school-age students) may be crossing a major east-west road in the city that provides access to Ontario Middle School.	$5,000	Could be built together with Project P23 to create a complete sidewalk network for students heading north from Ontario Middle School.	City of Ontario, ODOT SRTS Grants
I10	Park Blvd and SW 5th Ave	Stripe crosswalk across Park Blvd to connect offset intersection, stripe crosswalks across SW Fifth Ave in both locations to connect to existing sidewalks, and complete curb ramp installation at all corners without curb ramps (2)	Designates a crossing locations for pedestrians looking to cross Park Boulevard and create awareness for drivers who may be making two turning movements to stay on SW 5th Avenue.	$13,000	Could be built together with Project P9 to create a complete sidewalk network on SW 5th Avenue. Sidewalk placement and design will need to consider that many drivers may be making turning movements across this offset intersection.	City of Ontario
Medium-Priority Projects						

ID	Intersection	Proposed Project	Benefits	Cost	Considerations	Potential Funding Sources
I11	Alameda Dr and SW 8th Ave	Stripe crosswalk across Alameda Dr to connect offset intersection, complete curb ramp installation on west side of Alameda Dr (2)	Improves walking and crossing conditions at an offset intersection that is next to Alameda Elementary School.	$10,000	Could be built with project P2 to create a complete sidewalk network around Alameda Elementary School. Sidewalk placement and design will need to consider that many drivers may be making turning movements across this offset intersection.	City of Ontario, ODOT SRTS Grants
I12	SW 10th St and W Idaho Ave	Add stop bar for pedestrian crossing and improve pedestrian crossing signage (W11-2 or R1-5b/R1-5c) on W Idaho Ave approaches, complete curb ramp installation on south side of W Idaho Ave (2)	Establishes driver expectation for pedestrians around Ontario High School across a major east-west road in the city.	$10,000	Could be built with either Project P5 or P22 to improve walking conditions around Ontario High School.	City of Ontario, ODOT SRTS Grants
I13	SW 6th St and SW 2nd Ave	Study intersection for all-way stop-control; uncontrolled intersection is located at a major hub for Ontario Middle School	Prioritizes pedestrian movement at an intersection outside of Ontario Middle School and the vehicle drop-off/pick-up location.	$10,000	Manual on Uniform Traffic Control Devices guidance should be followed in completing the study.	City of Ontario, ODOT SRTS Grants
I14	SW 4th St and W Idaho Ave	Study intersection for all-way stop control, install a rectangular rapid flashing beacon across W Idaho Ave on the west side of the intersection	An all-way stop intersection may improve crossings near Ontario Middle School.	$10,000	Manual on Uniform Traffic Control Devices guidance should be followed in completing the study. Traffic could be encouraged to use SW 2nd Street or S Oregon Street to move between W Idaho Avenue and SW 4th Avenue.	City of Ontario, ODOT SRTS Grants
I15	SW 4th St and SW 11th Ave	Add stop bar for pedestrian crossing and improve pedestrian crossing signage (W11-2 or R1-5b/R1-5c) on SW 4th St approaches, complete curb ramp installation at northeast corner of the intersection (1)	Creates a safer environment for pedestrians at an intersection with a channelized southbound right turn.	$6,000	Could be built with either Project P12 or P17 to improve walking conditions around the Treasure Valley Ball Park.	City of Ontario
I16	SW 12th St and SW 5th Ave	Stripe crosswalks across the north and east side of the intersection, install curb ramps at all intersection corners (4)	Improves walking access in a residential neighborhood).	$18,000	Could be built with either Project P9 or P15 to improve walking conditions in the neighborhood and to Alameda Elementary School.	City of Ontario

ID	Intersection	Proposed Project	Benefits	Cost	Considerations	Potential Funding Sources
I17	SE 5th Ave and SE 13th St	Study intersection for potential enhanced crossing alternatives	Improves walkability in a major commercial area and provides an improved walking conditions for when new development is added.	$10,000	Could be built together with Project P8 to create a complete sidewalk network on SE 5th Avenue. Intersection improvements could be filled in as part of future redevelopment of adjacent properties.	City of Ontario, Private Development Funds
I18	Staples Lot and SE 13th St	Stripe crosswalk across SE 13th Ave, install curb ramp at the location of the crosswalk on the east side of the street (1)	Allows shoppers to more easily walk between stores without needing to drive to a new parking lot while helping people who are not drivers (such as transit riders) navigate to their shopping destinations.	$6,000	May need to work with property owners, especially on the west side of the intersection, to create sidewalks to and from the intersection.	City of Ontario, Private Development Funds
I19	SE 1st Ave and Goodfellow St	Stripe crosswalks across Goodfellow St on the south side of the intersection, install curb ramp at southeast corner of intersection with new crosswalk (1)	Improves access to a major grocery store in Ontario while making it easier for people to walk between stores in the E Idaho Avenue commercial area.	$7,000	Could be built together with Project P19 to create a complete sidewalk network or could be built when Goodfellow Street is extended to SE 5th Avenue.	City of Ontario, Private Development Funds
I20	Dairy Queen Lot and Goodfellow St	Stripe crosswalk across Goodfellow St, install curb ramps on both sides of the street at the new crosswalk location (2)	Improves walking access to fast food restaurants and access to the businesses located along Goodfellow Street north of E Idaho Avenue.	$9,000	May need to work with property owners to create sidewalks to and from the intersection.	City of Ontario, Private Development Funds
Low-Priority Projects						
I21	SW 2nd St and SW 5th Ave	Stripe crosswalk across SW 5th Ave on the west side of the intersection, install curb ramps at all corners of the intersection (4)	Improves access between downtown Ontario and the residential neighborhood to the south.	$19,000	Could be built together either with Projects P9 or P17 to improve sidewalk connectivity on either SW 5th Avenue or SW 2nd Street.	City of Ontario
I22	SE 5th St and SE 5th Ave	Install a rectangular rapid flashing beacon across SW 5th Ave at existing marked crosswalk, complete curb ramp installation at all corners without curb ramps (2)	Creates a safer crossing across SE 5th Avenue (a 35 MPH road) while improving access to a bus stop, Eastside Park, and housing in southeast Ontario.	$49,000	Could be built with Projects P8, P9, or P28 to create a connected sidewalk network on SE 5th Avenue or SE 5th Street.	City of Ontario
I23	Tapadera Ave and Goodfellow St	Stripe crosswalk across Goodfellow St on north side of the intersection, install curb ramps on both sides of the street at the new crosswalk location (2)	Improves walking conditions in the E Idaho Avenue commercial area and makes it easier for people to shop without a car or needing to drive between parking lots.	$9,000		City of Ontario, Private Development Funds

ID	Intersection	Proposed Project	Benefits	Cost	Considerations	Potential Funding Sources
I24	NW 6th St and NW 4th Ave	Stripe crosswalk across NW 6th St on the north side of the intersection, install curb ramps at all corners of the intersection (4)	Improves walking access in the residential neighborhood north of downtown and provides a better walking experience for people reaching May Roberts Elementary School.	$19,000	Could be built either with Projects P18 or P23 to improve sidewalk connectivity on NW 4th Avenue or NW 6th Street.	City of Ontario, ODOT SRTS Grants
I25	NE 18th St and W Idaho Ave	Stripe crosswalks across W Idaho Ave, complete curb ramp installation on north side of the intersection (2)	Provides an improved crossing environment for pedestrians crossing W Idaho Avenue on a through road connecting north-south.	$12,000		City of Ontario
I26	Dorian Dr and NW 4th Ave	Stripe crosswalk across NW 4th Ave on the west side of the intersection, complete curb ramp installation at southeast corner of intersection (1)	Provides an improved crossing opportunity for pedestrians walking on either Dorian Drive or NW 4th Avenue – through roads that connect to much of the rest of Ontario.	$6,000	Could be built either with Projects P24 or P38 to improve sidewalk connectivity on Dorian Drive or NW 4th Avenue.	City of Ontario
I27	N Oregon St and NW 4th Ave	Add stop bar for pedestrian crossing and improve pedestrian crossing signage (W11-2 or R1-5b/R1-5c) on N Oregon St approaches	Creates a safer pedestrian crossing environment across a wide, three-lane roadway and provides access to a bus stop.	$5,000	Could be built together with Project P18 to improve sidewalk connectivity on NW 4th Avenue.	City of Ontario
I28	Walmart Lot and East Ln	Restripe existing crossing across East Ln with continental striping, add signage on East Ln approaches	Improves walking access and driver expectations outside of a major shopping destination in Ontario and allows people to shop without driving between parking lots.	$5,000		City of Ontario, Private Development Funds

Table 8. Pedestrian Plan Implementation Details

ID	Roadway	Segment	Proposed Project	Benefits	Cost	Considerations	Potential Funding Sources
High-Priority Segments							
S1	E Idaho Ave	I-84 eastbound ramps to Snake River	Build shared-use path on south side of roadway	A shared-use path on the south side of E Idaho Avenue would improve walking and biking connectivity to the city's major commercial center	$3,800,000 (includes roadway widening)	The city will need to acquire right-of-way at the eastern end of the proposed path.	ODOT, Private Development Funds, ODOT Community Pathways Grant

ID	Roadway	Segment	Proposed Project	Benefits	Cost	Considerations	Potential Funding Sources
				that is disconnected from the rest of the city by I-84 and the railroad.			
P1	Sunset Dr	SW 4th Ave to City Limits	Infill sidewalk on both sides of roadway	Fills sidewalk gaps along a commercial road that provides access to the SW 4th Avenue and bus service throughout town.	$43,000	The city's Parks Master Plan identifies a shared-use path along the Stewart Carter Canal immediately to the west. Installation of sidewalks would likely require some utility relocations.	City of Ontario
P2	SW 8th Ave/ Alameda Dr/SW 14th Ave	SW 8th Ave: Alameda Dr to SW 12th St Alameda Dr: SW 8th Ave to SW 14th Ave SW 14th Ave: Alameda Dr to Park Blvd	Build shared-use path with parallel parking on Alameda Drive from SW 8th Avenue to SW 14th Avenue, infill sidewalk on both sides of roadway along rest of segment	Fills sidewalk gaps around Alameda Elementary School, which will make it easier for people to walk to the school.	$574,000	The south end of Alameda Drive will need to be widened to accommodate a shared-use path.	City of Ontario, ODOT SRTS Grants, ODOT Community Pathways Grant
P3	SE 5th Ave	SE 5th St to East Ln	Construct sidewalk on both sides of roadway	Constructs sidewalk on one of the two roadways that cross I-84 and improves multimodal connectivity to the city's industrial land uses.	$613,000	Installation of sidewalks would likely require some right-of-way acquisition and utility relocations. While there is existing sidewalk on the bridge over I-84, the ramps up to the bridge may need to be widened to accommodate sidewalks. This project is already under design.	City of Ontario
P4	Verde Dr	NW 4th Ave to SW 4th Ave	Construct sidewalk on both sides of roadway	Fills sidewalk gaps on one of the few north-south roads that connects SW 4th Avenue, W Idaho Avenue, and NW 4th Avenue, provides improved access to Aiken Elementary School, and connects with bus service across Ontario.	$238,000	Installation of sidewalks would likely require some right-of-way acquisition and utility relocations.	City of Ontario, ODOT SRTS Grants

ID	Roadway	Segment	Proposed Project	Benefits	Cost	Considerations	Potential Funding Sources
P5	S Dorian Way	W Idaho Ave to SW 4th Ave	Infill sidewalk on both sides of roadway	Fills sidewalk gaps on a street with commercial, residential, and assisted living land uses, as well as provide a connection to Four Rivers Community School	$112,000	Installation of sidewalks would likely require some right-of-way acquisition and utility relocations.	City of Ontario, ODOT SRTS Grants
P6	SW 10th St/SW 2nd Ave	SW 10th St: W Idaho Ave to SW 2nd Ave SW 2nd Ave: SW 10th St to Ontario Middle School	Infill sidewalk on both sides of roadway	Fills sidewalk gaps around Lions Park, Ontario Middle School, and St. Peter Catholic School in the heart of Ontario.	$115,000	Installation of sidewalks would likely require some right-of-way acquisition.	City of Ontario, ODOT SRTS Grants
P7	E Idaho Ave	Oregon St to I-84 eastbound ramps	Reconstruct sidewalks where necessary and install barriers to prevent dirt and debris from washing over the sidewalks	Currently, it is not clear where the existing sidewalk is on both the north and south sides of the roadway, which can create a more stressful experience for the pedestrian.	$108,000	The city may need to partner with local business to ensure that the sidewalk remains clean.	City of Ontario, ODOT, Private Development Funds
P8	Park Blvd	SW 5th Ave to Evergreen Cemetery	Construct shared-use path on the east side of the road	Continues the Treasure Valley Connector Trail northward toward SW 4th Avenue, setting up an alignment north toward the county fairgrounds.	$210,000	No significant considerations.	City of Ontario, ODOT Community Pathways Grant
P9	SW 5th Ave	SW 12th St to SE 5th St	Construct sidewalk on both sides of roadway	Connects residential land uses on both sides of the railroad tracks with Treasure Valley Community College, access to downtown Ontario, and bus service across Ontario.	$823,000	Installation of sidewalks would likely require some right-of-way acquisition and utility relocations. Sidewalk construction will cross Union Pacific Railroad.	City of Ontario
P10	SW 14th Ave/SW 4th St/Park Blvd	SW 14th Ave: Park Blvd to SW 4th St SW 4th St: SW 14th Ave to SW 18th Ave Park Blvd: SW 14th Ave to SW 18th Ave	Construct sidewalk on both sides of roadway	Provides access to Treasure Valley Ball Park and constructs sidewalk along the proposed Cross-Town Trail from the city's Parks Master Plan.	$569,000	Installation of sidewalks would likely require some right-of-way acquisition and utility relocations. It may also require addressing an open ditch.	City of Ontario
P11	Sears Dr/NW 12th St	Sears Dr: NW 4th Ave to NW 12th St	Construct sidewalk on both sides of roadway	Constructs sidewalk through a residential development that connects two major east-west roads	$217,000	Installation of sidewalks would likely require some right-of-way acquisition and utility relocations.	City of Ontario, ODOT SRTS Grants

ID	Roadway	Segment	Proposed Project	Benefits	Cost	Considerations	Potential Funding Sources
		NW 12th St: Sears Dr to W Idaho Ave		– W Idaho Avenue and NW 4th Avenue – and improves walking accessibility to Aiken Elementary School and Ontario High School			
P12	SW 4th St	SW 3rd Ave to SW 11th Ave	Infill sidewalk on both sides of roadway	Fills in sidewalk gaps along a roadway that already has bike lanes, creating a multimodal north-south street that connects homes to businesses in downtown Ontario to Treasure Valley Ball Park.	$310,000	Installation of sidewalks would likely require some right-of-way acquisition.	City of Ontario
P13	SW 7th St/SW 6th St/ SW 3rd Ave	SW 7th St: SW 2nd Ave to SW 4th Ave SW 6th St: SW 2nd Ave to SW 5th Ave SW 3rd Ave: SW 7th St to SW 6th St	Infill sidewalk on both sides of roadway	Fills in sidewalk gaps near downtown Ontario that connect with multiple schools, parks, businesses, homes, and bus service.	$196,000	Installation of sidewalks would likely require some right-of-way acquisition and utility relocations.	City of Ontario, Private Development Funds
P14	SW 5th St/SW 1st Ave	SW 5th St: W Idaho Ave to SW 1st Ave SW 1st Ave: SW 5th St to SW 4th St	Infill sidewalk on both sides of roadway	Fills in sidewalk gaps north of Ontario Middle School and providing connections between the residential areas north of W Idaho Avenue with businesses in downtown Ontario.	$52,000	Installation of sidewalks would likely require some right-of-way acquisition.	City of Ontario, ODOT SRTS Grants
P15	SW 2nd Ave	SW 2th St to S Oregon St	Infill sidewalk on both sides of roadway	Helps create a complete sidewalk network in downtown Ontario	$11,000	Wider sidewalks, especially on the south side of SW 2nd Avenue, would require taking roadway space.	City of Ontario
P16	SW 12th St /Locust Way/SW 11th St	SW 12th St: SW 3rd Ave to Locust Way Locust Way: SW 12th St to SW 11th St SW 11th St: Locust Way to SW 14th Ave	Infill sidewalk on both sides of roadway	Fills in sidewalk gaps on a segment that connects to businesses on SW 4th Avenue with the residential areas to the south, as well as access to Alameda Elementary School.	$479,000	Installation of sidewalks would likely require some right-of-way acquisition and utility relocations.	City of Ontario, ODOT SRTS Grants
Medium-Priority Segments							

ID	Roadway	Segment	Proposed Project	Benefits	Cost	Considerations	Potential Funding Sources
P17	SW 2nd St/SW 11th Ave/Park Blvd	SW 2nd St: SW 5th Ave to SW 11th Ave SW 11th Ave: SW 2nd St to Park Blvd Park Blvd: SW 11th Ave to SW 14th Ave	Construct sidewalk on both sides of roadway	Constructs sidewalk around the Treasure Valley Ball Park, providing a connection to the Treasure Valley Connector Trail at one end and to downtown Ontario at the other end.	$611,000	Installation of sidewalks would likely require some right-of-way acquisition and utility relocations. Much of the segment is an unimproved roadway with no curbs.	City of Ontario
P18	NW 4th Ave	N Park Blvd to N Oregon St	Construct sidewalk on both sides of roadway	Constructs sidewalks along a roadway that runs from the Union Pacific Railroad tracks to Highway 201, providing connectivity across much of northern Ontario, including May Roberts Elementary School	$541,000	Installation of sidewalks would likely require some right-of-way acquisition and utility relocations.	City of Ontario, ODOT SRTS Grants
P19	E Idaho Ave Area Sidewalks	Tapadera Ave: Lincoln Ave to Clarion Inn Access SW 13th St: SE 1st Ave to SE 5th Ave Goodfellow St: E Idaho Ave to End of Roadway	Infill sidewalk on both sides of roadway	Fills gaps in the sidewalk network along the commercial properties that are located adjacent to E Idaho Avenue, improving access for customers on foot and allowing shoppers who drove to walk between multiple destinations.	$266,000	Installation of sidewalks would likely require some right-of-way acquisition and utility relocations. Some gaps could be filled in as part of future redevelopment of adjacent properties.	City of Ontario, Private Development Funds
P20	SE 2nd St	E Idaho Ave to SE 18th Ave	Construct sidewalk on both sides of roadway	Constructs sidewalk on a road with residential and industrial land uses, connecting to E Idaho Avenue on the north end with SE 18th Avenue, a major east-west roadway on the south end.	$442,000	Installation of sidewalks would likely require some right-of-way acquisition and utility relocations. Roadway reconstruction with bike lanes and sidewalks is currently underway from SE 5th Avenue to SE 12th Avenue.	City of Ontario
P21	SW 18th Ave	Sunset Dr to SE 2nd Ave	Construct sidewalk on both sides of the roadway	Constructs sidewalks on a through road on the south end of Ontario, part of which is on the Safe Routes to School network.	$1,047,000	Installation of sidewalks would likely require some right-of-way acquisition and utility relocations.	City of Ontario, ODOT SRTS Grants
P22	NW 9th St/NW 10th St/W Idaho Ave	NW 9th St: NW 4th Ave to W Idaho St NW 10th St: NW	Construct sidewalk on both sides of roadway, construct North-South Connector Trail on east side of NW 9th St	Completes the sidewalk network around Ontario High School and filles a small gap in the sidewalk	$405,000	Installation of sidewalks would likely require some right-of-way acquisition.	City of Ontario, ODOT SRTS Grants, ODOT Community Pathways Grant

ID	Roadway	Segment	Proposed Project	Benefits	Cost	Considerations	Potential Funding Sources
		2nd Ave to W Idaho St W Idaho Ave: NW 9th St to NW 10th St		network on W Idaho Avenue and adds to city's trail network			
P23	NW 6th St	NW 8th Ave to Ontario Middle School	Construct sidewalk on both sides of roadway	Connects several major destinations, including two schools (May Roberts Elementary School and Ontario Middle School) with Beck-Kiwanis Park and the county fairgrounds with sidewalks in a residential neighborhood.	$301,000	Installation of sidewalks would likely require some right-of-way acquisition and utility relocations.	City of Ontario, ODOT SRTS Grants
P24	Dorian Dr	NW 4th Ave to W Idaho Ave	Infill sidewalk on both sides of roadway	Extends sidewalks from an existing project (Project P5) to the north to meet the NW 4th Avenue, another major east-west road in the city, and provide connections to additional housing areas.	$163,000	Installation of sidewalks would likely require some right-of-way acquisition. Much of the segment is an unimproved roadway with no curbs or curbs on one side of the roadway. It will require addressing an open ditch.	City of Ontario
P25	NW 8th Ave/NW 9th St	NW 8th Ave: NW 9th St to N Oregon St NW 9th St: NW 8th Ave to NW 4th Ave	Construct sidewalk on both sides of roadway, construct North-South Connector Trail on east side of NW 9th St	Constructs sidewalk connections to Beck-Kiwanis Park and the county fairgrounds, and it provides a connection to the North-South Connector trail that will run along NW 8th Street or NW 9th Street, as well as providing a connection to the bus.	$761,000	Installation of sidewalks would likely require some right-of-way acquisition and utility relocations.	City of Ontario, ODOT Community Pathways Grant
Low-Priority Segments							
P26	Sunset Dr	City Limit to SW 18th Ave	Construct sidewalk on both sides of roadway	Connects the future Sunset Park and SW 18th Avenue with the incorporated city to the north.	$636,000	Installation of sidewalks would likely require some right-of-way acquisition and utility relocations. The city's Parks Master Plan identifies a shared-use path along the Stewart Carter Canal immediately to the west.	City of Ontario

ID	Roadway	Segment	Proposed Project	Benefits	Cost	Considerations	Potential Funding Sources
						The city may need to incorporate land before constructing sidewalks. It may require addressing an open ditch.	
P27	Alameda Dr	SW 14th Ave to SW 18th Ave	Construct sidewalk on both sides of roadway	Connects SW 18th Avenue and the farm-oriented properties to the southwest to the Safe Routes to School Network and Alameda Elementary School.	$260,000	Installation of sidewalks would likely require some right-of-way acquisition and utility relocations.	City of Ontario, ODOT SRTS Grants
P28	SE 5th St/SE 6th Ave	SE 5th St: SE 5th Ave to SE 6th Ave SE 6th Ave: SE 5th St to SE 6th St	Construct sidewalk on both sides of roadway	Completes a sidewalk connection between SE 5th Avenue and SE 9th Avenue with access to apartments and to Eastside Park.	$111,000	Installation of sidewalks would likely require some right-of-way acquisition and utility relocations.	City of Ontario
P29	SE 9th Ave	SE 2nd St to SE Claude Road	Construct sidewalk on both sides of roadway	Provides access to housing and industrial jobs, as well as the Ontario Head Start Center and lower-income housing on Claude Road on the east end of the segment.	$568,000	Installation of sidewalks would likely require some right-of-way acquisition and utility relocations.	City of Ontario
P30	SE 3rd St	E Idaho Ave to SE 5th Ave	Infill sidewalk on both sides of roadway	Complements the sidewalk improvements on SE 2nd St while providing more connections between E Idaho Avenue and commercial and industrial land uses.	$165,000	Installation of sidewalks would likely require some right-of-way acquisition and utility relocations.	City of Ontario
P31	NW 5th St/NW 3rd Ave/NW 4th St	NW 5th St: NW 4th Ave to NW 3rd Ave NW 4th St: NW 4th Ave to NW 3rd Av NW 3rd Ave: NW 5th St to NW 4th St	Construct sidewalk on both sides of roadway	Constructs sidewalks around three sides of Laxson Park and improves accessibility in the surrounding residential neighborhood.	$203,000	Installation of sidewalks would likely require some right-of-way acquisition and utility relocations. The sidewalks in Laxson Park will need to navigate around trees.	City of Ontario
P32	N Oregon St	NW 9th St to NW 8th Ave	Construct sidewalk on both sides of roadway	Provides a walking connection north out of Ontario to the businesses along Highway 201 to the north.	$650,000	There is no curb on either side of the road for much of the segment, and the gravel area is used as parking, which may need to be adjusted.	City of Ontario

ID	Roadway	Segment	Proposed Project	Benefits	Cost	Considerations	Potential Funding Sources
P33	SW 18th Ave	Sunset Dr to Highway 201	Construct sidewalk on both sides of roadway	Mirrors a future path on SW 18th Avenue as outlined in Ontario's Parks Master Plan.	$746,000	Installation of sidewalks would likely require some right-of-way acquisition and utility relocations.	City of Ontario
P34	Hunter Ln	Western End of Road to Verde Dr	Construct sidewalk on both sides of roadway	Adds to the sidewalk network in a neighborhood where there is existing sidewalk infrastructure.	$281,000	Installation of sidewalks would likely require some right-of-way acquisition and utility relocations.	City of Ontario
P35	SE Claude Rd	SE 5th Ave to SE 13th Ave	Construct sidewalk on west side of roadway	Improves walking access to lower-income pre-fab homes in the southeast corner of the city	$195,000	Installation of sidewalks would likely require some right-of-way acquisition and utility relocations.	City of Ontario
P36	Rieter Dr/Arata Way/Sears Dr	Rieter Dr: NW 4th Ave to Arata Way Arata Way: Reiter Dr to Sears Dr Sears Dr: Arata Way to NW 12th St	Construct sidewalk on both sides of roadway	Constructs sidewalk through a residential development that connects two major east-west roads – W Idaho Avenue and NW 4th Avenue – and improves walking accessibility to Aiken Elementary School and Ontario High School	$235,000	Installation of sidewalks would likely require some right-of-way acquisition and utility relocations.	City of Ontario, ODOT SRTS Grants
P37	SW 4th Ave	SW 33rd St to Highway 201	Construct sidewalk on south side of roadway	Improves connections to housing and the airport on this stretch of SW 4th Avenue west of Highway 201.	$70,000	Installation of sidewalks would likely require some right-of-way acquisition and utility relocations. Ontario's Parks Master Plan envisions an Airport Trail around the airport.	City of Ontario
P38	NW 4th Ave	Highway 201 to N Dorian Dr	Construct sidewalk on both sides of roadway	Continues NW 4th Avenue sidewalk connection across Ontario.	$251,000	Installation of sidewalks would likely require some right-of-way acquisition. Much of the segment is an unimproved roadway with no curbs.	City of Ontario
P39	Washington Ave/ Verde Dr	Washington Ave: Verde Dr to Highway 201 Verde Dr: Washington Ave to Highway 201	Construct sidewalk on both sides of roadway	Improves walkability around the industrial job areas north of Ontario.	$597,000	Installation of sidewalks would likely require some right-of-way acquisition and utility relocations. Much of the segment is an unimproved roadway with no curbs.	City of Ontario, Private Development Funds

ID	Roadway	Segment	Proposed Project	Benefits	Cost	Considerations	Potential Funding Sources
P40	Malheur Dr/Park Blvd	Malheur Dr: Verde Dr to Park Blvd Park Blvd: Malheur Dr to NW 4th Ave	Construct sidewalk on both sides of roadway	Improves connectivity for pedestrians on the north side of Ontario.	$878,000	Installation of sidewalks would likely require some right-of-way acquisition and utility relocations. Much of the segment is an unimproved roadway with no curbs. It requires crossing an open ditch	City of Ontario
P41	Fortner St	N Oregon St to NW 4th Ave	Construct sidewalk on both sides of roadway	Provides a north-south connection from Oregon Street to NW 4th Avenue through residential land uses.	$323,000	Installation of sidewalks would likely require some right-of-way acquisition.	City of Ontario
P42	NW 12th St	North End of Roadway to NW 4th Ave	Construct sidewalk on both sides of roadway	Fills in the sidewalk network within a residential neighborhood.	$219,000	Installation of sidewalks would likely require some right-of-way acquisition and utility relocations. Much of the segment is an unimproved roadway with no curbs.	City of Ontario

Table 9. Bike Plan Implementation Details

ID	Roadway	Segment	Proposed Project	Benefits	Cost	Considerations	Potential Funding Sources
High-Priority Segments							
S1	E Idaho Ave	I-84 eastbound ramps to Snake River	Construct shared-use path on south side of road	A shared-use path on the south side of E Idaho Avenue would improve walking and biking connectivity to the city's major commercial center that is disconnected from the rest of the city by I-84 and Union Pacific railroad.	$3,800,000 (includes roadway widening)	The city will need to acquire right-of-way at the eastern end of the proposed path.	ODOT, Private Development Funds, ODOT Community Pathways Grant
B1	SW 4th Ave	Highway 201 to 9th St	Construct protected bike lanes	Improves biking conditions on the city's primary commercial corridor on the west side of downtown, improving access to jobs and shopping.	$774,000	May require narrowing travel lanes and/or the two-way left turn lane along the entire segment.	City of Ontario, Private Development

ID	Roadway	Segment	Proposed Project	Benefits	Cost	Considerations	Potential Funding Sources
							Funds, ODOT SRTS Grants
B2	Verde Dr	NW 4th Ave to SW 4th Ave	Stripe bike lanes	Establishes bike infrastructure on a through north-south route connecting to homes, schools, and jobs.	$29,000	May require the removal of on-street parking.	City of Ontario, ODOT SRTS Grants
B3	Sears Dr/NW 12th St	Sears Dr: NW 4th Ave to NW 12th St NW 12th St: Sears Dr to SW 4th Ave	Create enhanced bike route through shared lane markings, wayfinding signage, and enhanced crossings and traffic calming, if necessary	Creates a local street bike route that connects to St. Alphonsus Medical Center, Ontario High School, and the major employment/commercial area of SW 4th Avenue.	$46,000	The City should study what, if any, traffic calming measures would be most appropriate.	City of Ontario, ODOT SRTS Grants
B4	S Oregon St	NW 1st Ave to SW 4th Ave	Add shared lane markings and wayfinding signage	Extends the bike infrastructure from Oregon Street north of Idaho Avenue to the south , improving access to downtown Ontario.	$6,000		City of Ontario
B5	SW 2nd St/SW 11th Ave	SW 2nd St: W Idaho Ave to SW 11th Ave SW 11th Ave: SW 2nd St to SW 4th St	Add shared lane markings and wayfinding signage	Provides a north-south connection from the heart of downtown Ontario to the homes to the south and connecting with the Treasure Valley Ball Park.	$15,000		City of Ontario
B6	W Idaho Ave	Dorian Way to SW 4th St	Stripe bike lanes	Creates bike infrastructure on a major east-west crosstown street in the city with connections to many of the city's neighborhoods and three different schools.	$88,000	May require the removal of on-street parking.	City of Ontario, ODOT SRTS Grants
B7	Dorian Way	W Idaho Ave to SW Fourth Ave	Stripe bike lanes	Provides a connection to SW 4th Avenue on the western edge of Ontario where there are fewer streets on a grid network.	$14,000		City of Ontario
B8	SW 6th St	SW 2nd Ave to SW 5th Ave	Create enhanced bike route through shared lane markings, wayfinding signage, and enhanced crossings and traffic calming, if necessary	A short segment that connects schools, parks, a major commercial corridor, and downtown Ontario on a comfortable local street.	$44,000	The City should study what, if any, traffic calming measures would be most appropriate.	City of Ontario, ODOT SRTS Grants

ID	Roadway	Segment	Proposed Project	Benefits	Cost	Considerations	Potential Funding Sources
B9	SW 2nd Ave	SW 10th St to S Oregon Ave	Add shared lane markings and wayfinding signage	Connects residential and commercial land uses with Ontario Middle School, Lions Parks, and a future north-south shared use path on SW 9th Street.	$10,000	The city should study whether a bike route should continue on the north side of Ontario Middle School where the street is disconnected.	City of Ontario, ODOT SRTS Grants
B10	SW 12th St/Locust Way/SW 11th St	SW 12th St: SW 4th Ave to Locust Way Locust Way: SW 12th St to SW 11th St SW 11th St: Locust Way to SW 14th Ave	Create enhanced bike route through shared lane markings, wayfinding signage, and enhanced crossings and traffic calming, if necessary	Connects neighborhoods to the south of SW 4th Avenue with access to jobs and shopping as well as Alameda Elementary School.	$68,000	The City should study what, if any, traffic calming measures would be most appropriate.	City of Ontario, ODOT SRTS Grants
B11	E Idaho Ave/SE 1st Ave	E Idaho Ave: I-84 eastbound ramps to 650 feet west of ramps SE 1st Ave: SE 2nd St to E Idaho Ave	Construct shared-use path on south side of road, connect E Idaho Avenue and SE 1st Avenue at the narrowest point between the two roads with a path across the vacant lot, and add shared lane markings and wayfinding signage on SE 1st Avenue	Provides important connection between the E Idaho Avenue shared-use path to the east and with the rest of the city to the west by connecting bicycle traffic to a railroad crossing at SW 5th Avenue and creates a connection over one of two routes across I-84.	$111,000	Right-of-way may be required to make the connection between SE 1st Avenue and E Idaho Avenue.	City of Ontario, ODOT, ODOT Community Pathways Grant
B12	NW 6th St	NW 8th Ave to Ontario Middle School	Create enhanced bike route through shared lane markings, wayfinding signage, and enhanced crossings and traffic calming, if necessary	Creates a parallel north-south route to a future shared-use path on NW 9th Street with direct connections to Ontario Middle School on the south end and Beck-Kiwanis Park on the north end.	$91,000	The City should study what, if any, traffic calming measures would be most appropriate.	City of Ontario, ODOT SRTS Grants
B13	SW 8th Ave/Alameda Dr	SW 8th Ave: Alameda Dr to SW 12th St Alameda Dr: SW 8th Ave to SW 18th Ave	Add shared lane markings and wayfinding signage	Connects Alameda Elementary School to housing to the north, west, and south.	$10,000		City of Ontario, ODOT SRTS Grants
Medium-Priority Segments							
B14	E Idaho Ave Area Roadways	East Ln: North End of Road to	Add shared lane markings and wayfinding signage	Provides people on the E Idaho Avenue shared-use path with direct	$14,000	The city should work with various businesses in the area to ensure that	City of Ontario, Private

ID	Roadway	Segment	Proposed Project	Benefits	Cost	Considerations	Potential Funding Sources
		W Idaho Ave Goodfellow St: North End to South End of Road Lincoln Ave: Tapadera Ave to Goodfellow St Tapadera Ave: Lincoln Ave to Goodfellow St SE 1st Ave: Goodfellow St to SE 13th St SE 13th St: SE 1st Ave to SE 5th Ave		connections at various stores in this major commercial area.		there is enough bike parking for people who may arrive by bike.	Development Funds
B15	SW 11th Ave/Park Blvd	SW 11th Ave: SW 4th St to Park Blvd Park Blvd: SE 11th Ave to SE 18th Ave	Add shared lane markings and wayfinding signage	Extends a bike connection (Project B5) around the Treasure Valley Ball Park to the existing Treasure Valley Connector Trail.	$5,000	Timing for this related project may be impacted by Project B5 implementation, a high-priority project.	City of Ontario
B16	Sunset Dr	SW 4th Ave to SW 18th Ave	Add shared lane markings and wayfinding signage or construct shared-use path	Connects more rural areas of the community with SW 4th Avenue and a potential future park on the west side of the roadway.	$6,000 (shared lane markings) $675,000 (shared-use path)	A path, if chosen, may require right-of-way acquisition. If the city chooses to build a path along the canal, as outlined in the Parks Master Plan, connections to the street grid will be needed.	City of Ontario, ODOT Community Pathways Grant
B17	NW 9th St/SW 9th St/ Park Blvd/	NW/SW 9th St: NW 8th Ave to SW 4th Ave Park Blvd: SW 4th Ave to End of Road	Construct shared-use path as outlined in the City of Ontario's Parks and Recreation Master Plan	Extends the Treasure Valley Connector Trail to the north to SW 4th Avenue, the edge of downtown, schools and parks, and the Malheur County Fairgrounds at the north end of the segment.	$785,000	The city may need to acquire right-of-way to construct a shared-use path. Without right-of-way, the city may need to remove on-street parking.	City of Ontario, ODOT Community Pathways Grant
B18	SE 9th Ave/SE Claude Road	SE 9th Ave: SE 2nd Ave to SE Claude Road SE Claude Road:	Add shared lane markings and wayfinding signage	Connects housing developments along I-84 to existing bike infrastructure on SE 2nd Street.	$16,000		City of Ontario

ID	Roadway	Segment	Proposed Project	Benefits	Cost	Considerations	Potential Funding Sources
		SE 9th Ave to SE 13th Ave					
B19	SE 2nd St	E Idaho Ave to SE 5th Ave	Add shared lane markings and wayfinding signage	Extends the existing bike infrastructure on SE 2nd Street to E Idaho Avenue and fills in a vital connection between the city to the west of the railroad tracks and the E Idaho Avenue shared-use path.	$6,000		City of Ontario
B20	NW 4th Ave	Tori Dr to N Oregon St	Create enhanced bike route through shared lane markings, wayfinding signage, and enhanced crossings and traffic calming, if necessary	Creates a third crosstown east-west route that connects with several housing subdivisions, May Roberts Elementary School, and N Oregon Street.	$64,000	The City should study what, if any, traffic calming measures would be most appropriate.	City of Ontario, ODOT SRTS Grants
B21	SW/SE 5th Ave	SW 12th St to SE 5th St	Stripe bike lanes, improve rail crossing for bicyclists	Completes the connection between Ontario on the west side of the railroad tracks with the E Idaho Avenue shared-use path, as well as creating a connection for people to the south of downtown Ontario.	$122,000	May need to work with Union Pacific Railroad on the improved rail crossing.	City of Ontario
B22	SW 4th Ave	SW 9th St to S Oregon St	Construct protected bike lanes - this will likely require removing one or more motor vehicle lanes	Creates improved biking conditions on the city's primary commercial corridor on the west side of downtown, improving access to jobs and shopping.	$312,000	May reallocating a travel lane along the entire segment..	City of Ontario, Private Development Funds
B23	Washington Ave	Highway 201 to NW 8th St	Construct buffered bike lanes	Creates a buffered bike lane connection on a section of roadway that will connect to a shared-use path coming from the Malheur County Fairgrounds.	$57,000	May need to narrow existing vehicle travel lanes to create buffer space.	City of Ontario, Private Development Funds
B24	Idaho Ave	SW 4th St to Oregon Street	Construct protected bike lanes – this will likely require removing one or more motor vehicle lanes	Adds bike infrastructure on a major commercial corridor immediately to the north of downtown Ontario.	$131,000	May require reallocating a travel lane along the entire segment.	City of Ontario, Private Development Funds
B25	Dorian Dr	NW 4th Ave to W Idaho Ave	Add shared lane markings and wayfinding signage	Extends a planned bike route (Project B7) to the north, connecting more residential areas with the city's commercial areas to the south.	$5,000	Timing for this related project may be impacted by Project B7 implementation, a high-priority project.	City of Ontario

ID	Roadway	Segment	Proposed Project	Benefits	Cost	Considerations	Potential Funding Sources
B26	SW 4th St	W Idaho Ave to SW 4th Ave	Stripe bike lanes	Provides direct access to many commercial and municipal destinations, including Ontario Middle School, the Ontario Community Library, and the state Employment Department.	$16,000	May require the removal of on-street parking.	City of Ontario, ODOT SRTS Grants
Low-Priority Segments							
B27	E Idaho Ave	N Oregon St to Western Terminus of Project S1	Construct shared-use path on south side of road	Creates a direct connection on the major east-west connecting street across the railroad tracks and across I-84 to connect downtown Ontario with the commercial district along E Idaho Avenue.	$270,000*	This project is contingent on being able to widen the pedestrian tunnel under the railroad tracks on the south side of E Idaho Ave. This would likely need to be completed in conjunction with a separate project to replace or modify the existing bridge.	ODOT, Private Development Funds, ODOT Community Pathways Grant
B28	SE 2nd St	SE 12th Ave to SE 18th Ave	Stripe bike lanes	Extends the existing bike lanes on SE 2nd Street from the north to SE 18th Avenue, the next major street to the south.	$18,000	Road widening will be necessary to install bike lanes.	City of Ontario
B29	East Ln	E Idaho Ave to south end of road	Stripe bike lanes	Provides a connection from the E Idaho Avenue shared-use path to shopping and grocery destinations.	$14,000	Timing for this related project may be impacted by Project S1 implementation, a high-priority project on E Idaho Avenue.	City of Ontario, Private Development Funds
B30	N Oregon St	NW 1st Ave to NW 8th Ave	Construct buffered bike lanes	Improves existing bike infrastructure on a higher-speed road.	$69,000	The two-way left-turn lane may need to be narrowed to create buffer space.	City of Ontario
B31	Malheur Drive/Park Blvd	Verde Dr to NW 4th Ave	Add shared lane markings and wayfinding signage	Provides a quieter connection for bicyclists between NW 4th Avenue and Verde Drive with access to homes and the Malheur County Fairgrounds.	$5,000		City of Ontario
B32	NW 8th Ave	NW 9th St to N Oregon St	Add shared lane markings and wayfinding signage	Connects N Oregon Street, Beck-Kiwanis Park, Malheur County Fairgrounds, and a future north-south shared-use path, along with homes in the northern part of the city.	$10,000		City of Ontario

ID	Roadway	Segment	Proposed Project	Benefits	Cost	Considerations	Potential Funding Sources
B33	SW/SE 18th Ave	SW 4th St to SE 2nd St	Construct buffered bike lanes	Installs bike infrastructure around industrial lands and adds another bike connection across the railroad tracks.	$52,000	May not be sufficient room on the railroad overpass to accommodate buffered bike lanes	City of Ontario
B34	SW 14th St	Alameda Dr to SW 4th St	Add shared lane markings and wayfinding signage	Creates an east-west connection from Alameda Elementary School to Treasure Valley Ball Park and the Treasure Valley Connector Trail, as well as begins a future trail that will eventually head east.	$6,000		City of Ontario, ODOT SRTS Grants
B35	Fortner St	N Oregon St to NW 4th Ave	Add shared lane markings and wayfinding signage	Creates a parallel route from N Oregon Street through residential land uses.	$7,000		City of Ontario
B36	Verde Dr	Highway 201 to NW 4th Ave	Construct buffered bike lanes	Extend proposed bike infrastructure (Project B2) to the north to reach additional homes, industrial lands, and Highway 201.	$60,000	Timing for this related project may be impacted by Project B2 implementation, a high-priority project.	City of Ontario
B37	SW 4th Ave	SW 33rd St to Highway 201	Construct protected bike lanes	Extend proposed bike infrastructure (Project B1) to the west to reach the airport and housing.	$189,000	Road widening will be necessary to install bike lanes (not included in cost estimate).	City of Ontario, Private Development Funds
B38	SE 5th Ave	SE 5th St to East Ln	Construct protected bike lanes	Create a parallel bike connection south of the E Idaho Avenue shared-use path and a second connection over I-84 for access to the commercial areas on the east side of the city.	$418,000	Road widening will be necessary to install bike lanes.	City of Ontario, Private Development Funds
B39	NW 4th Ave	Highway 201 to Tori Dr	Construct buffered bike lanes	Extend proposed bike infrastructure (Project B20) west to reach Highway 201.	$29,000	Road widening will be necessary to install bike lanes, which is not included in the project cost.	City of Ontario, Private Development Funds
B40	Washington Ave/Verde Dr	Washington Ave: Verde Dr to Highway 201 Verde Dr: Washington Ave to Highway 201	Construct buffered bike lanes	Provide a bike connection to a major industrial job center around Ontario.	$77,000	Road widening will be necessary to install bike lanes, which is not included in the project cost.	City of Ontario, Private Development Funds
B41	SW 18th Ave	Highway 201 to SW 4th St	Construct protected bike lanes	Connect rural farmlands to Ontario and to Highway 201 by bike in a future growth area.	$909,000	Road widening will be necessary to install bike lanes, which is not included in the project cost.	City of Ontario, Private

ID	Roadway	Segment	Proposed Project	Benefits	Cost	Considerations	Potential Funding Sources
							Development Funds
B42	N Oregon St	NW 8th St to NW 8th Ave	Construct protected bike lanes	Close a gap in bike infrastructure on a higher-speed street in Ontario.	$377,000	Road widening, or the elimination of the two-way left-turn lane, will be necessary to install bike lanes.	City of Ontario

***Cost estimate only includes the cost of constructing a 12-foot shared-use path. Cost estimate does not include costs associated with widening the pedestrian tunnel under the railroad tracks or rebuilding the railroad bridge. A detailed cost estimate should be acquired for the various options for constructing this project.**

Potential Funding Sources

There are several potential funding sources available to the City of Ontario for implementing the projects listed in Table 7, Table 8, and Table 9.

- **City of Ontario General Fund:** The city's General Fund dollars may be allocated to fund projects in this plan.
- **ODOT Safe Routes to School Grants** (Reference 8): ODOT's Safe Routes to School infrastructure program funds barriers to walking and biking within a one-mile radius of a school. Common projects include sidewalk infill, new sidewalks, and enhanced crossings, and the project must align with a Safe Routes to School plan, a Transportation System Plan, or any locally adopted plan. The local cash match is 40%, but can be reduced to 20% when certain conditions are met, including for schools that qualify as a Title I school. All public schools in Ontario except for Ontario High School currently qualify as a Title I school.
- **ODOT Community Paths Program** (Reference 9): This is a new grant program that dedicates funding to communities to create and maintain connections through shared-use paths. Funding is restricted to:
    - Development, construction, reconstruction, major resurfacing, or other capital improvements of multiuse paths, bicycle paths and footpaths
    - Planning, design and engineering expenses, including consultant services, associated with developing eligible infrastructure projects
- **ODOT funding:** On existing ODOT facilities (such as E Idaho Avenue or N Oregon Street), ODOT may be willing to fund multimodal transportation improvements.
- **Private Development Funds:** There are several locations around Ontario where private development may be able to fund nearby active transportation improvements. These are most likely to occur in existing commercial areas, such as the East Idaho Avenue corridor and SW 4th Avenue.

EAST IDAHO AVENUE REFINEMENT AREA PLAN

The East Idaho Avenue Refinement Area includes East Idaho Avenue from the I-84 westbound ramp terminal intersection to the Snake River, and the adjacent commercial areas. The East Idaho Avenue Refinement Area design concept leverages planned intersection improvements on East Idaho Avenue and available ODOT right-of-way south of the roadway, to implement upgrades outside the roadway that would benefit people walking and biking and enhance the identity of Ontario. The concept includes a shared-use path south of the highway corridor, gateway treatments, future connections to the planned trail along the Snake River, and an overlook of the river. This section discusses the design concept for the East Idaho Refinement Area.

Concept Development

The *Baseline Transportation Assessment Memorandum* (Appendix "C") established a baseline assessment of the East Idaho Avenue Refinement Area, including an analysis of existing traffic operations and crash history analyses along the East Idaho Avenue corridor. Based on the findings from this analysis and feedback from the PMT, TAC, and general public, the project team drafted a design concept for the East Idaho Avenue Refinement Area. This concept was revised based on feedback from the PMT, TAC, and general public through two separate outreach efforts, as described in the Public Involvement section.

The technical memorandums in Appendices "G" and "I" contain the previous two draft versions of the concept and further describe the development and revision process.

Design Concept

The following section presents the design concept for the East Idaho Avenue Refinement Area. Included in the section is a summary of components of the design concept, design concept figures, and cost estimates.

Design Concept Components

The design concept includes a shared-use path south of the road, gateway and overlook treatments, future connections to the planned trail along the Snake River, and an overlook of the river. Figure 18 shows the design concept of the East Idaho Avenue Refinement Area. Enlargements of the Goodfellow Lane and East Lane intersections and the Snake River overlook area are shown in Figure 19, Figure 20, and Figure 21, respectively.

SHARED-USE PATH

The primary upgrade is to remove the south side sidewalk and the eastbound bike lane from East Idaho Avenue and replace them with a shared-use path running through the publicly owned tracts on the south side of the road. Since the speed limit on East Idaho Avenue is 35 miles per hour, this off-street path will be more comfortable to a wider range of bicyclists than the existing on-street bike lane. It will also be more attractive to pedestrians since it is further from the busy road.

Example of a Shared-Use Path in Baker City

The shared-use path will create a key connection to a future riverfront trail along the Snake River, adding to the riverfront trail's planned connectivity to parks, natural areas, and other future trails around Ontario. The intersection with the future riverfront trail is identified as a roundabout with special paving to match the overlook. This roundabout will minimize traffic conflicts as well as create a focal point in the middle for enhanced planting and a gateway element.

To make the new multi-use path most effective, it should extend across both the I-84 overpass and the Highway 30 bridge across the Snake River. This will create a more comfortable and safe experience for bicyclists traveling through the corridor and set the stage for similar improvements in the future beyond this corridor. Currently both bridges have on-street eastbound bike lanes plus sidewalks separated from the road by concrete barriers. Based on the information available, it appears that by moving the barriers toward the centerline (leaving 2 feet shy distance to the vehicular lanes) there will be room for a 12 feet wide shared use path on the I-84 overpass, and an at least 10 feet wide shared use path on the Snake River bridge, both separated from traffic by the barriers.

LEGEND

TYPE 1 LANDSCAPE: ENHANCED IRRIGATED PLANTING

TYPE 2 LANDSCAPE: BASIC IRRIGATED - STREET TREES & PLANTS OR GRAVEL MULCH

TYPE 3 LANDSCAPE: NON-IRRIGATED FIELD GRASS

TYPE 4 LANDSCAPE: STORMWATER TREATMENT AREA PLANTING

PROPOSED STREET TREE

EXISTING STREET TREE

PRIMARY GATEWAY ELEMENT

SECONDARY GATEWAY ELEMENT

WAYFINDING ELEMENT

PROPOSED SHARED-USE PATH

FUTURE RIVERFRONT TRAIL

N

0 75 150 300

SCALE: 1" = 150'

Figure 18

OVERALL PLAN
EAST IDAHO AVENUE REFINEMENT AREA PLAN

Oregon Department of Transportation

ONTARIO

02.15.2021

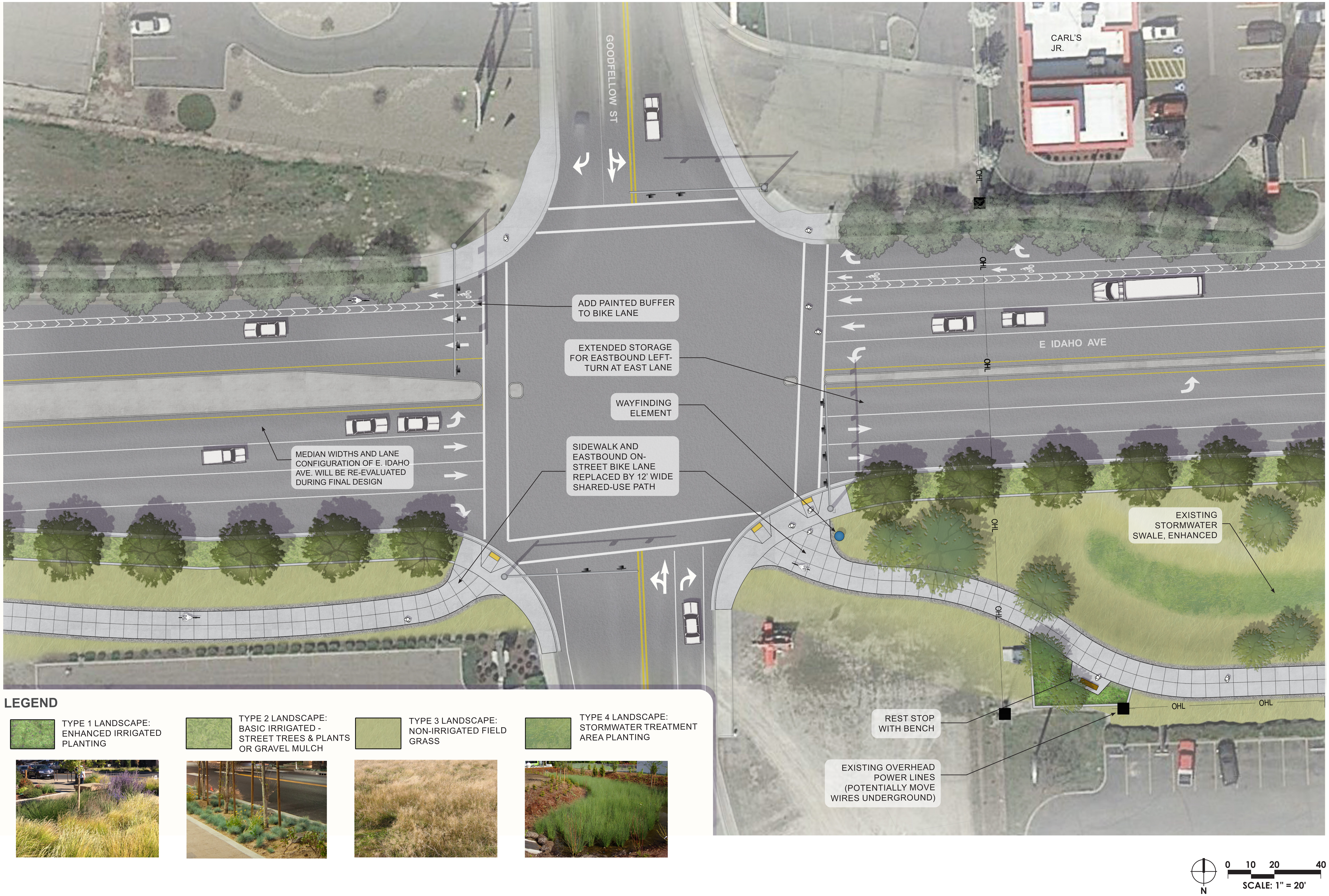


Figure 19

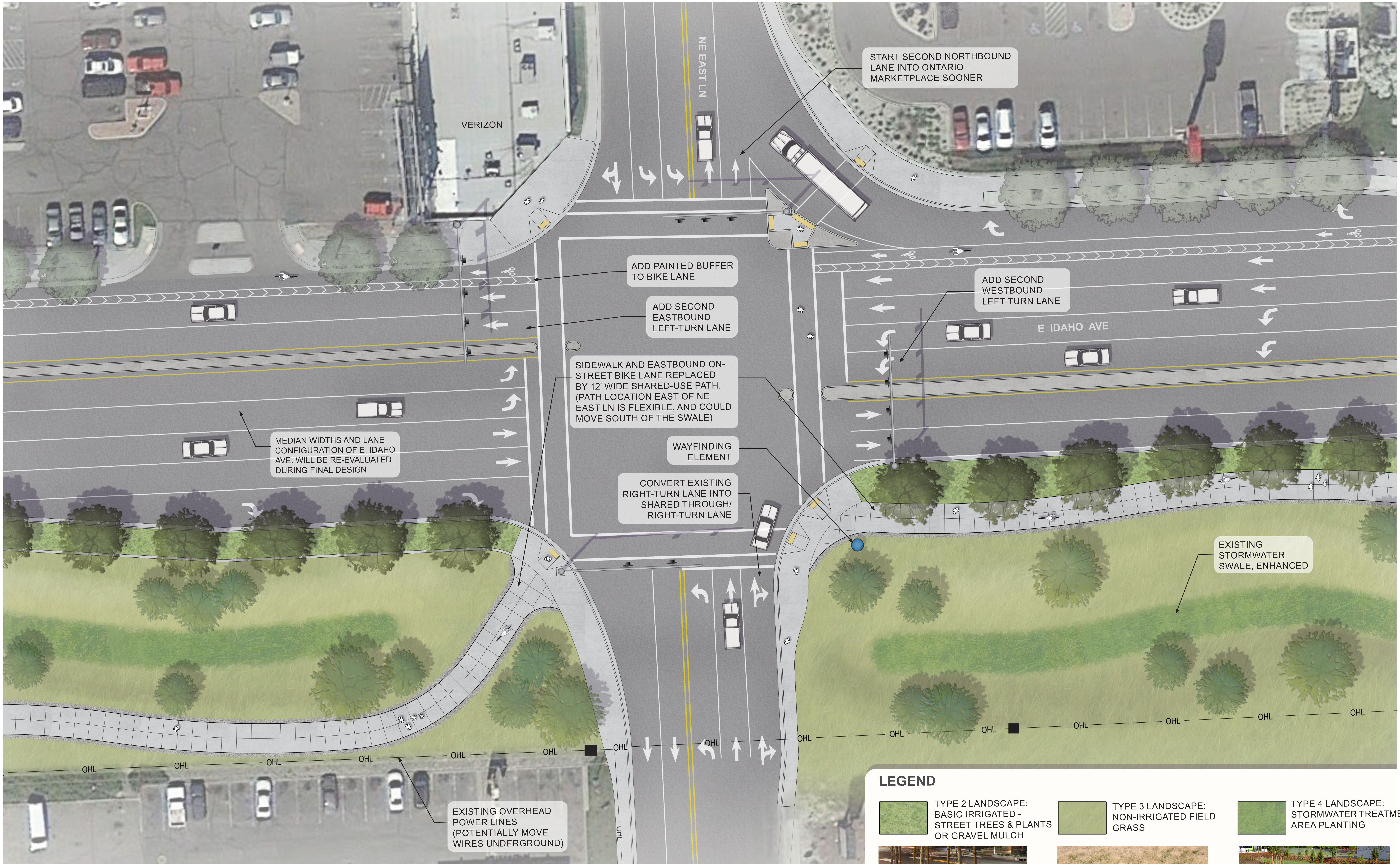
GOODFELLOW ST. INTERSECTION ENLARGEMENT PLAN

EAST IDAHO AVENUE REFINEMENT AREA PLAN

Oregon Department of Transportation

ONTARIO

02.15.2021



LEGEND

- TYPE 2 LANDSCAPE: BASIC IRRIGATED - STREET TREES & PLANTS OR GRAVEL MULCH
- TYPE 3 LANDSCAPE: NON-IRRIGATED FIELD GRASS
- TYPE 4 LANDSCAPE: STORMWATER TREATMENT AREA PLANTING

Figure 20

EAST LN. INTERSECTION ENLARGMENT PLAN
EAST IDAHO AVENUE REFINEMENT AREA PLAN

Oregon Department of Transportation

ONTARIO

02.15.2021

TRAIL JUNCTION AND OVERLOOK ENLARGEMENT

EAST IDAHO AVENUE REFINEMENT AREA PLAN

N 0 10 20 40 SCALE: 1" = 20'

Figure 21

Oregon Department of Transportation

ONTARIO

02.15.2021

The guardrail on the Snake River bridge appears to be the minimum 42 inches in height, but taller protection is recommended for cyclists. A "rub rail" should be added to the existing guardrail to raise the height to 54 inches. The guardrail/barrier on the I-84 bridge is much taller.

OVERLOOK

Two nodes are identified along the shared-use path where users can rest and take in the surroundings. The first is a simple rest stop with a bench, planting, trees for shade, and a view of the enhanced swale, located just east of Goodfellow Street The other is a scenic overlook plaza, located at the edge of the upper river terrace near the toe of the Snake River bridge. This overlook is positioned for a view over the Snake River and the lower river terrace, and to be visible from East Idaho Avenue. Some existing trees may need to be thinned to create the best views. The overlook may feature special paving, enhanced planting, benches, interpretive signage, and gateway elements. An enlargement of the overlook area is shown in Figure 21.

GATEWAY

East Idaho Avenue is the route many take to enter and leave Ontario and the state of Oregon, either by the US-30 bridge over the Snake River, or via the ramps connecting East Idaho Avenue to I-84. As such, the East Idaho Avenue Refinement Area is a highly visible opportunity to create a gateway that welcomes visitors (and returning residents) to the city and the state, as well as to create a strong visual identity for Ontario.

Gateways can take many forms, such as arches, columns, walls, banners, signage, special planting, sculpture, or combinations of these elements. A gateway may occupy a single spot or may consist of repeated elements along a route. Gateways are an opportunity to display public art, to highlight the unique local character, and to express civic pride.

Because of the major entry moments at either end of the East Idaho Avenue Refinement Area, a series of gateway features have been identified to span the whole corridor. Primary gateway features would be prominently displayed near the toe of the Snake River bridge, with several secondary gateway features along the south side of East Idaho Avenue. These secondary features would be smaller and simpler, but of the same theme and materials as the primary gateway features. Taken together, the series of gateway elements can create a visual identity that ties the East Idaho Avenue Refinement Area together and expresses Ontario's character on a large scale.

ODOT has restrictions regarding welcome signage and public art near highways, which may limit the possibilities for gateway elements. Any gateway concepts that are developed in the future will need to be coordinated with and reviewed by ODOT. In addition, the existing Oregon sign and artwork on the I-84 over pass should be evaluated as part of preparing the gateway and artwork plan for East Idaho Avenue.

WAYFINDING

The City of Ontario has engaged in conceptual designs for a system of wayfinding elements (see example on this page). These wayfinding element types are to be located at key points along the shared-use path, both to aid in navigation and to express the City's branded identity. The taller Pedestrian Directional Signs are to be placed at intersection decision points, and the smaller bollard versions are to be placed at intervals along the route. *The conceptual designs of the wayfinding elements are shown in Appendix "I".*

Example Wayfinding Sign

PLANTING

The planting is divided into four general landscape types, and the overall intention is to maximize the aesthetic impact of the planting while keeping irrigation and maintenance minimal. Only native and drought-adapted plant species will be used. Final planting design and materials will be determined in final design, in coordination with the City and ODOT. Examples of the landscape types are shown in Figure 22 and are further described in the following section.

Type 1 Landscape is enhanced irrigated shrub and tree planting, the densest and most ornamental planting type proposed. It also occupies the smallest proportion of the planted areas, limited to areas where it is most visible and where it supports other key features, such as the gateway elements and the overlook.

Type 2 Landscape includes more basic irrigated planting and trees, primarily located adjacent to the curb. The planting in some places may be replaced by ornamental rock mulch to reduce maintenance needs. Where the shared-use path is near the curb, the area between the two is all Type 2 Landscape. Where the path is further from the curb there is an even-width strip of Type 2 Landscape at the curb, similar to a typical sidewalk planting strip. Without the shared-use path to define the edge, a 12" wide concrete mow band provides a clear distinction between Type 2 and other landscape types which have different maintenance needs.

Type 3 Landscape is non-irrigated field grass with sparse trees. It occupies by far the largest proportion of the planted areas and requires the least maintenance. The grass is intended to be mowed only a few times a year, mainly to minimize fire risk but also to periodically keep weeds down. Since there is no irrigation, trees will need to be initially watered using "gator bags" or similar for establishment.

Type 4 Landscape is the treatment area planting in the flat bottom of the swales. This is the part that provides the water-quality benefits for the storm runoff, and will include drought-adapted sedges and rushes, plus grass species from the Type 3 field grass. Similar to Type 3, it will only require minimal maintenance, mainly mowing at a few strategic points during the year.

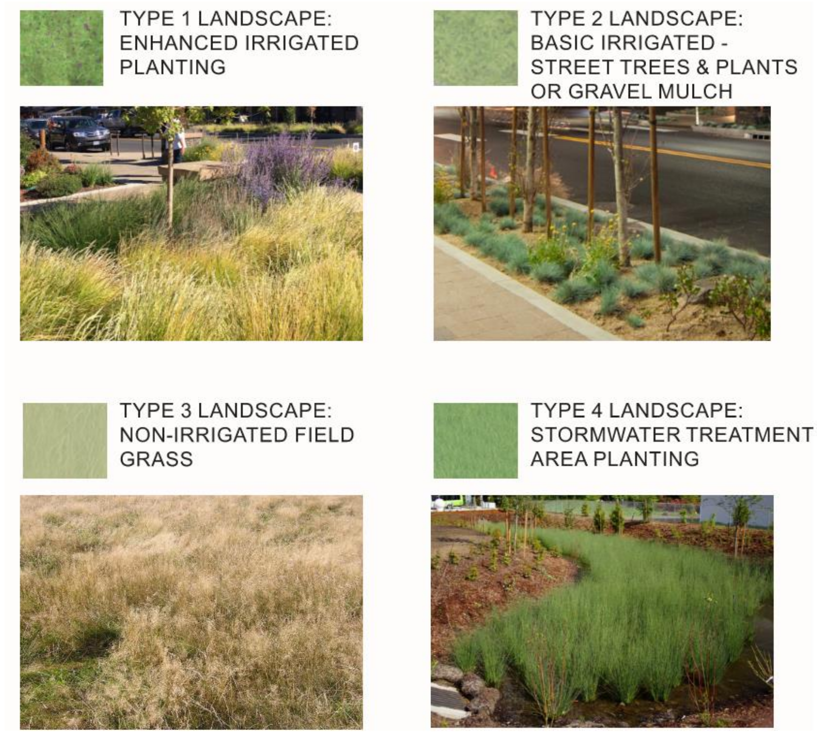


Figure 22 Landscape Types

Design Concept Cost Estimate

The total estimated project cost of the East Idaho Avenue Refinement Area Design Concept is approximately $3.8 million. The total estimated construction cost is approximately $2.5 million and the total estimated engineering and contingency costs are approximately $1.3 million. *A detailed breakdown of the cost estimate is shown in Appendix "I".*

REFERENCES

1. City of Ontario. *Transportation System Plan*. 2006.
2. State of Oregon. *Executive Order No. 20-12*. 2020.
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9. Oregon Department of Transportation. *Oregon Community Paths Guidelines*. 2020.

APPENDIX A:

Vision Statement & Guiding Principles

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MEMORANDUM

Date:	June 10, 2020	Project #: 23858
To:	Project Management Team	
From:	Mark Heisinger, EIT, Russ Doubleday, Nick Foster, AICP, RSP, and Matt Hughart, AICP	
Project:	City of Ontario, Active Transportation Update and East Idaho Avenue Refinement Area Plan	
Subject:	Vision Statement and Guiding Principles	

The memorandum presents the vision statements, goals, objectives, and evaluation criteria that will be used to guide the development of the City of Ontario Active Transportation Update and East Idaho Avenue Refinement Area Plan, herein referred to as the "plan."

The goals, objectives, and evaluation criteria will be used to guide the review and documentation of existing and future pedestrian and bicycle needs, the development and evaluation of potential solutions to address the needs, and the selection and prioritization of preferred solutions for inclusion in the final plan.

In order to ensure a consistent understanding of the items included in this memorandum, the following definitions have been provided:

- **Goal** – Provides direction for where the community's vision is leading the plan.
- **Objectives** – Provides a more detailed breakdown of the goal with specific language on how the goal can be achieved.
- **Evaluation Criteria** – Provides a quantitative or qualitative tool to help prioritize projects. They can help quantify the extent to which a project is in line with the community's vision.

The evaluation criteria will be used throughout the plan for two key purposes:

1. Evaluate the existing transportation system and identify areas for improvement; and,
2. Compare and select preferred elements to be included in the plan.

BACKGROUND INFORMATION

The goals and objectives identified in the *City of Ontario 2006 Transportation System Plan (2006 TSP)* were used as a starting point for the development for the vision statement and initial set of goals, objectives, and evaluation criteria. The *2006 TSP* identifies a broad set of community goals and policy objectives that provide the context to make transportation investment decisions in the City of

Ontario. The goals identified in the *2006 TSP* are listed below. Policies that would affect the development of this active transportation plan or refinement plan are also noted.

- **Goal 1 – Mobility**: Provide a multi-modal system the maximizes the mobility of Ontario residents and businesses.
    - *Policy 1.1*: Establish a transportation system that can accommodate a wide variety of travel modes and minimizes reliance on any single mode of travel.
- **Goal 2 – Efficiency**: Create and maintain a multi-modal transportation system with the greatest efficiency of movement possible for Ontario residents and businesses in terms of travel time, travel distance, and efficient management of the transportation system.
- **Goal 3 – Safety**: Maintain and improve transportation system safety.
    - *Policy 3.2:* Ensure that the multi-modal transportation system within Ontario is structurally and operationally safe.
    - *Policy 3.3*: Periodically review crash records in an effort to systematically identify and remedy unsafe intersection and roadway locations.
- **Goal 4 – Equity**: Ensure the cost of transportation infrastructure and services are borne by those who benefit from them.
- **Goal 5 – Environmental**: Limit and mitigate adverse environmental impacts associated with traffic and transportation system development.
- **Goal 6 – Alternative Modes of Transportation**: Increase the use of alternative modes of transportation (walking, bicycling, rideshare/carpooling, and transit) through improved access, safety, and service. Increasing the use of alternative transportation modes includes maximizing the level of access to all social, work, and welfare resources for the transportation disadvantaged. The City of Ontario seeks for its transportation disadvantaged citizens the creation of a customer-oriented regionally coordinated public transit system that is efficient, effective, and founded on present and future needs.
    - Policy 6.1. Develop a citywide pedestrian and bicycle plan providing for sidewalks, bikeways, and safe crossings.
    - Policy 6.2. Promote alternative modes and rideshare/carpool programs through community awareness and education.
    - Policy 6.3. Coordinate with regional transit service efforts.
    - Policy 6.4. Seek Transportation and Growth Management (TGM) and other funding for projects evaluating and improving the environment for alternative modes of transportation.
    - Policy 6.5. Seek improvements of mass transit services to the City of Ontario.
    - Policy 6.6. Transportation Disadvantaged
        - a. Continue to support programs for the transportation disadvantaged where such programs are needed and are economically feasible.
        - b. Increase all citizens' transportation choices.
        - c. Identify and retain community identity and autonomy.

    - d. Create a customer-oriented focus in the provision of transportation services.
    - e. Hold any regional system accountable for levels and quality of service.
    - f. Enhance public transportation sustainability.
    - g. Promote regional planning of transportation services.
    - h. Use innovative technology to maximize efficiency of operation, planning, and administration of public transportation.
- **Goal 7 – Maintain Multi-Jurisdiction Coordination:** Maintain coordination between the City of Ontario, Malheur County, and the Oregon Department of Transportation (ODOT).
- **Goal 8 – Roadway Functional Classification:** Plan and maintain transportation system based on roadway functional classification.
- **Goal 9 –Truck Route:** Identify and designate a truck route system utilizing arterial and major collector roads to minimize impacts to residential areas.
- **Goal 10 – Transportation Financing:** Seek adequate financial revenues to fund the City's Capital Improvement Program and maintenance needs.
- **Goal 11 – Refinement Plans**: Develop refinement plans to the Transportation System Plan that more specifically address corridors, problems/issues, and sub-areas. These refinement plans shall supersede the TSP if they are formally adopted by the Ontario City Council.

Goals 1 (Mobility), 3 (Safety) and 6 (Alternative Modes of Transportation) are foundational to the goals of this plan. Goals 5 (Environmental) and 11 (Refinement Plans) will also be important to the development of the East Idaho Avenue Refinement Plan. The other goals in the *2006 TSP* also influence this project's goals and objectives.

PROPOSED VISION, GOALS, AND OBJECTIVES

The vision for the City of Ontario's Active Transportation Plan is to:

> *Develop a comprehensive active transportation network providing safe and comfortable mobility options for all of Ontario's residents, employees, and visitors, thereby enhancing the City's economic vibrancy and promoting a healthy lifestyle for the Ontario community.*

The vision for the East Idaho Avenue refinement area is to:

> *Create multimodal connections between downtown and the East Idaho Avenue commercial area and enhance the streetscape of the East Idaho Avenue corridor, thereby better connecting Ontario residents and visitors to employment opportunities and enhancing the economic vibrancy of the East Idaho Avenue corridor.*

Supporting these vision statements, the project team proposes the following goals and objectives. The goals and objectives are generally applicable to both sub-plans, unless otherwise noted.

Goal 1 – Mobility

Provide a balanced, safe, and efficient multimodal transportation system for all members of the community

- Develop an integrated approach for providing travel choices in and around City to support a healthy lifestyle and more vibrant community.
- Support mobility choices for all, especially the underserved and those with limited options.
- Extend trail networks, convenient pathways, greenway access points, and open space connections.
- Interconnect high quality safe routes to school, transit infrastructure and access to downtown.

Goal 2 – Safety

Improve the multimodal transportation system to enhance safety for all users, skill levels, and ages

- Improve safety, user-friendliness and comfort of active transportation modes for all ages.
- Add safe and more inviting walking and bicycling facilities between the east and west sides of the Interstate.

Goal 3 – Environment *(East Idaho Avenue Only)*

Mitigate the impacts of the East Idaho Avenue corridor on the environment

- Design an improved streetscape for East Idaho Avenue to create a cohesive look, better multimodal links and integrate sustainable stormwater management practices.

PROPOSED EVALUATION CRITERIA

The evaluation criteria are based on the goals and objectives, as well as the overall feasibility of implementing the project. A qualitative process using the evaluation criteria will be used to assess alternatives and prioritize projects developed by the plan. The rating method used to evaluate the alternatives is described below.

- Most Desirable: The concept addresses the criterion and/or makes substantial improvements in the criteria category. (+1)
- No Effect: The criterion does not apply to the concept or the concept has no influence on the criteria. (0)
- Least Desirable: The concept does not support the intent of and/or negatively impacts the criteria category. (-1)

At this level of screening, the criteria will not be weighted; the ratings will be used to inform discussions about the benefits and tradeoffs of each alternative. A higher or lower score does not necessarily stipulate the importance or prioritization of a project, the preliminary scoring will serve simply to identify and compare high-level benefits. Table 1 presents the evaluation criteria that will be used to qualitatively evaluate the solutions developed by the plan.

Table 1: Evaluation Criteria

Objective	Evaluation Criteria	Evaluation Score
	Goals Based Criteria	
Goal 1: Mobility		
Provide a balanced, safe, and efficient multimodal transportation system for all members of the community	Project enhances access to walking, biking, and/or transit opportunities for people of a wide range of ages and abilities	+1
	Project enhances access to walking, biking, and/or transit opportunities for some people, but not a majority of ages and abilities	0
	Project makes it more difficult for people of a wide range of ages and abilities to walk, bike, and/or take transit *(only applicable to East Idaho Avenue)*	-1
Additional East Idaho Avenue Criteria	All study intersections meet identified mobility targets	+1
	Most (more than half) study intersections meet identified mobility targets	0
	Less than half of study intersections meet identified mobility targets	-1
Goal 2: Safety		
Improve the multimodal transportation system to enhance safety for all users, skill levels, and ages	Project would address safety issues at identified conflict areas (e.g., higher speed/volume roads and intersections) or at SPIS locations on East Idaho Avenue	+1
	Project would not impact the safety of people walking biking or driving	0
	Project could decrease safety and increase potential risk to people walking, biking, or driving *(only applicable to East Idaho Avenue)*	-1
Goal 3: Environment		
Mitigate the impacts of the East Idaho Avenue corridor on the environment.	Project reduces environmental impacts of transportation on the East Idaho Avenue corridor	+1
	Project has no effect on environmental impacts of transportation on the East Idaho Avenue corridor	0
	Project increases environmental impacts of transportation on the East Idaho Avenue corridor	-1
	Implementation Criteria	
Cost & Feasibility		
Develop realistic projects that are fiscally capable of implementation through available funding mechanisms	Project is cost-feasible and has an identified potential funding mechanism	+1
	Project has an identified potential funding mechanism, but cost may be a challenge; or project is cost-feasible, but there is not an available funding mechanism at this time	0
	Project is cost-prohibitive	-1
	Project does not have any significant physical or legal barriers	+1
	Project has moderate physical or legal barriers (e.g., may require some right-of-way)	0
	Project may not be implementable due to physical or legal barriers	-1

The project team will screen projects using these criteria. This preliminary evaluation will be presented to the Project Management Team (PMT) and Technical Advisory Committee (TAC) for review. During this review, the TAC will have the opportunity to provide their input on project priorities and the PMT will confirm the final project priorities. The TAC and PMT may also recommend changes to the criteria during this process to better reflect the community's priorities.

APPENDIX B:

Public Engagement Summary

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East Idaho Avenue Refinement Area Plan

Stakeholder Meeting #1

May 27, 2020 – 1:30 PM – 2:30 PM

Microsoft Teams/Telephone Meeting

In Attendance: Brittany White, MCOACS
Cecilia Awusie, Idaho Transportation Department
Cheryl Jarvis-Smith, ODOT
Jeff Wise, ODOT
John Eden, ODOT
Mark Zimel, Property Owner/Manager (East Idaho Marketplace)
Kishi Stice, The Happy Hippy
Al Haun, City of Ontario/Jacobs
Casey Mordhorst, City of Ontario/Jacobs
Steve Solecki, City of Ontario/Jacobs
Kevin Mullen, City of Ontario/Jacobs
Betsy Roberts, City of Ontario/Jacobs
Rick Watkins, Fruitland
Ryan Bailey, Malheur County Economic Development
Terry Leighton, Ontario Fire
Nick Foster, Kittelson & Associates, Inc.
Mark Heisinger, Kittelson & Associates, Inc.
Matt Hughart, Kittelson & Associates, Inc
Matt Hastie, Angelo Planning Group
Mike Faha, Greenworks
Andrew Holder, Greenworks

Action items are highlighted in **bold text**.

INTRODUCTIONS

- Introductions and overview of agenda

PROJECT BACKGROUND

- This project is focused on E Idaho Ave
  - How the street functions for all who use it
  - The streetscape (look, feel, stormwater management, land-use management)
  - Potential circulation improvements via 5th Ave.
- City:
  - We also updated the traffic counts to reflect recent development in the area
  - We will be taking a close look at active transportation in the area, including bike/ped connectivity as it fits in with the new Parks Master Plan and other upcoming bike/ped projects in the region

  - Is there any way we can improve access or connectivity to businesses in the area?

PROJECT SCHEDULE

- We have been focused on collecting and reviewing existing conditions data in the region.
- Next steps include taking input from this meeting and other public outreach to develop draft concepts for the area.
- Questions?
  - The project is being funded primarily through ODOT's Transportation and Growth Management program with a match from the City
  - East Idaho Avenue is under ODOT's jurisdiction, no plans to give ownership to City. City and ODOT have a good partnership on this street.
  - Current traffic volumes on East Idaho Avenue are about 22,300 vehicles per day.

OPPORTUNITIES AND CONSTRAINTS DISCUSSION

- Zoning
  - Existing zoning in the area is predominately general or heavy commercial use. This allows for a wide range of commercial uses. Restaurants, bars, truck facilities, shopping centers, auto repair, etc.
- Opportunities
  - Enhanced bicycle and pedestrian facilities
  - Land use and site design
    - Enhanced connections between businesses
    - More efficient parking
    - Potential for housing in the heavy commercial area? Question for the public
  - Urban design
    - Consider gateway feature, public art, wayfinding, street trees, pedestrian amenities, and other features that may create a unique character for area
    - Consider maintenance level, cost, and constructability of different treatments
    - This will depend heavily on input from property owners and other stakeholders
  - Stormwater
    - Consider centralized vs. dispersed facilities
- Discussion
  - Jeff Wise: When the State built highway between I-84 and Walmart, a double-left turn lane was planned. The left-turn pocket can overflow during peak seasonal times. The current plan is to assess solutions.
  - Mark Zimel: Also understood the double-left would be implemented. People currently go through Denny's parking lot to access Ontario Marketplace, this is not a written deal and there is no promise that this will continue in the future. Closure of this link may affect circulation in the area. It's important to have multiple access points to a property.
  - Mark Zimel: From standpoint of leasing, this is the gateway to Treasure Valley and this area gets a lot of traffic from all over the Treasure Valley. This could be the focus of the area.
  - Terry Leighton: This is one of the busiest streets in the area. It would be nice to get some increased traffic control and emergency vehicle pre-emption at the signals in this area.
    - This is likely something that could be accomplished outside of this project

        - The signals here are owned by ODOT, would require coordination with them
    - Casey: We do not have great connectors between E Idaho Avenue and 5th Ave – It would be great if Goodfellow extended all the way south to 5th Ave
        - This would also help emergency response in the area
    - Observations on crashes on East Idaho Avenue?
        - ODOT is looking at signal timing changes and other improvements (like reflective heads), which may help address the crash history
        - Foggy weather makes actuation/detection difficult
        - Buses can have a tough time pulling out onto 5th Avenue – there are fast vehicle speeds on that road
        - Public transit currently has two stops in area – would like to see more stops in area that are accessible from E Idaho Avenue and East Lane. It can be difficult to navigate to stop at Walmart. MCOACS has funding to install more stops and add enhancements to stops.
            - Mark Zimel: They are open to conversations about stops at Ontario Marketplace.
            - Kishi Stice: Also would support a stop at the East Lane Plaza.
    - Bus drivers have noted it can be difficult to make a left-turn onto 5th Avenue at times. They also believe people are driving faster than the posted speed limit on that road.

NEXT STEPS

- Online community workshop will open later this week (open through June 12)
- Next public meeting – week of July 20
    - Draft concepts
    - Health impact analysis

KITTELSON & ASSOCIATES

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MEMORANDUM

Date:	September 11, 2020	Project #: 23858
To:	Project Management Team	
From:	Russ Doubleday, Mark Heisinger, EIT, and Nick Foster, AICP, RSP	
Project:	City of Ontario, Active Transportation Update and East Idaho Avenue Refinement Area Plan	
Subject:	Task 4 Outreach Summary	

The project team and City of Ontario recently completed outreach efforts related to the Draft Design Concept for the East Idaho Avenue Refinement Area, safe routes to school (SRTS) improvements, roadway cross-section updates, and the healthy community impact analysis. These efforts included:

- A booth at the Ontario Saturday Market on August 8, 2020.
- An online workshop held from August 7, 2020 to August 28, 2020.
- Opportunities to provide comments via the project website.

This memorandum summarizes the feedback received from the Saturday Market outreach, online workshop, and any email comments received as of September 10, 2020.

SATURDAY MARKET OUTREACH

Members of the project team had a booth at the Ontario Saturday Market (held at Moore Park) on August 8, 2020 from 10 a.m. to 2 p.m. This provided the opportunity to present the Draft Design Concept and proposed SRTS improvements to the Saturday Market attendees, answer questions related to the project, and solicit feedback on the Task 4 materials. The project team spoke with approximately 44 attendees. Verbal feedback was written down by the project team and the attendees were encouraged to provide additional feedback via the online workshop

Saturday Market Booth

Specific comments and feedback received at the Saturday Market are as follows:

- **East Idaho Avenue Comments**
  - Consider business sponsors or partnerships for trail networks
  - Would like East Idaho Avenue path and river trail to be ADA accessible
  - The East Idaho Avenue improvements are good, but lack connectivity to the rest of town
  - There was concern about congestion and safety near the Dutch Bros access
- **SRTS Comments**
  - Areas west/northwest of Aiken Elementary needs sidewalk and crosswalk improvements.
    - There are gaps in the sidewalk (especially on Verde Drive) and limited crosswalks.
  - Enhanced crossings on 4th Ave are needed
    - Grade-separated crossing in front of hospital would be ideal
    - Cars run the light at 9th St/4th Ave.
  - Alameda Elementary has sidewalk gaps around the immediate vicinity of the school
- **General Comments**
  - Oregon St/Idaho Ave is uncomfortable from a driver perspective especially for WB traffic. Consider removing lanes where not necessary (it's not always clear when a lane is going to be a left-only, shared through/left, etc.).
  - Make sure that beautification focuses on cost-effective treatments. More trees are needed in Ontario.
  - The newspaper is a good way to share information about the project
  - Would like improved ADA accessibility at the rest of the parks, especially river access points.
    - It would be nice to have a list or website that specifies which parks and Fish and Game facilities are ADA accessible.
  - TVCC pathway is a great improvement that has a lot of bike/ped activity (x2)
  - It is good that the City is making a public outreach effort (x2)
  - A river trail like the Greenbelt would be great
  - Have we considered ways to police the river trail? There are issues with homeless camps in the area (x2)
  - Would like to see more green and pleasant places to walk in Ontario – especially 4th Ave
  - Removing goatheads should be a priority on bike facilities

Generally, attendees were supportive of the East Idaho Avenue Draft Design Concept and were glad to see proposed improvements to walking and biking in the area, especially if the proposed pathway connected to a river trail. There were concerns raised about policing on the shared use paths (mainly the river trail) as there have been camps along the river.

Attendees identified 4th Avenue (near 9th Street), Verde Drive, and the streets adjacent to Alameda elementary as locations to prioritize for SRTS improvements.

Other general themes in the attendees' comments included the need to create more walking and biking facilities in areas with trees/greenery and praise for the TVCC pathway. Attendees were also glad to see that the City was making a public outreach effort.

ONLINE WORKSHOPS

An online workshop was held from August 7, 2020 to August 28, 2020. The online workshop presented the East Idaho Avenue Draft Design Concept, SRTS findings, proposed updated street standards, and the healthy communities impact assessment. The online workshop also provided an opportunity for attendees to provide feedback on the materials.

One comment was received through the online workshop. The comment expressed support for the Draft Design Concept and wanted to see separate through and left-turn lanes on Goodfellow Lane since that person believes this would reduce the potential for crashes.

KITTELSON & ASSOCIATES

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MEMORANDUM

Date:	January 18, 2021	Project #: 23858
To:	Project Management Team	
From:	Russ Doubleday, Mark Heisinger, EIT, and Nick Foster, AICP, RSP	
Project:	City of Ontario, Active Transportation Update and East Idaho Avenue Refinement Area Plan	
Subject:	Task 5 Outreach Summary	

The project team and City of Ontario completed outreach efforts related to the Revised Draft Design Concept for the East Idaho Avenue Refinement Area and the draft Active Transportation Plan. These efforts included:

- A booth at the Ontario Saturday Market on September 26, 2020.
- An online workshop held from September 25, 2020 to November 24, 2020.
- Opportunities to provide comments via the project website.
- Workshops with students at the Four Rivers Community School.

This memorandum summarizes the feedback received from the Saturday Market outreach and online workshop. The youth workshops are summarized in a separate memo.

SATURDAY MARKET OUTREACH

Members of the project team had a booth at the Ontario Saturday Market (held at Moore Park) on September 26, 2020 from 10 a.m. to 2 p.m. This provided the opportunity to present the Revised Draft Design Concept and proposed walking and biking projects in the Active Transportation Plan to the Saturday Market attendees, answer questions related to the project, and solicit feedback on the Task 5 materials. The project team spoke with approximately 40 attendees. Verbal feedback was written down by the project team and the

Saturday Market Booth

attendees were encouraged to provide additional feedback via the online workshop

Generally, attendees were supportive of the East Idaho Avenue Draft Design Concept and were glad to see proposed improvements to walking and biking in the area, especially if the proposed pathway connected to a river trail. There were concerns raised about policing on the shared use paths (mainly the river trail) as there have been camps along the river. Individuals also liked the capacity improvements (dual left-turn lanes) proposed for the East Lane intersection.

Attendees were generally supportive of the draft walking and biking projects proposed for the Active Transportation Plan. One individual specifically expressed support for traffic calming near Alameda Elementary School.

ONLINE WORKSHOP

An online workshop was held starting September 25, 2020 and left open through the youth workshops in November 2020. The online workshop presented the revised East Idaho Avenue Draft Design Concept and the draft Active Transportation Plan Update. The online workshop also provided an opportunity for attendees to provide feedback on the materials.

Sixteen people responded to the East Idaho Avenue survey. Of those respondents, 88% (14) supported the revised design concept. The remaining 12% (2) were "unsure." The open ended comments were generally supportive of the concept and did not request any major changes.

Three comments were received on the Active Transportation Plan update comment map. These comments included:

- Support for additional sidewalks around Ontario Middle School and Beck Kiwanis Park
- Support for the biking projects in general

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MEMORANDUM

Date: December 2, 2020 Project #: 23858

To: Project Management Team

From: Mark Heisinger, EIT, and Nick Foster, AICP, RSP

Project: City of Ontario, Active Transportation Update and East Idaho Avenue Refinement Area Plan

Subject: Youth Workshop Summary

The project team and City of Ontario recently completed a series of virtual youth workshops with students from the Four Rivers Community School. The purpose of the workshops was to solicit feedback from the students on walking and biking in Ontario and to teach the students about the project and the role the City plays in maintaining transportation facilities. This memorandum summarizes the feedback received from the students.

The virtual youth workshops were held on the following dates:

- High School Student Workshop (9th – 112th graders) November 18, 2020, 8:00 a.m. to 8:30 a.m.
- Elementary Student Workshop (4th and 5th graders) November 24th, 2020, 10:00 a.m. to 10:30 a.m.

HIGH SCHOOL STUDENT WORKSHOP

The high school workshop was attended by approximately 90 high-school students in grades 9, 10, 11 and 12. The project team asked the students about their general experiences walking and biking in Ontario, and if there were any specific locations where they thought walking and biking was challenging. Feedback received from the students in the workshop include:

- 4th Ave / Hillcrest. Has a marked crossing across 4th Ave. Several students use this crossing, but consider it to be dangerous and vehicles don't always yield for the students. Several teachers also commented on this crossing and suggested removing it and allowing students to cross at 4th / Sunset.
- SE 5th Ave from S. Oregon Street to City Hall (SW 4th Street) needs sidewalks on south side of street.
- SE 5th Street is not well lit.
- Fairgrounds to Highschool (along NW 9th Street) needs improved sidewalks and crossings.
- Eastside Park – No sidewalk around park and from the residential neighborhoods.

- The area near NW 3rd and NW 1st have no stop signs and high vehicle speeds.
- The students generally prefer to bike on sidewalks rather than on bike lanes or in roadways.

Students were also sent the link to the online comment map, where they left the following comments:

- 9th Street (s of Kiwanis Park) needs better lighting and sidewalks
- The area around 5th Street/Idaho Ave needs more sidewalks. Lots of kids in this area.

ELEMENTARY SCHOOL STUDENT WORKSHOP

The elementary workshop was attended by approximately 40 elementary school students in grades 4 and 5. The project team asked the students about their general experiences walking and biking in Ontario, and if there were any specific locations where walking and biking was challenging.

When asked where the students liked to walk, locations included:

- Walking the dog around residential neighborhoods.
- Parks
- The store
- Aiken Elementary
- Four Rivers School
- Skate park
- A friend’s house

When asked where the students liked to bike, locations included:

- Park by the Hospital (Lions Park)
- Library
- School

Most students indicated that they don’t bike to school (3-5 students regularly biked to school). The majority of students also indicated that they didn’t bike on the road because they felt it was too dangerous and preferred biking on sidewalks.

Other general feedback received from the students in the workshop include:

- More sidewalks and crossing improvements are needed on Alameda Drive, especially near 18th Street
- Crossing the streets adjacent to Aiken Elementary is difficult.
- There are not many places where students feel safe biking on the road.
- There are too many weeds on the roadway shoulders and sidewalks.
- Alameda Drive needs sidewalks, especially the southern portion.
- They would like a crosswalk near the Grocery Outlet.

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Ontario Active Transportation Update and East Idaho Avenue Refinement Area Plan

TAC Meeting #1

May 27, 2020 – 10:30 AM – 12:00 PM

Microsoft Teams/Telephone Meeting

In Attendance: Brittany White, MCOACS
Betsy Roberts, Jacobs/City of Ontario
Steve Solecki, Jacobs/City of Ontario
Blaise Exon, Jacobs/City of Ontario
Dan Cummings, City of Ontario
Jeff Wise, ODOT
John Eden, ODOT
Cheryl Jarvis-Smith, ODOT
Ralph Poole, Property Owner/Ontario Planning Commission
Nick Foster, Kittelson & Associates, Inc.
Mark Heisinger, Kittelson & Associates, Inc.
Russ Doubleday, Kittelson & Associates, Inc.
Matt Hughart, Kittelson & Associates, Inc
Andrew Holder, Greenworks
Mike Faha, Greenworks
Andy Lindsey, Anderson Perry
Dana Kurtz, Anderson-Perry
Matt Hastie, Angelo Planning Group

Action items are highlighted in **bold text**.

INTRODUCTIONS

- Reasons why TAC is excited for project:
  - Identify implementable solutions
  - Active transportation improvements
  - Aesthetic improvements on E Idaho Avenue
  - Make conditions safe and efficient for all users

PROJECT BACKGROUND

- Project Background
  - This is two projects in one:
    - Active transportation plan for entire city: Focus on walking, biking, and access to public transportation
    - East Idaho Avenue Refinement Area: Improving function for all users, enhancing streetscape

- City was initially looking at tree improvements on East Idaho Avenue and was reminded of previous study on East Idaho Ave. The previous study, along with new growth and development in the area triggered this study.
  - Is land use in the area properly identified based on recent and anticipated development?
- Committee Roles and Responsibilities
  - Attend four meetings
  - Review documents and provide input
  - Represent your organization/agency
- Project Schedule
  - Consultant team has finished draft analysis of background and existing conditions
  - Next step is working with public and stakeholders to learn more about the study area
  - Will the schedule be posted online?
    - **Kittelson to work with Steve to post on the website**
- Public Involvement Process
  - Three open houses/workshops with the community. First one will be virtual. Online components will be in subsequent efforts, too, but hope to add in-person elements, too.

TECH MEMO #5 – GOALS AND OBJECTIVES

- Tech Memo #5 presents draft vision statement, goals, and objectives for project. Based on previous material from ODOT and the City.
- No comments during the meeting on the draft vision statements or Goals #1-2. TAC members are encouraged to review the memo and provide comments.
  - Goal #3: Environment
    - John Eden: ODOT is open to changes to stormwater management at East Idaho Avenue. It currently has a rural-look and needs to be updated/developed.
    - Mike Faha: We will look at alternatives to stormwater management that are aesthetically pleasing and fit with transportation facilities.
    - Brittany White: Would like to find an easier way for people walking and biking to access office from East Idaho Avenue, would like to see connection between SE 1st Avenue and East Idaho Avenue
    - John Eden: Will this project look at ways to increase access to East Idaho Avenue via 5th Avenue?
      - Yes – we have looked at traffic operations and crash history on 5th Avenue
    - Betsy Roberts: City is trying to find funding for sidewalks along 5th Avenue
    - Jeff Wise: We should identify any vulnerable users and their needs along East Idaho Avenue.

EXISTING CONDITIONS REVIEW

- TM #2 – Baseline Transportation Assessment
  - Inventory and assessment of active transportation network
    - Bicycle facilities and bicycle level of traffic stress
      - We will be looking to create routes that are level 1 or 2

      - Major barriers now are crossing Fourth Avenue, E Idaho Ave, Oregon St, and other high speed, high volume roads
    - Walking facilities and walking level of traffic stress
      - Fairly comprehensive sidewalk coverage, but several small and large gaps
      - Barriers include roads like Fourth Ave, E Idaho Ave, I-84, and railroads
      - Ralph Poole: Locations with open ditches around the city are a challenge. They present significant barriers, especially for vulnerable users. We should look for cost-effective solutions to improve these locations. Some of these might require coordination with the County or Irrigation District.
    - City-wide bicycle and pedestrian crashes
      - Mostly on high volume, high speed roadways
    - Existing public transportation system
      - There is a commuter route that runs from Ontario, Vale and Nyssa twice a day that is not shown. **Kittelson to coordinate with MCOACS to obtain information on this route**.
  - Existing transportation operations and crash history on East Idaho Avenue
    - Traffic operations
      - Not much congestion at ramp intersections or Fifth Ave. East Idaho Avenue intersections are near mobility targets.
    - Crash History
      - Relatively high number of crashes at East Lane and Goodfellow Street. We will look into this further later in the project.
        - Cheryl: This can provide a barrier for people crossing at these intersections.
- TM #3 – East Idaho Avenue Refinement Area Land Use Assessment
  - Existing zoning in the area is predominately general or heavy commercial use. This allows for a wide range of commercial uses. Restaurants, bars, truck facilities, shopping centers, auto repair, etc.
    - There are limited site development standards
    - All commercial uses in city have architectural design standards
  - Existing development
    - Mix of newer chain businesses and some older establishments
    - Oriented towards people visiting by car
  - Future development potential
    - 25% of area vacant or redevelopable, primarily on northern or southern ends of area
  - Opportunities
    - Enhanced bicycle and pedestrian facilities
    - Land use and site design
      - Enhanced connections between businesses
      - More efficient parking
      - Potential for housing in the heavy commercial area? Question for the public

        - There is potential for future pathway along Snake River from East Idaho Avenue to Ontario State Recreation site (see 2018 Parks and Rec Master Plan for more detail), we can look at possibility of creating a connection to that path via East Idaho Avenue
        - The City is also looking at creating park on south side of town (old gravel pit)
        - What type of landscape zones do we want in this area? Low vs. high maintenance zones? Gateway locations? Street trees?
            - Will look at elements of distinction vs. continuity on the corridor
            - Will coordinate with City maintenance crews
        - Current landscaping standard of 6% coverage is pretty low, but City gets pushback on this requirement as it is.
        - Brittany White: Safer crosswalks across East Lane. Several riders and drivers state the crosswalks going from areas such as Dollar Tree over to Harbor Freight are very uncomfortable to use. Maybe enhancements such as flashing lights, etc. would help?
        - This is an opportunity to re-imagine how we want this area to look and function
    - Dan Cummings: If we propose increased landscaping, we need to consider that the State does not allow irrigated landscaping in its right-of-way.
        - We will likely focus on drought-resilient, low-maintenance solutions.
    - Stormwater drainage area near Snake River – open to changes, including development of area along south side of roadway and piping of water towards the river

- TM #4 – East Idaho Avenue Refinement Area Natural and Cultural Assessment
    - Natural and cultural resources assessment
        - No impact anticipated on Goal 5 Resources
        - Portions of management and refinement area are within 100-year floodplain
            - Development in this area will have to consider FEMA requirements
        - Waterways are adjacent to refinement area and are in management area
        - Wetlands are in management area
        - If no in-water works occurs, no effect on threatened and endangered species likely
        - Hazardous Materials: ODOT Level I HMCA likely required
        - Cultural Resources and Historic Properties: Review of above ground structures and CRI anticipated to be required
        - Topographic Constraint: Main constraint is Snake River
        - Demographics and Socioeconomic Considerations
        - 4(F) and 6(F) resources: if land is converted 4(F) and 6(F) consultation mitigation may be required
    - Cheryl: Are there currently any ways to access the Snake River (i.e., boat launches?)
        - **Betsy: City is working on a site now along the Malheur River – will send the plan and location to Kittelson.**

NEXT STEPS

- East Idaho Ave Stakeholder Meeting (today)
- Safe Routes to School Stakeholder Meeting (TBD – City is working on scheduling)
- Online Community Workshop (starts Friday, runs through 6/12)

- **Comments due on Tech Memos by 6/3**
- Next Meeting – week of July 20
    - Draft Concepts
    - Health Impact Analysis
    - **Kittelson to send out survey to gauge availability**

ACTION ITEM SUMMARY

- **Kittelson and City to work on posting project schedule to website**
- **Comments due on Tech Memos by 6/3**
- **Betsy to send Water Trail location to Kittelson**
- **Kittelson to send out survey to gauge availability for next meeting**

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Ontario Active Transportation Update and East Idaho Avenue Refinement Area Plan

TAC Meeting #2

July 29, 2020 – 10:00 AM – 11:30 AM

Microsoft Teams/Telephone Meeting

In Attendance: Betsy Roberts, Jacobs/City of Ontario
Steve Solecki, Jacobs/City of Ontario
Blaise Exon, Jacobs/City of Ontario
Dan Cummings, City of Ontario
Stuart Campbell, Jacobs/City of Ontario
Adam Brown, City of Ontario
Jeff Wise, ODOT
John Eden, ODOT
Cheryl Jarvis-Smith, ODOT
Tamra Mabbott, DLCD
Ralph Poole, Property Owner/Ontario Planning Commission
Nick Foster, Kittelson & Associates, Inc.
Mark Heisinger, Kittelson & Associates, Inc.
Russ Doubleday, Kittelson & Associates, Inc.
Matt Hughart, Kittelson & Associates, Inc.
Russ Doubleday, Kittelson & Associates, Inc.
Andrew Holder, Greenworks
Mike Faha, Greenworks
Matt Hastie, Angelo Planning Group

Action items are highlighted in **bold text**.

RECAP OF PUBLIC OUTREACH

- Public outreach efforts so far have consisted of a E Idaho Ave stakeholder meeting, online workshops, and a project website
- Active transportation plan feedback
  - 31 responses
  - Sidewalk gaps
  - SW 4th Ave
  - SE 5th Ave
  - More frequent/direct transit service
- E Idaho Ave Refinement Area
  - 37 comments
  - Streetscaping
  - Multimodal access

  - Walmart bus stop
  - Congestion at driveways
- Any specific requests for streetscape improvements?
  - Mostly general requests for improved aesthetics and better facilities for people walking and biking
- Most responses from online map

EAST IDAHO AVENUE DRAFT CONCEPT

- East Idaho Ave is often the entryway to Ontario and Oregon from Idaho and carries a lot of traffic. This concept seeks to balance look and feel of corridor, active transportation, gateway, and traffic capacity improvements.
  - Moves EB bike lane from roadway and adds multi-use path south of roadway in ODOT ROW
  - Multi-use path starts at I-84 EB ramps and ends on east side of the Snake River crossing
  - The City is planning on the river trail staying on river-front and extending to south of water treatment plant. Trail will also connect to both sides of E Idaho Ave (as currently shown).
  - Will trail have to be raised to navigate swales?
    - Slopes are all manageable, likely no significant grading situations
- Goodfellow St intersection
  - Area includes gateway feature, improved streetscape planting, and rest area
  - Details of streetscaping is not determined, concept provides different possibilities
  - Swales will be regraded to create a better aesthetic
  - City has been taking out ground cover from under trees and removing irrigation (except for drip irrigation for trees). It has been replaced with rock mulch. Previous ground cover was difficult to maintain and collected trash from roadway. City wants rock mulch next to street adjacent to the trees in the future. Other streetscape improvements are ok when removed from street.
    - The idea is to create improvements that don’t prohibit other improvements in the future
    - We can use the resources from this project to identify new, potential streetscape types
    - Goal of landscape professionals is to identify appropriate landscape treatments with feasible maintenance. Different options that we have recommended require different levels of maintenance. That is why this feedback is important.
- Capacity improvements on E Idaho Avenue
  - Extended storage for westbound left-turn at Goodfellow and for eastbound left-turn at East Lane
  - Second westbound left-turn lane is added at East Lane and second receiving lane added on south leg of intersection
- East Lane intersection
  - Similar landscape recommendations to Goodfellow, primary difference is that trail connects to river trail
  - New channelized eastbound right-turn

        - Opportunity to increase comfort of bike/ped crossing? Can we increase visibility for motorists?
            - **We would include a signal on that right-turn. We will look at improvements to island as well.**
- Possibility of adding ped refuges on East Idaho Ave crossings?
    - **Team to look into this further**
- Connection to river trail/overlook area
    - Includes roundabout trail junction and gateway feature
    - Will be modified to reflect new information about river trail location
    - Conflicts to design around include transmission lines, utility boxes, and river sloughs
    - Gateway feature would likely consist of two primary elements that frame the roadway, and secondary elements on the overlook and throughout corridor.
        - **City to share wayfinding branding with Greenworks**
        - This is not design, but a plan to show proposed locations and scale. Common issue in these plans is visual clutter.
        - Possible to include code amendments for signage to address visual clutter?
            - Update to sign code is not a bad thought, but it is challenging. It's better to take a holistic approach than to look at one specific location.
- Land use metrics and potential code amendments
    - Developed a list of metrics to improve multimodal accessibility and improved aesthetics in the area
        - Applies primarily to future development or re-development (i.e., not going to alter existing building locations)
    - Building/parking orientation
    - Pedestrian circulation
    - Parking standards
    - Parking and building coverage
    - Land use mix/allowing residential use
        - City is currently in the process of rezoning portion of the area to add apartment complex next to Home Depot

PROPOSED CROSS SECTIONAL STREET STANDARDS

- Purpose is to incorporate active transportation best practices to make a more comfortable and safer experience
    - Includes green street and off-street path resources
- Primary reference for determining bikeway types is ODOT Blueprint for Urban Design, based on vehicle speeds and volumes
- Changes are primarily to bike facilities and travel lane widths
    - Vertical separation or shared use path on roadways with higher volumes/speeds
- Added new cross-sections
    - Collector with bike lanes
    - Local streets with shared bikeways
- Green street applications can be incorporated with cross-sections
- **Consider reducing travel lane to 10 feet on collectors?**

- **City to review cross-sections and provide directions to project team on any changes they want**
- **City to review toolboxes and provide feedback on what information would be useful to incorporate into the final document**

SRTS IMPROVEMENT AREA

- Based on desirable network previously established by City and reviewed against existing infrastructure (i.e., missing sidewalks? Required crossing on busy road?). Will be used to identify active transportation projects.

HEALTHY COMMUNITY IMPACT ANALYSIS

- Talked to two health professionals in the region and identified six health related barriers.
- Transportation barriers affect access to health-supportive resources, jobs, and schools, community wellness and social connectivity, and air quality

NEXT STEPS

- Public outreach
  - Online workshop will be up next week
  - Farmer's market on August 8th
- **Provide comments on tech memos by August 5th**
- Next meeting – week of September 28th
  - Refined concepts
  - Draft active transportation projects
- Anything shared publicly – please give the City 1-2 days lead time so that the City Council can see a preview
  - **City to share the tech memos with Council**

ACTION ITEM SUMMARY

- **City: Share gateway/monument elements with Greenworks**
- **TAC: Provide comments on tech memos by August 5th**
- **City: Review cross-sections and provide directions to project team on any changes they want**
- **City: Review toolboxes and provide feedback on what information would be useful to incorporate into the final document**
- **City: Share the tech memos with Council**

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Ontario Active Transportation Update and East Idaho Avenue Refinement Area Plan

TAC Meeting #3

October 6, 2020 –9:00 AM – 10:30 AM

Microsoft Teams/Telephone Meeting

In Attendance: Steve Solecki, Jacobs/City of Ontario
Stuart Campbell, Jacobs/City of Ontario
Adam Brown, City of Ontario
Dan Cummings, City of Ontario
Peter Hall, City of Ontario
Jeff Wise, ODOT
John Eden, ODOT
Cheryl Jarvis-Smith, ODOT
Scott Edelman, DLCD
Brittany White – SRT-Malheur Express
Ralph Poole, Property Owner/Ontario Planning Commission
Nick Foster, Kittelson & Associates, Inc.
Mark Heisinger, Kittelson & Associates, Inc.
Russ Doubleday, Kittelson & Associates, Inc.
Andrew Holder, Greenworks
Matt Hastie, Angelo Planning Group
Andy Lindsey – Anderson Perry

Action items are highlighted in **bold text**.

RECAP OF PUBLIC OUTREACH

- The second round of public outreach, which generally occurred in August, included a booth at the Saturday Market in Ontario, an online workshop, and the project website
- Feedback on the active transportation plan and Safe Routes to School network:
  - There are sidewalk gaps and limited crossings around Aiken Elementary and Alameda Elementary
  - Enhanced crossings are needed on SW 4th Avenue
- Feedback on the E Idaho Avenue concept:
  - This area lacks connectivity with the rest of Ontario
  - Consider business sponsors and partnerships for trails
  - ADA accessibility in the commercial areas is important
- Other general comments:
  - Lots of positive feedback about the Treasure Valley Connector Trail, and people support a Snake River trail based on this success
  - People want to see cost-effective streetscaping and beautification

- Market attendees in particular appreciated the outreach effort and had very few concerns with what was under consideration

EAST IDAHO AVENUE CONCEPT UPDATES

- Kittelson discussed some refinements were made to the E Idaho Avenue Concept from the previous TAC meeting
  - A second eastbound left-turn lane was added at E Idaho Ave/East Ln while still allowing for one westbound left-turn lane at E Idaho Ave/Goodfellow St
  - At E Idaho Ave/East Ln, the eastbound right-turn lane is no longer a free right-turn across the shared-use path
  - The westbound bike lane on the north side of E Idaho Avenue now has a painted buffer. The width for this was provided by slightly narrowing the motor vehicle travel lanes. The travel lanes are still within the widths allowed by the Blueprint for Urban Design (i.e., 11 feet).
- Greenworks discussed the refinements to the proposed shared-use path
  - As discussed in the last TAC meeting, there will no longer be a sidewalk on the south side of E Idaho Avenue
  - The shared-use path will be extended across both the I-84 and Snake River bridges
  - There will be a small pedestrian roundabout where the shared-use path and the River trail meet at a lower elevation and not at street level – and a separate overlook will remain at the upper street level
- Jeff wondered if the secondary gateway feature in the median on E Idaho Avenue at the eastern end of the segment could be a safety concern, or a visual distraction for drivers
  - Andrew said that there are many different ways to go, but something vertical is likely given the space. He conceded that such a feature could create conflicts and may need to be removed
  - Dan agreed with Jeff's comment and said he didn't want drivers to be looking at the median
  - Cheryl noted that such a feature could provide traffic calming benefits. Andrew said that this wasn't the purpose of this feature, but that could have the effect that Cheryl is looking for
  - The exact design of this feature would need to be worked out at a later date, which would include evaluating its crash worthiness.
- Steve asked about the shared-use path and the proposed overlook and whether it would fit within the parcel that is being negotiated with the city
  - Dan confirmed that this would fit within the parcel
  - Steve liked this solution more than the original - there is a larger space for an overlook
  - Dan agreed – he liked the updated plan and the proposed landscaping
- Adam asked about the primary gateway elements – was it necessary to have gateway elements on both sides of the street on the east end of E Idaho Avenue, especially for people who are leaving?
  - Andrew noted that exit signs often exist in similar situations, but they're usually smaller. The signs on both sides are intended to be visible on both sides of people entering and leaving, and serve as two pillars of the gateway

- Ralph asked if there would be additional parking for people to use the trails
  - Andrew said the proposal includes no new south side parking
  - The north sidewalk will connect to the future Snake River trail
  - Cheryl said that the state park to the north would provide parking at the north end for access to the park network. This is what the city planned for, according to Adam. He also noted the City is planning for a trailhead with parking south of the water treatment plant.

DRAFT ACTIVE TRANSPORATION PLAN

- This draft plan prioritized a set of walking, biking, and intersection crossing projects
- Walking projects prioritization:
  - Adam was having a hard time seeing the low-priority projects layer on the map
    - **Kittelson to update the map with a new color scheme**
- Biking projects prioritization:
  - Adam noted that the Treasure Valley Connector Trail may provide an alternate route for some of the north-south routes in the plan.
    - **Kittelson to double check this in the City's Parks and Recreation Master Plan and include on these maps**
  - Cheryl asked about connecting the E Idaho Avenue area with the rest of the city via the NE 3rd Street underpass at I-84
    - Dan said that the street on the north side had been vacated, and the underpass and south side of the street will be vacated as well in exchange for land to build the Snake River trail.
  - Steve asked if the prioritization work was connected between walking and biking or completed separately
    - Nick said that the prioritization work was all done independently
  - Nick acknowledged that the biking plan is ambitious. Kittelson used the FHWA Bikeway Selection Guide and ODOT's Blueprint for Urban Design for developing an appropriate bikeway treatment.
- Intersection crossing projects prioritization
  - People have expressed concern to Adam about the number of intersections without any intersection control devices.
  - Steve asked if the intersection improvements apply to all approaches and crossings
    - Nick said any recommendation would be across the major route
    - **Kittelson to make clear how the intersection improvements apply specifically at each location**
- Public transportation enhancements
  - Cheryl asked if there was a plan for a more pronounced bus stop location downtown
    - Brittany says the downtown stops are often hard to find. Part of the coordinate plan update will include looking at improving bus stop visibility.
      - The City's new wayfinding program could help with this.
    - Brittany is looking at where targeted populations are. She believes that ODOT has a travelshed analysis for Malheur County that will help with this.

        - Brittany noted that there were positives and negatives to keeping the stop at Walmart where it is. Some customers would like to see it moved, but others want to see it remain. Two primary challenges with the stop are:
            - There is no formal agreement with Walmart for the stop, so it is sometimes blocked and could be removed.
            - Larger buses would not be able to travel through the parking lot to the stop.
- Kittelson is scoped to produce a Transportation Solutions Map. What would people like that to be? Options include a PDF map or an online GIS map
    - Adam generally likes the dispersed nature of the maps as presented here so there are not overlapping layers.
    - Steve said he will need to think about that a little bit. He agrees with Adam that these maps are more clear to understand.
    - Nick noted that an ArcGIS online service would allow for layers to be turned on and off by the user.
    - Dan liked the idea of an online interactive map if the logistics could be worked out. The City is having some issues with its GIS services.
    - Adam wondered if they could work with the County GIS team. He also noted that the state is trying to put together a statewide database of trails, which could also include plans.
    - **The City will think through this a bit more. Kittelson to follow-up with the City on this.**

UPDATED CROSS SECTIONAL STREET STANDARDS

- Kittelson highlighted the updates to the cross-sectional street standards, including:
    - Adding a maximum right-of-way and street section widths
    - Clarifying that buffers or bioswales could be used
    - Changing bike lane widths to 5 feet
    - Changing local street sidewalk widths to 5 feet
    - Changing streets widths to a minimum of 20 feet
    - Adding a street section for local streets with grades equal to or less than 2%
- Cheryl asked if the streets could be narrowed down from the maximum right-of-way of 34 feet
    - Dan said that streets could be narrowed by removing parking on one or both sides - and that the cross-sections provided that flexibility

NEXT STEPS

- Public outreach
    - Online workshop is active now
- **Provide comments on tech memos by Wednesday, October 14th**
- **Fill out the Active Transportation Plan survey by Wednesday, October 14th**
- Next meeting – December
    - Draft Implementation and Financing Plan
    - Revised Policy Framework and Code Amendments
    - Draft Active Transportation Update and East Idaho Avenue Refinement Area Plan
    - **Kittelson to set up meeting time and date**

ACTION ITEM SUMMARY

- **Kittelson: update walking and biking maps with a new color scheme**
- **Kittelson: add the Treasure Valley Connector Trail, and others as appropriate, to the maps**
- **Kittelson: make clear how the intersection improvements apply specifically at each location**
- **City: determine the best way to present the Transportation Solutions Map**
- **TAC: provide any comments on tech memos**
- **TAC: fill out Active Transportation Plan survey**
- **Kittelson: set up next TAC meeting date and time**

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Ontario Active Transportation Update and East Idaho Avenue Refinement Area Plan

TAC Meeting #4

February 3, 2021 – 11:00 AM – 12:00 PM

Microsoft Teams/Telephone Meeting

In Attendance: Al Haun, Jacobs/City of Ontario
Blaise Exon, Jacobs/City of Ontario
Adam Brown, City of Ontario
Dan Cummings, City of Ontario
Jeff Wise, ODOT
John Eden, ODOT
Cheryl Jarvis-Smith, ODOT
Brittany White, SRT-Malheur Express
Nick Foster, Kittelson & Associates, Inc.
Mark Heisinger, Kittelson & Associates, Inc.
Russ Doubleday, Kittelson & Associates, Inc.
Matt Hastie, Angelo Planning Group
CJ Doxsee, Angelo Planning Group

Action items are highlighted in **bold text**.

MEETING AGENDA AND INTRODUCTIONS (ALL)

- The project is almost complete. This is the last touchpoint with the TAC to review the draft plan, which will go through adoption in April.

RECAP OF JOINT CITY COUNCIL/PLANNING COMMISSION WORKSESSION (KITTELSON)

- Work session was held on January 7th with City Council and Planning Commission
- Feedback on E Idaho Ave
  - Would like to implement the plan in a way to minimize maintenance costs.
- Feedback on Active Transportation Plan
  - Concerns about open ditches.
  - Preference to utilize low-volume roadways when possible.
- Discussed Code Amendments
- Is there an opportunity to show different options for bike facilities on E Idaho Ave to the west of I-84?
  - Options for direct connection on E Idaho Ave are to remove travel lanes or expand pathway underneath rail crossing. City council was not supportive of removal of travel lanes. Situation is not ideal for bicyclists, but options remain to ride on sidewalks.
  - Bicyclists typically don't ride on roadway under rail crossing; typically walk through the tunnel.
  - It would be nice to put in the widened shared-use pathway on E Idaho Ave as a potential long-term solution if funding becomes available.

        - Widening the tunnel on the south side would be ideal.
    - **Kittelson will add in option for shared-use path on E Idaho Avenue west of I-84, while keeping the current planned route in, too.**
        - **The project will likely be contingent on an opportunity to modify/replace the railroad bridge over E Idaho Avenue.**

REVIEW DRAFT PLAN (KITTELSON)

- Draft plan includes executive summary, introduction, active transportation plan, and East Idaho plan. Primarily draws from previous technical memorandums.
- Active transportation plan updates:
    - Expanded descriptions for crossing projects.
    - Planning trails incorporated
    - Planning level costs refined
    - Idaho Avenue west of I-84 modified and more flexibility added for roadway reconfigurations.
- The shared-use path along the railroad might not make sense since it's on UP ROW
    - It's not a prioritized project in this plan. It is a project that was identified in a different adopted plan and is shown only for reference.
- Open ditches discussion
    - Brought up by City Council as concern
    - They are present on some roads. They constrain available space/present hazard and will require coordination with property owners and/or irrigation districts when adding sidewalks.
    - There are not that many in the City and typically are relatively shallow.
        - Most are in the County.
- Development Code Updates
    - Updates included mixed-use provisions, enhanced landscaping standards, reduced minimum parking requirements, development building design provisions, pedestrian connections, and street sections.
        - No changes to development code updates from the Planning Commission/City Council work session.
        - We would have needed to release this to DLDC on Monday to hit the 35-day notice deadline for March adoption. Will need to do April adoption.
            - **Project team will now target April adoption.**
    - Does Figure 17 in the street standards indicate that the sidewalk can be attached or detached?
        - That is correct.
        - **Kittelson to specify on this figure that sidewalk can be attached or detached to roadway.**
- Project cost estimates
    - These are planning level construction costs. Site-specific considerations may affect costs.
    - What's the cost difference between shared use path and buffered bike lane?
        - Shared-use path is typically more expensive.
    - Potential funding sources
        - Jacobs/City of Ontario team have recently secured a grant from ODOT SRTS program. SRTS and Community Paths program will continue to be good, potential funding sources.
- Updates to E Idaho Refinement Plan
    - Updates include discussion about gateway treatments, utility considerations, and alternative overlook location.

- The ODOT District had some concerns about the pathway locations and were wondering if there is any flexibility with the path location (i.e., move farther away from the road)
  - The District would like more of a buffer between the road and path on the east side of the corridor. The ROW should be available.
    - This is just a concept design and the location of the pathway is flexible. The exact location should be determined during the final design where factors like drainage and utilities will be taken into consideration.
    - The City deeded off some of the property on the southeast side of the corridor and that creates a pinch point for the path. This is what caused the overlook location to move. There is a possibility to buy the property back.
    - **The project team will note that the location of the pathway is flexible, and the ultimate location is to be determined in the final design.**
  - The City had a meeting with ODOT about Hwy 201, and ODOT said that the proposed trail could not be in ODOT ROW.
    - This has to do with the designation of Hwy 201 (different than E Idaho Ave) and the amount of available ROW. It had to do with the characteristics of that specific corridor and it should not be an issue on E Idaho Ave.
- The District noted that the left-turn lane on Goodfellow is overflowing in the AM peak hour and we may want to address this issue. The issue may be exacerbated with the future connection from Goodfellow to Fifth St.
- There is concern about the width of the median between East Ln and Goodfellow St.
  - Primary concern is for winter operations.
  - **Project team to make note in plan that re-evaluation of median and lane configurations is necessary during final design.**

NEXT STEPS (KITTELSON)

- **Comments due on Draft Plan by Friday**
- **Adoption in March might not work since the staff report is not in yet – deadline was February 1.**
  - The staff report is just about ready and should be ready for the City by the end of the week. The code amendments that are in the staff report and draft plan have been consistent since they were shared with the project management team and there were no changes since the work session.
    - **Project team to send staff report and project materials to Dan to target April adoption.**
  - April meetings
    - Council meeting is the 20th.
    - Planning commission meeting is the 12th.
    - Adoption would also be possible on the 27th.

ACTION ITEMS

- **Kittelson will add in option for shared-use path on E Idaho Avenue west of I-84.**
- **Kittelson to specify that sidewalk can be attached or detached to roadway in Figure 17.**
- **The project team will note that the location of the E Idaho Ave pathway is flexible, and the ultimate location is to be determined in the final design.**
- **Project team to make note in plan that re-evaluation of median and lane configurations is necessary during final design.**
- **TAC should send comments on Draft Plan to Kittelson by Friday**

- **Kittelson to send staff report and project materials to Dan to target April adoption.**

APPENDIX C:

Baseline Transportation Assessment

KITTELSON & ASSOCIATES
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MEMORANDUM

Date:	June 10, 2020	Project #: 23858
To:	Project Management Team	
From:	Mark Heisinger, EIT, Zachri Jensen, EIT, Russ Doubleday, Nick Foster, AICP, RSP, and Matt Hughart, AICP	
Project:	City of Ontario, Active Transportation Update and East Idaho Avenue Refinement Area Plan	
Subject:	Technical Memo #2: Baseline Transportation Assessment	

The City of Ontario is updating its 2006 Transportation System Plan (TSP) to include: 1) an updated active transportation element; and 2) a refinement plan for the East Idaho Avenue corridor. This memorandum provides an assessment of existing conditions for each of these two project areas. It is organized as follows:

1. **Citywide Active Transportation Plan** - An inventory and assessment of the City's bicycle, pedestrian, and transit systems. *Attachment A* includes a toolbox of potential pedestrian and bicycle design treatments that will be considered when identifying projects in the next phase of the project.
2. **East Idaho Avenue Refinement Area Plan** - An analysis of traffic operations and safety for existing conditions along the East Idaho Avenue corridor.

The purpose of this inventory and performance evaluation is to document the baseline transportation system conditions within the project area. Supporting data has been obtained from the City, the Oregon Department of Transportation (ODOT), and field reviews by the project team. The findings summarized in this memorandum will form the basis for the recommended projects, policies, programs, and studies that will make up the Active Transportation Update and East Idaho Avenue Refinement Area Plan, herein referred to as " the project." Figure 1 illustrates the project study areas.

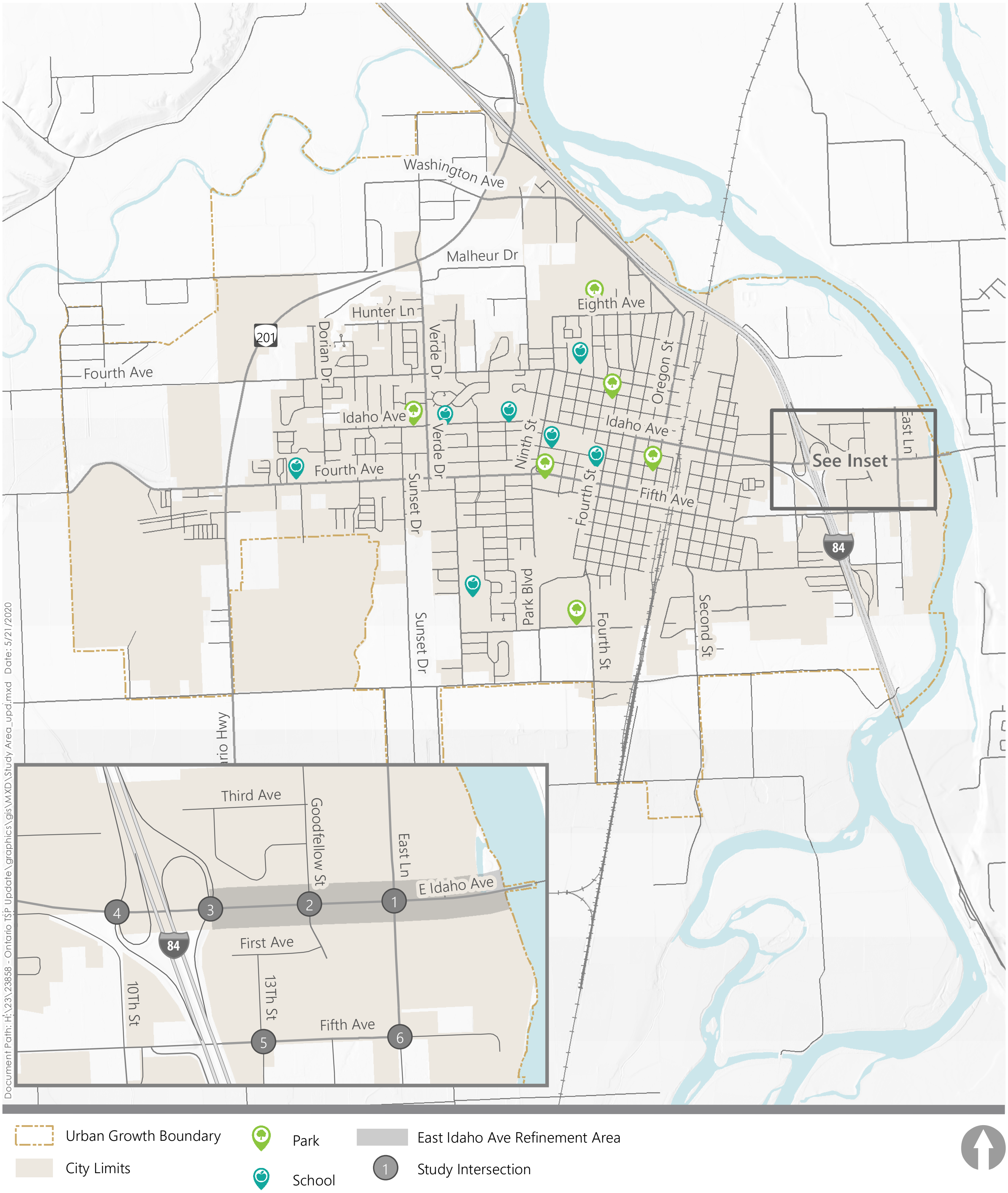

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Figure 1

Project Study Area

CITYWIDE ACTIVE TRANSPORTATION PLAN

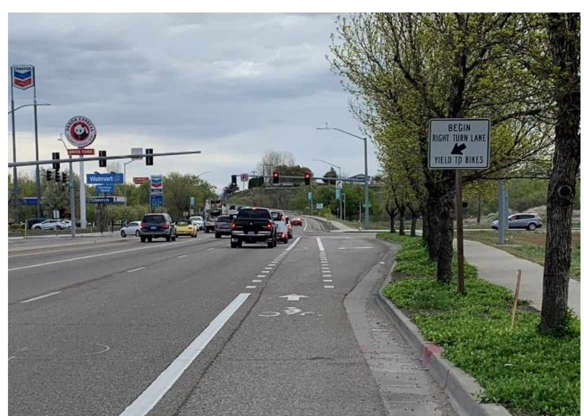
The first component of the project is an active transportation plan covering the City's Urban Growth Boundary (UGB). The overall goal of the active transportation update is to improve multimodal transportation options within the community, thereby creating opportunities that support a healthy lifestyle. This update will reflect current City goals, conditions that have changed since the 2006 TSP, and incorporate recent planning efforts, including the City's 2018 Parks and Recreation Master Plan. The following sections provide a current inventory and assessment of the City's bicycle, pedestrian, and transit systems.

Existing Bicycle System

The following section describes the existing bicycle system. The City provided geographic information system (GIS) data that included the location of existing bike lanes within Ontario. The project team updated this data from field observations of the City's street network. Figure 2 illustrates the existing bicycle system within the City.

The City's designated bicycling network consists entirely of bike lanes. Bike lanes are designed to provide a designated space for bicyclists outside the path of motor vehicles, parallel to the travel lane and are typically marked with a standard bike lane symbol. The City standard for bike lane width is five feet from the edge of the travel lane to the face of curb The ODOT standard for bike lane width is six feet, with a minimum width of four feet on open shoulders or five feet from the face of curb, guardrail, or parked cars. Bike lanes are most appropriate along roadways with moderate traffic volumes and speeds (arterials and some collectors). Bike lanes may also be provided on rural roadways near urban areas, where there is high bicycle use. To enhance the experience for bicyclists along these types of roadways, a marked buffer area may be striped for more separation between the vehicular travel lane and the bicycle lane.

Bike lane on SW 4th Street



Bike lane on E Idaho Ave

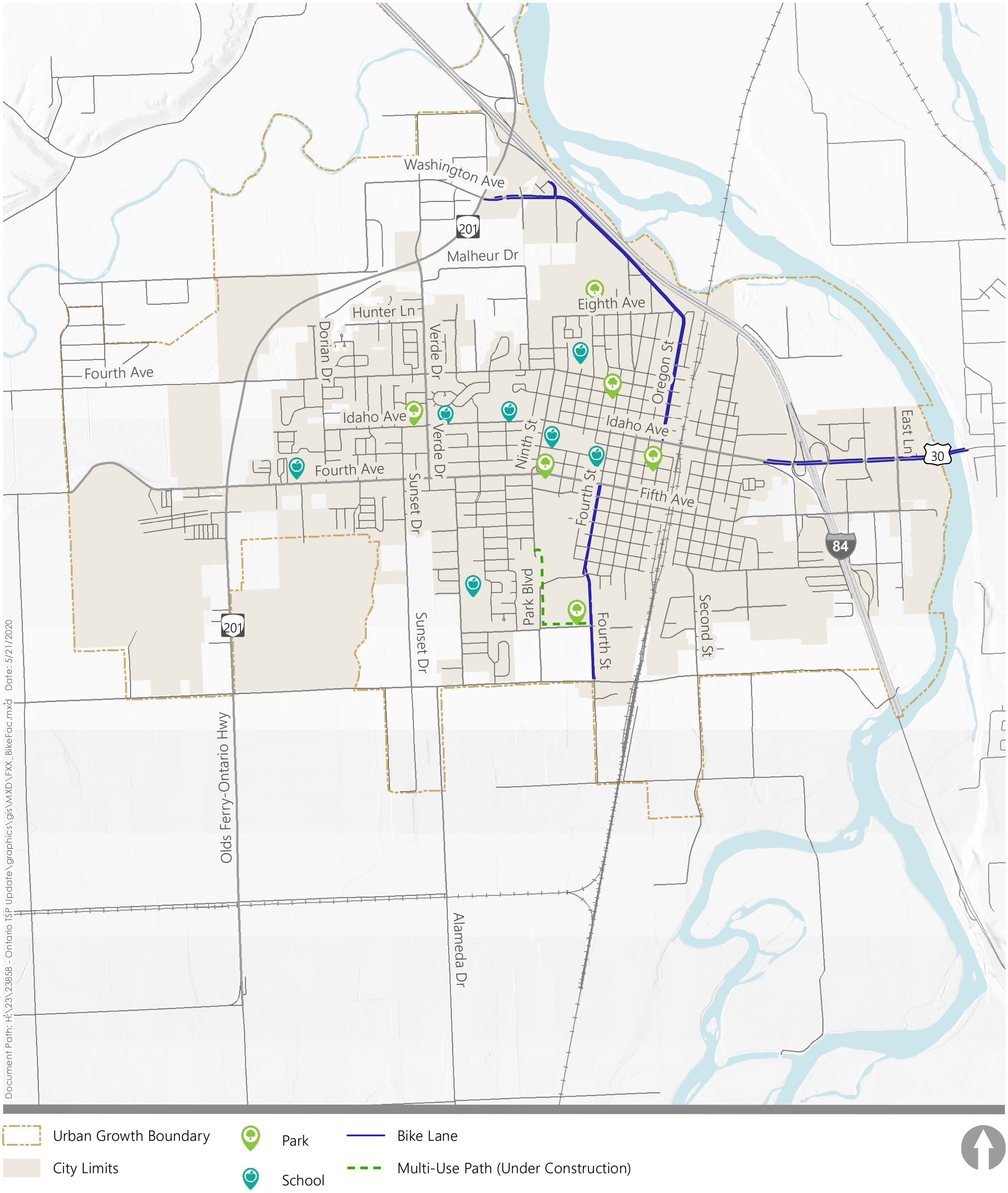


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Figure 2

Existing Bike Network

The existing network of bike lanes in Ontario is intermittent and does not provide continuous connections for people biking to local amenities, such as commercial destinations, recreational areas, places of worship, or institutional facilities. Most of the existing bike lanes are located along the E Idaho Avenue, Oregon Street, and 4th Street corridors. Additional connections from these bike lanes to other destinations may be possible through low-speed and low-volume local roads; however, there are currently not any designated routes.

There is also a multi-use pathway under construction on the southwest side of the Treasure Valley Community College.

Existing Pedestrian System

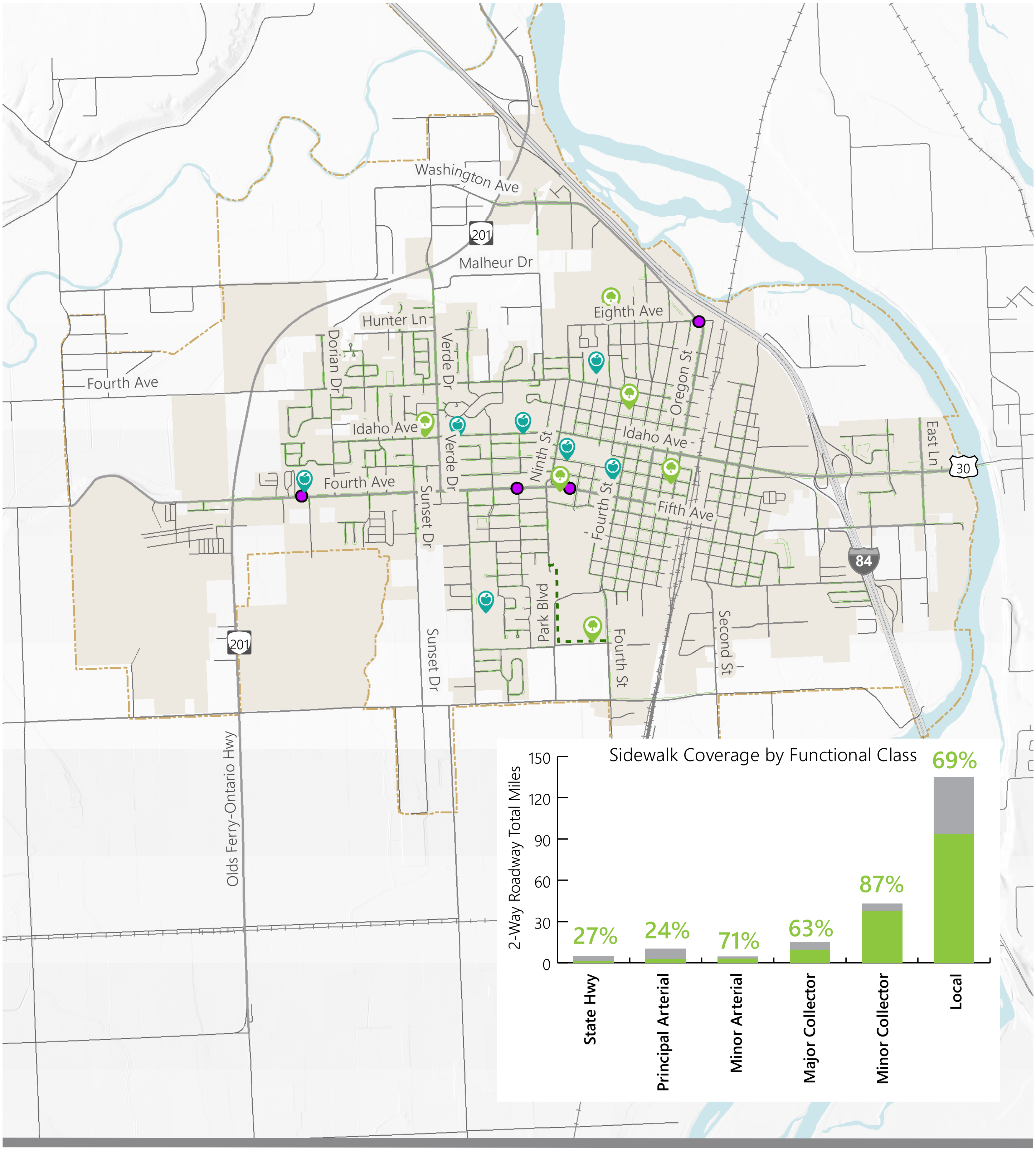
The following section describes the existing walking system. Data collection for existing walking facilities was conducted in a similar manner to bicycle facilities, with information on the type and location of sidewalks obtained from City GIS data. The GIS data was updated to include field observations made by the project team. The existing walking system within the City consists of an intermittent network of sidewalks, marked crosswalks, and signalized crossings. Figure 3 illustrates the existing walking system.

Sidewalks

Sidewalks are the most fundamental element of the pedestrian system. Sidewalks are typically constructed of concrete and separated from the roadway by a curb and gutter, landscaping strip, and/or on-street parking. The unobstructed travel way for people walking on a sidewalk should be clear of utilities, signposts, fire hydrants, vegetation, and street furnishings. Typically, a buffering of the pedestrian space and vehicular travel lane increases the comfort of the pedestrian experience. The City standard for a sidewalk width is six feet, with a five- or six-feet wide buffer on arterials and collectors. The ODOT standard for a sidewalk width is six feet, with a minimum width of five feet acceptable on local streets.


Buffered sidewalk on SW 4th Street


Curb-tight sidewalk on SW 4th Avenue



Urban Growth Boundary
City Limits
Park
School
Rectangular Rapid Flashing Beacon
Sidewalks
Multi-Use Path (Under Construction)

Figure 3

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Existing Walking Network

Most local and collector streets in the City have sidewalks. However, they are absent from most arterials and highways where the need for them is the greatest. Further, the presence of a sidewalk does not guarantee it is accessible to all or that it provides a complete connection to a destination. Some sidewalks are also in disrepair and may not be suitable for individuals with disabilities. In some cases, existing sidewalks abruptly end, which causes people to have to walk in the street or on the shoulder, if one is provided.

Damaged sidewalk with no curb ramps on SW 2nd Street

Sidewalk with no continuation on SW 4th Street

Crosswalks

Marked crosswalks serve as a designated space for people to walk across the roadway. Crosswalks are present in two forms in the City. The majority are "transverse" crosswalks, meaning they consist of two parallel white lines that stretch from one curb to the other. The minority are "continental" or "zebra" crosswalks, which consist of a series of parallel or diagonal lines. Many crosswalks are not equipped with a curb ramp or tactile warning pads, making them non-compliant with Americans with Disabilities Act (ADA) standards.

Transverse crosswalk striping at NE 4th St/E Idaho Ave

Continental crosswalk striping at SW 4th St/SW 14th Ave

Enhanced Crossings

Enhanced crossings provide additional safety for people walking at mid-block or unsignalized crossings by attracting motorists' attention and alerting them to people crossing the roadway. As shown in Figure

3, there are four enhanced crossings in the City that feature a rectangular rapid flashing beacon (RRFB). These crossings are located on the SW 4th Ave and N Oregon St corridors.

RRFB near Saint Alphonsus Medical Center

RRFB with pedestrian refuge near Lions Park

Existing Public Transportation System

The following section describes the existing public transportation services available in Ontario, including transit services, ridership trends, and ridership patterns.

Transit Service

Transit services within Ontario are provided by the Malheur Council on Aging and Community Services (MCOACS) and Snake River Transit (SRT). Figure 4 shows the existing transit service routes.

SRT-Malheur Express

Operated by MCOACS, the SRT-Malheur Express is a fixed-route bus line that provides local service within Ontario. The service is available to the general public on weekdays and on the first Saturday of every month. The fixed route begins and ends at the Walmart on NE East Lane in Ontario and runs a one-hour loop with 16 stops throughout the city. A connection with the SRT bus line is provided every hour at the Walmart, which allows riders to transfer and connect to the Fruitland and Payette areas.

Snake River Transit

Snake River Transit is a flex-route bus line that provides intercity service between Ontario, Fruitland, and Payette. The service is available to the general public on weekdays only. The route begins and ends at the Walmart on NE East Lane in Ontario and runs a one-hour loop with seven stops in Fruitland and twelve stops in Payette. Like a demand-response service, the SRT bus will stop for patrons anywhere along the fixed route that is within a ¾-mile deviation. However, door-to-door service is not available.

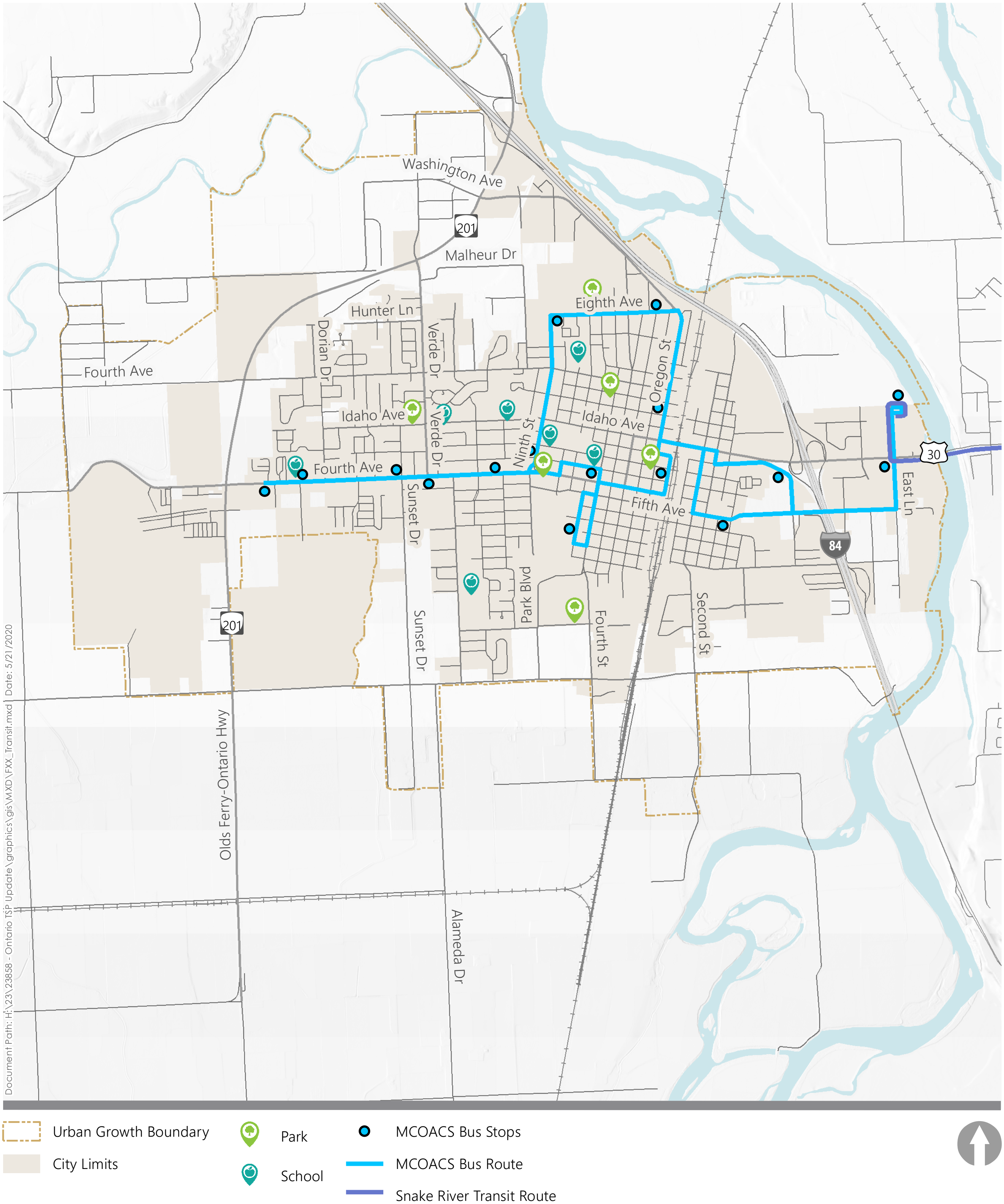

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Figure 4

Transit Routes

Ridership Trends

Figure 5 shows historic annual transit ridership for the SRT-Malheur Express and Snake River Transit fixed-route bus lines. In Fiscal Year (FY) 2019, the SRT-Malheur Express had approximately 19,500 riders and Snake River Transit had approximately 16,500 riders. The SRT-Malheur Express has experienced an overall decline in ridership since FY 2015, but has seen an increase in ridership from FY 2017 to FY 2019. Snake River Transit saw a decline in ridership from FY 2018 to FY 2019.

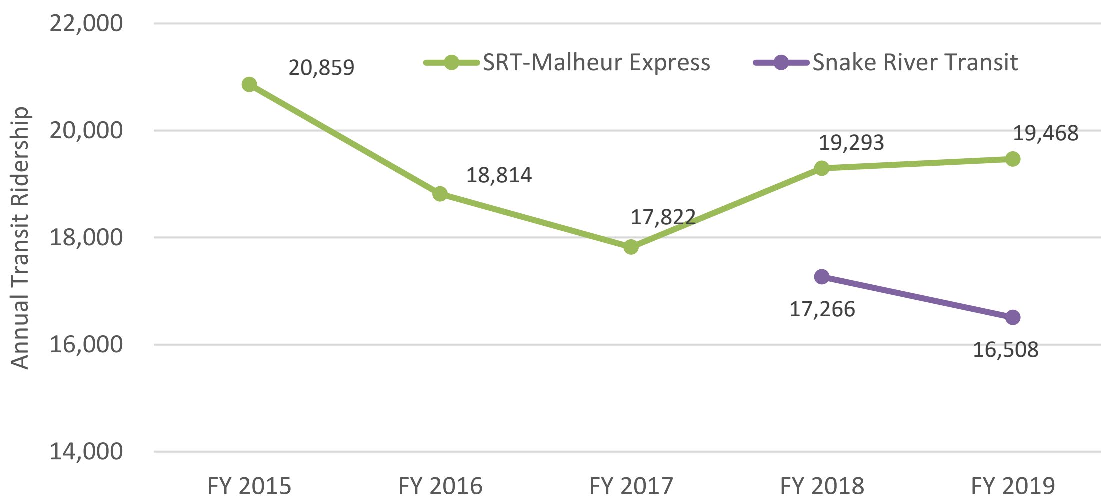

Figure 5 Annual Transit Ridership

Crash Data Analysis

A safety analysis has been conducted by reviewing historical crash data, as described in the following sections.

Crash Data

City-wide crash records were obtained from ODOT for the most recent five-year period for which data was available (January 1, 2013 through December 31, 2017). As shown in Table 1, there were 29 reported crashes involving pedestrians or bicyclists that occurred over the five-year period within the city. Figure 6 maps the pedestrian and bicycling-related crash data, and *Attachment B* provides the crash data summary sheets.

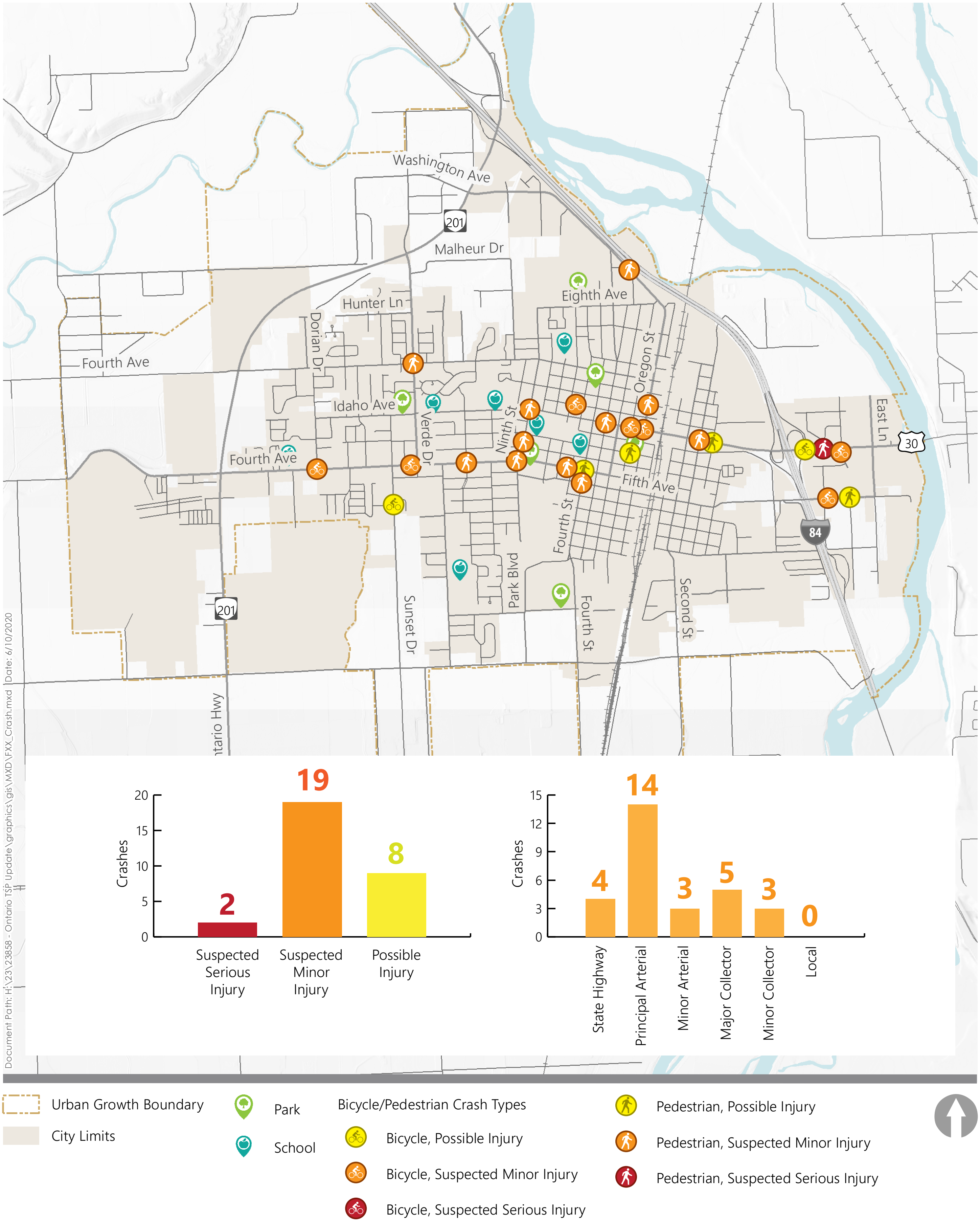

Figure 6

Bicycle and Pedestrian Crashes (2013-2017)

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Table 1 Reported Pedestrian and Bicycle Crashes by Severity (2013 – 2017)

Crash Type	Crash Severity					*Total Number of Crashes*
	Fatal	Suspected Serious Injury	Suspected Minor Injury	Possible Injury	Property Damage Only	
Bicycle	0	1	7	4	0	*12*
Pedestrian	0	1	12	4	0	*17*
Total	***0***	***2***	***19***	***8***	***0***	***29***

Bicycle Crashes

There was a total of 12 crashes involving people biking over the five-year period analyzed. Most of these crashes (eight total) occurred along the 4th Avenue and Idaho Avenue corridors, which are the primary roadways connecting the east and west sides of the city. There are no bike lanes present on most of these corridors except for the segment of Idaho Ave east of Interstate 84. No other observable trends in the crashes were identified.

Pedestrian Crashes

There was a total of 17 crashes involving people walking over the five-year period analyzed. Like the bicycle crashes, roughly half of pedestrian crashes (nine total) occurred along the 4th Avenue corridor, the Idaho Avenue corridor, and other arterials. The remaining crashes occurred at roadway intersections. No other observable trends in the crashes were identified.

Multimodal Conditions Assessment

The multimodal assessment includes an evaluation of bicycle level of traffic stress, pedestrian level of traffic stress, and a qualitative multimodal assessment of the existing transit systems. The multimodal assessment is used to identify system gaps and deficiencies in the existing bicycling and walking networks.

A gap is defined as a missing link in the network, such as an identified key route that is missing a sidewalk or designated bicycle facility. A deficiency is defined as a facility that does not meet the standard or is insufficient to meet the users' needs. Examples of deficiencies include:

- Locations with documented pedestrian and bicycle crash histories
- On-street connection that has a Bicycle Level of Traffic Stress rating greater than 2
- On-street connection that has a Pedestrian Level of Traffic Stress rating greater than 2
- Roadway crossings where enhancement may be warranted

Potential solutions to address these issues will be the focus of the next phase of this project.

Bicycle Level of Traffic Stress

Ontario's roadways were evaluated with respect to their suitability for bicycling. The ODOT Analysis Procedures Manual (APM) (Reference 1) provides a methodology for evaluating bicycle facilities called Bicycle Level of Traffic Stress (BLTS). As applied by ODOT, this methodology classifies four levels of traffic stress that a cyclist can experience on the roadway, ranging from BLTS 1 (little traffic stress) to BLTS 4 (high traffic stress). A road segment that is rated BLTS 1 generally has low traffic volumes and travel speeds and is suitable for all cyclists, including older children. A road segment that is rated BLTS 4 generally has high traffic volumes and travel speeds and is perceived as unsafe by most adults. The BLTS score is determined based on the vehicular speed and volume, number of travel lanes, presence and width of an on-street bicycle facility and/or adjacent parking lane, and at intersections, crossing related factors, such as the presence of turn lanes or a median refuge island. Per the APM, BLTS 2 is considered a reasonable target for bicycle facilities due to its acceptability for most adults. Table 2 provides a detailed description of each BLTS rating.

Table 2 Bicycle Level of Traffic Stress (BLTS) Description

BLTS Rating	Description of BLTS Segment, Suitability and Condition[1]
1	Represents little to no traffic stress, suitable for all cyclists. This includes children that are trained to safely cross intersections alone and supervising riding parents of younger children. Traffic speeds and volumes are low. Also includes paths and lanes that are physically separated from motor vehicle traffic.
2	Represents little traffic stress but requires more attention that young children can handle, so is suitable for teen and adult cyclists with adequate bike handling skills. Traffic speeds and volumes are slightly higher than LTS 1 streets, but speed differentials are still low.
3	Represents moderate stress and suitable for most observant adult cyclists. Traffic speeds and volumes are moderate.
4	Represents high stress and suitable for experienced and skilled cyclists. Traffic speeds and volumes are high.

[1]Descriptions for BTLS ratings were sourced from Chapter 14 of ODOT APM Volume 2.

Figure 7 shows the results of the BLTS evaluation. All roadway segments within the city were evaluated. Intersections between arterial and major collector roadways were also evaluated.

Most local roads and minor collectors within the city have a BLTS 1 or BLTS 2 rating. These roadways typically do not have dedicated bicycle facilities but tend to have low traffic speeds and low traffic volumes. These streets may be suitable for most adults for bicycling as they are today, so long as uncontrolled (e.g., unsignalized) crossings are addressed appropriately. Therefore, crossings are the primary focus when examining these streets for designation as a bike route.

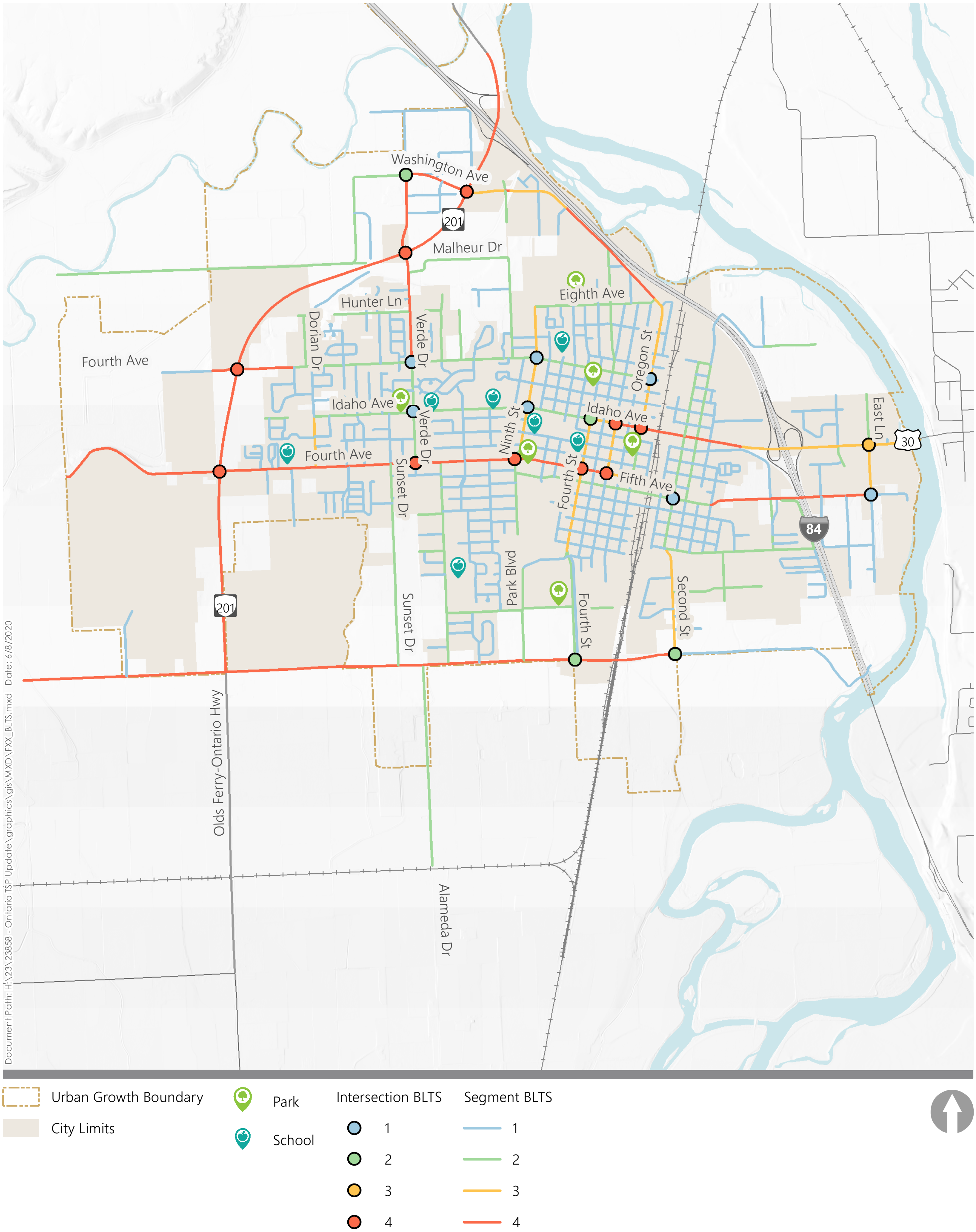

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Figure 7

Bicycle Level of Traffic Stress

Roadways that have BLTS 3 or BLTS 4 rating tend to have four to five-lane cross-sections, narrow or no bike lanes, and/or high vehicle speeds. Roadways within the study area that have a BLTS 3 or BLTS 4 rating are gaps in the bicycling network for children and most adults. Some of these locations are:

- N Oregon Street (OR 201 to Idaho Avenue)
- Fourth Avenue (OR 201 to SW 1st Street)
- Fifth Avenue (S Oregon Street to East Lane)
- Idaho Avenue (SW 2nd Street to Snake River)
- SW 18th Avenue (OR 201 to Second Street)

Most signalized intersections have BLTS 3 or BLTS 4 ratings due to a lack of bike lanes and higher vehicle speeds on the intersection approaches. Most unsignalized intersections have BLTS 1 or BLTS 2 ratings because they are on roadways with narrower cross-sections (e.g., two or three lanes) and lower vehicle speeds.

Other barriers to people biking in Ontario include I-84, the railroad, and crossing Fourth Avenue. There are only two roads that cross both I-84 and the railroad (Idaho Avenue and Fifth Avenue), and those roadways have BLTS 3 or BLTS 4 ratings at the crossing locations. From OR 201 to SW Second Street, Fourth Avenue has a five-lane cross-section, high vehicle speeds and volumes, and BLTS 4 ratings on all its intersections.

Pedestrian Level of Traffic Stress

The ODOT APM provides a similar analysis method for evaluating walking conditions, called Pedestrian Level of Traffic Stress (PLTS). This methodology classifies four levels of traffic stress that a pedestrian can experience on the roadway, ranging from PLTS 1 (little traffic stress) to PLTS 4 (high traffic stress). Per the APM, PLTS 2 is considered a reasonable target for most pedestrian facilities due to its acceptability for most people. Table 3 provides a detailed description of each PLTS rating.

Table 3 Pedestrian Level of Traffic Stress (PLTS) Descriptions

PLTS Rating	Description of PLTS Segment, Suitability and Condition[1]
1	Represents little to no traffic stress, suitable for all users including children 10 years or younger, groups of people and people using wheeled mobility devices. Provides a separated facility with a buffer between the pedestrian and vehicular traffic.
2	Represents little traffic stress but requires more attention to the traffic situation than of which young children may be capable. Suitable for children over 10, teens, and adults. Provides sidewalks in good condition; roadways may have higher speeds and volumes
3	Represents moderate stress and is suitable for adults. An able-bodied adult would feel uncomfortable but safe using this facility. Includes higher speed roadways with smaller or no buffers. Small areas in this facility may be impassable for a person using a wheeled mobility device. Some users are willing to use this facility
4	Represents high traffic stress. Only able-bodied adults with limited route choices would use this facility. Traffic speeds are moderate to high with narrow or no pedestrian facilities provided. Only the most confident users are willing to use this facility.

[1]Descriptions for PTLS ratings were sourced from Chapter 14 of ODOT APM Volume 2.

The PLTS score is based on four criteria, including sidewalk condition, physical buffer type, total buffering width, and general land use. All four criteria are scored from 1-4 and the highest score determines the overall score for the road segment.

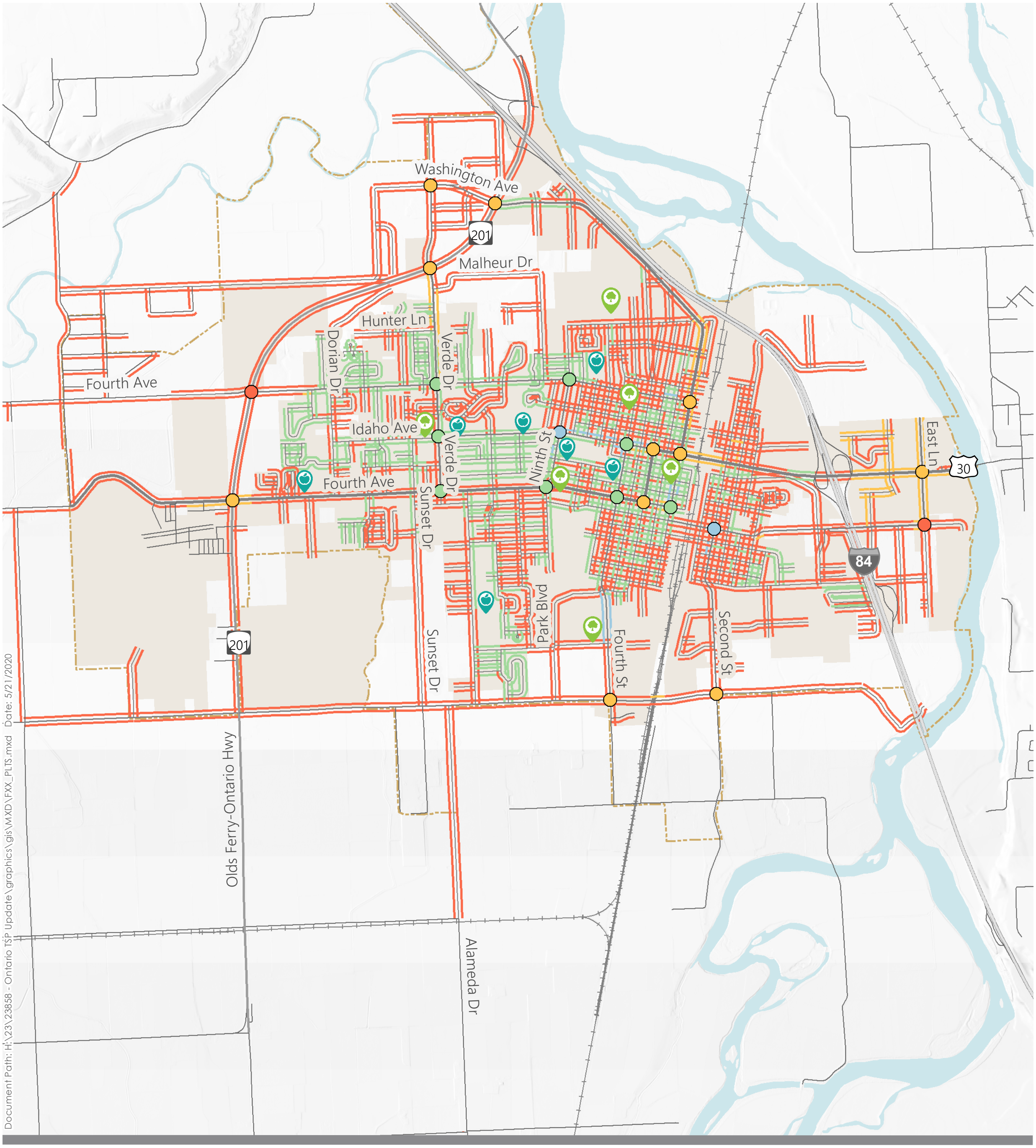
Figure 8 shows the results of the PLTS evaluation on the city's roadway facilities. All roadway segments within the city were evaluated, and both sides of these roadway segments were analyzed. Intersections between arterial and major collector roadways, the same intersections in the BLTS evaluation, were also evaluated.

Many roads were rated as PLTS 4. In general, this was driven by incomplete or non-existent sidewalks along a segment, such as in neighborhoods to the north of Idaho Avenue/west of Oregon Street and south of Idaho Avenue/east of the railroad tracks, or along multilane roadways where there was little buffering distance between the sidewalk and traffic, such as on SW Fourth Avenue. If no sidewalk is present, then the segment automatically receives a PLTS 4 rating, per the APM.

A PLTS 2 rating was common in areas with lower speed, two-lane roads with residential or commercial land uses. These are common in and around Ontario's central business district and in the residential neighborhoods north of Fourth Avenue and west of Ninth Street.

Most intersections received a PLTS 2 or PLTS 3 rating. While all of these intersections had pedestrian signals and marked crosswalks, permissive left and right turns were allowed at many locations, and some intersections did not have adequate lighting.

Other barriers to people walking in Ontario include I-84 and the railroad. There are only two roads that cross both I-84 and the railroad (Idaho Avenue and Fifth Avenue), and those roadways have PLTS 3 or PLTS 4 ratings at the crossing locations. Additionally crossing SW 4th Avenue can be stressful away from signalized intersections and as such presents itself as a barrier for people walking from the residential areas north of the street to commercial destinations on the south side of the street.



Urban Growth Boundary

City Limits

Park

School

Intersection PLTS	Segment PLTS
1	1
2	2
3	3
4	4

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Figure 8

Pedestrian Level of Traffic Stress

Transit Assessment

The APM provides a methodology for evaluating transit service, called the Qualitative Multimodal Assessment (QMA). It provides a high-level network evaluation of multimodal facilities and services to highlight areas for potential improvements. The methodology is based on principles of the 2010 Highway Capacity Manual and uses context-based subjective ratings of *Excellent*, *Good*, *Fair*, and *Poor*. The QMA methodology was used to evaluate the transit facilities and services in Ontario to identify potential areas to be addressed as part of this work.

The following factors are considered for the Transit QMA:

- Frequency and on-time reliability
- Schedule speed/travel times
- Transit stop amenities
- Connecting pedestrian/bike network

Table 4 outlines the methodology used for determining transit QMA within the City of Ontario.

Table 4 Transit QMA Methodology

Category	Excellent	Good	Fair	Poor
Frequency and on-time reliability	<15-minute headways	15 to 30-minute headways	30 to 60-minute headways	60+ minute headways
Schedule speed/travel times	<20% slower than driving	20% to 40% slower than driving	40% to 60% slower than driving	>60% slower than driving
Transit stop amenities	Shelter	Bench	Sign with waiting area	No waiting area and/or no sign
Connecting pedestrian/bike network	BLTS and PLTS 2 or better and crossing	BLTS and PLTS 2 or better with no crossing	BLTS or PLTS >2 and no crossing	BLTS and PLTS >2 and no crossing

Table 5 shows the results of the QMA for the SRT-Malheur Express. The Snake River Transit fixed-route line did not undergo a QMA as it only has one stop in the City of Ontario. As shown in Table 5, the SRT-Malheur Express has a “Poor” QMA rating due to its travel time compared to driving.

Table 5 Transit QMA Results

Route	Frequency & On-Time Reliability	Schedule Speed & Travel Time	Transit Stop Amenities	Connection to Bicycle and Pedestrian Network	Overall Transit QMA Rating
SRT-Malheur Express	Bus line has 60-minute headways – ***Fair***	Travel across town with the bus (from the Walmart bus stop to the Grocery Outlet bus stop) is over 100% slower than driving – ***Poor***	Varies by stop. Some stops have a shelter, while some stops only have a sign.	Varies by stop. See LTS results in Figure 7 and Figure 8.	***Poor***[1]

[1]The poor rating assigned to the Schedule Speed and Travel Time category is the worst-case rating and will determine the Overall Transit QMA Rating, regardless of the other ratings

Planned Infrastructure Improvements

The City's 2006 TSP and 2018 Parks and Recreation Master Plan contain projects to improve walking and biking in Ontario. The projects include sidewalks, off-street trails, and bike lanes. These projects are shown in *Attachment C*.

EAST IDAHO AVENUE REFINEMENT AREA

The second component of this memo is an assessment of existing traffic and safety conditions in the East Idaho Avenue Refinement Area. This assessment will be used as the baseline for the East Idaho Avenue Refinement Plan, which will address active transportation connectivity, vehicle circulation, and streetscape improvements in the area.

Study Area

The Refinement Area consists of East Idaho Avenue between I-84 and the Snake River Idaho Bridge. The study area is shown in Figure 9. The existing conditions assessment of the area will focus on traffic and safety conditions at the six study intersections shown in Figure 9.

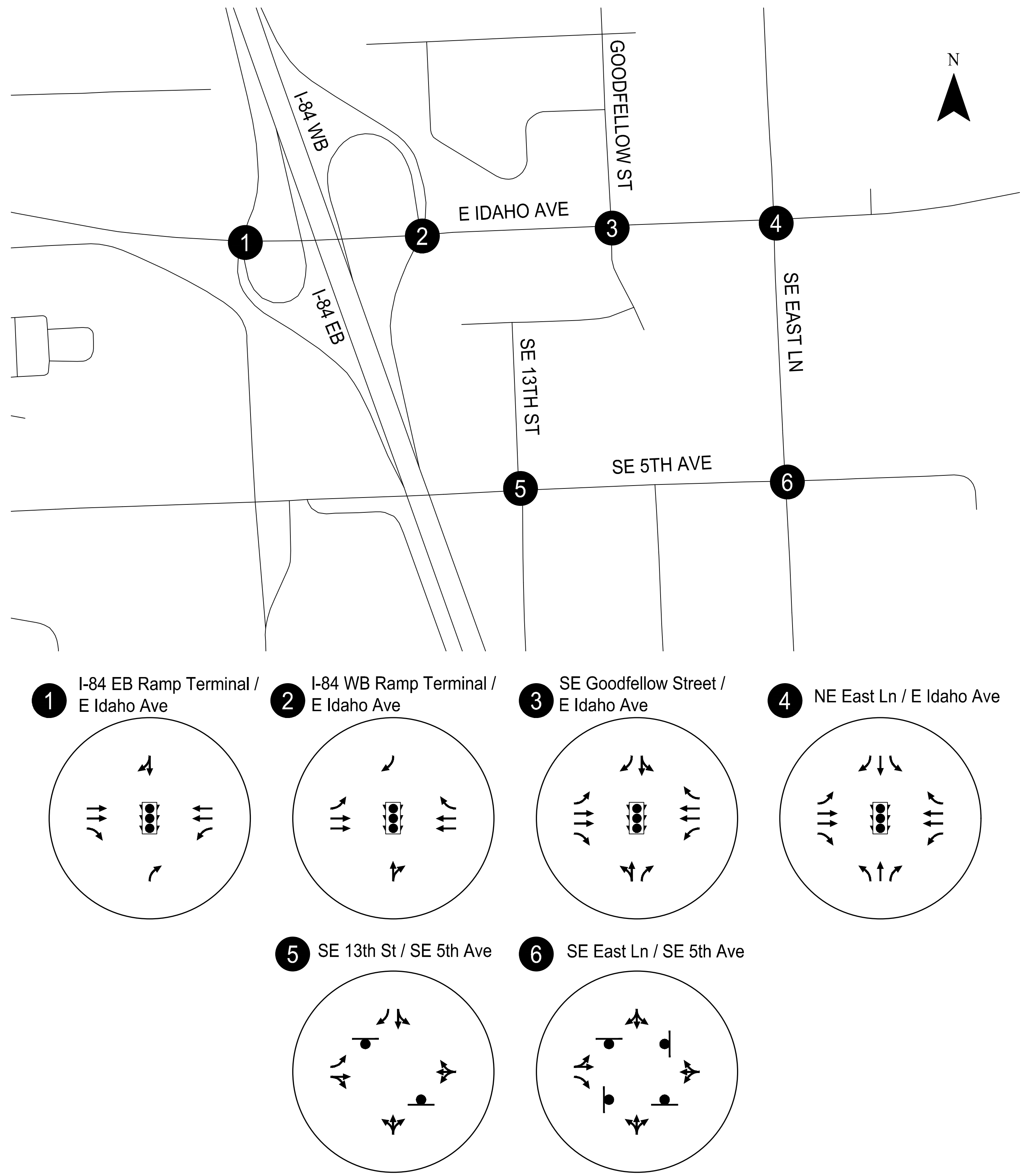
Roadway Facilities

Figure 9 shows the study intersection lane configurations. Table 1 shows the basic characteristics of the roadways within the East Idaho Refinement Area, including ownership, functional classification, and freight route designation. Roadways in the study area are owned and maintained by the City or by ODOT. East Idaho Avenue and the I-84 On and Off-Ramps are the only designated freight routes in the study area.

Table 6 Existing Transportation Facilities and Roadway Designations

Roadway	Existing Roadway Ownership	Functional Classification[1]	Cross Section	Posted Speed (MPH)	Designated Freight Route?[2]
E Idaho Ave (US 30)	ODOT	District Highway (E of I-84) State Highway (W of I-84)	5 lanes	35	OHP Freight Route (west of I-84, only), Reduction Review Route, and National Network State Freight Route
Goodfellow St	City	Minor Collector	2 lanes	Not Posted	No
SE 13th St	City	Local Road	2 lanes	Not Posted	No
East Ln	City	Minor Arterial	2 lanes	25	No
SE 5th Ave	City	Minor Arterial	2 lanes	35	No

[1]ODOT Functional Classifications are from the *Oregon Highway Plan (*Reference 2) and City functional classifications are from the *City of Ontario Transportation System Plan* (Reference 3) [2]Data for ODOT facilities is from ODOT TransGIS website (Reference 4)



LEGEND

- \# - Study Intersections
- Stop Sign
- Lane Movement

Existing Lane Configurations
East Idaho Ave Refinement Area
Ontario, OR

Figure
9

Analysis Methodology

The Highway Capacity Manual, 6th Edition (HCM 6) methodology was used to analyze traffic operations at all the study intersections. Synchro 10 software produced HCM 6 reports for all intersections that summarize the intersection level-of-service and delay. Intersection volume-to-capacity (V/C) ratios were manually calculated using the HCM 6 methodology.

Performance Measures

Intersection operations along E Idaho Avenue (US 30) are assessed against the mobility targets presented in the OHP. The OHP provides different target V/C ratios depending on the roadway type and whether the roadway is in a metro area.

The Ontario TSP (Reference 3) presents a level of service (LOS) standard for intersection operations on City roadways (i.e., SE 5th Avenue). The City LOS standard is LOS 'D' for signalized intersections and LOS 'E' for unsignalized intersections, though signal warrants should be checked if the critical movement at an unsignalized intersection operates at LOS 'E.'

Performance measures for the study intersections are shown in Table 7.

Table 7 Study Intersection Performance Measures

Intersection	OHP Mobility Target or City LOS Standard
I-84 EB Ramp Terminal / E Idaho Ave	0.85
I-84 WB Ramp Terminal / E Idaho Ave	0.85
SE Goodfellow St / E Idaho Ave	0.95
NE East Lane / E Idaho Ave	0.95
SE 13th St / SE 5th Ave	LOS E (if signal warrants are not met), LOS D (if signal warrants are met)
SE East Ln / SE 5th Ave	LOS E (if signal warrants are not met), LOS D (if signal warrants are met)

Traffic Volumes

Manual traffic counts were conducted by ODOT at the study intersections along E Idaho Ave on a Monday in June 2018 from 6:00 a.m. to 10:00 p.m. The City of Ontario collected traffic counts at the SE 5th Ave/SE East Ln and SE 13th St/S 5th Ave intersections on March 3rd, 2020 (a Tuesday) from 7:00 a.m. to 9:00 a.m. and 4:00 p.m. to 6:00 p.m.

30th Hour Volumes (30 HV) were developed by applying seasonal factors to the traffic counts. The ATR Characteristic Table Method, described in the APM, was used. A seasonal adjustment factor of 1.02 was applied to the traffic counts collected in June and a seasonal adjustment factor of 1.09 was applied to the traffic counts collected in March.

The East Idaho Avenue traffic counts conducted in year 2018 were adjusted to year 2020 by using the cumulative growth method based on infill development. Table 8 shows the estimated trip generation of development built after the year 2018 traffic counts. The total trips shown in Table 8 were assigned to the study intersections based on the existing distribution of traffic at the study intersections.

Table 8 Infill Development Trip Generation

Land Use	ITE Code[1]	Units	Daily	Weekday AM Peak Hour			Weekday PM Peak Hour		
				Total	In	Out	Total	In	Out
Marijuana Dispensary	882	2,000 sf	506	21	12	9	44	22	22
Car Wash and Detail Center	949	9 Wash Stalls	972	78	49	29	122	60	62
Used Automobile Sales	841	3,000 sf	81	6	5	1	11	5	6
Department Store	875	40,000 sf	915	23	15	8	78	39	39
Mini-Warehouse Storage	151	52 units	79	5	3	2	9	4	5
Total:			**2,553**	**133**	**84**	**49**	**264**	**130**	**134**

[1]ITE Codes and trip generation rates are from Trip Generation Manual 10th Edition (Reference 5)

The year 2020 traffic volumes for the a.m. and p.m. peak hours are shown in Figure 10 and Figure 11, respectively.

Existing Traffic Operations Analysis Results

Traffic operations at the study intersections under existing traffic conditions are shown Figure 10 and Figure 11 for the a.m. and p.m. peak hours, respectively. All intersections meet the target performance measures shown in Table 7. Traffic operations worksheets are shown in *Attachment D*.

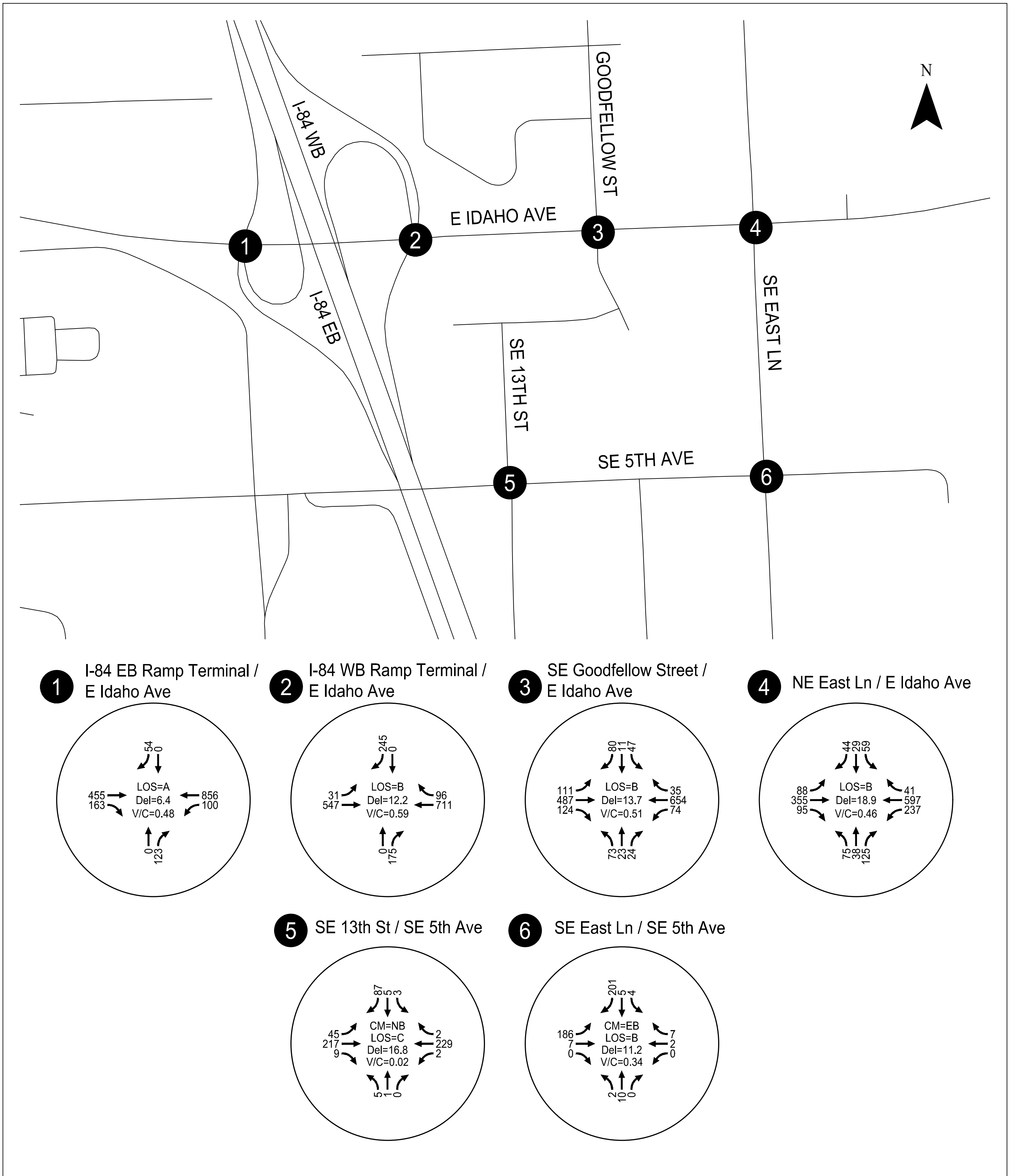
Crash Analysis

Crash records for the East Idaho Avenue Refinement Area were obtained from ODOT for the most recent five-year period for which data was available (January 1, 2013 through December 31, 2017). A summary of the crash activity at each intersection is shown in Table 9.

Table 9 Summary of Crash Activity at East Idaho Avenue Study Intersections

Intersection	# of Crashes	Crash Severity			Crash Type						Crash Rate[1]
		PDO	Injury	Fatal	Rear-End	Turning	Angle	Sideswipe	Bike/Ped	Other	
E Idaho Ave / I-84 EB Ramps	28	12	16	0	19	7	1	1	0	0	0.52
E Idaho Ave / I-84 WB Ramps	33	14	19	0	23	7	1	0	2	0	0.62
E Idaho Ave / Goodfellow St	45	27	18	0	23	10	7	1	2	2	***0.89***
E Idaho Ave / East Ln	57	27	30	0	41	9	1	3	0	3	***1.00***
SE 13th St / SE 5th Ave	4	1	3	0	0	3	0	0	1	0	0.22
SE East Ln / SE 5th Ave	2	0	2	0	0	1	0	0	0	1	0.21

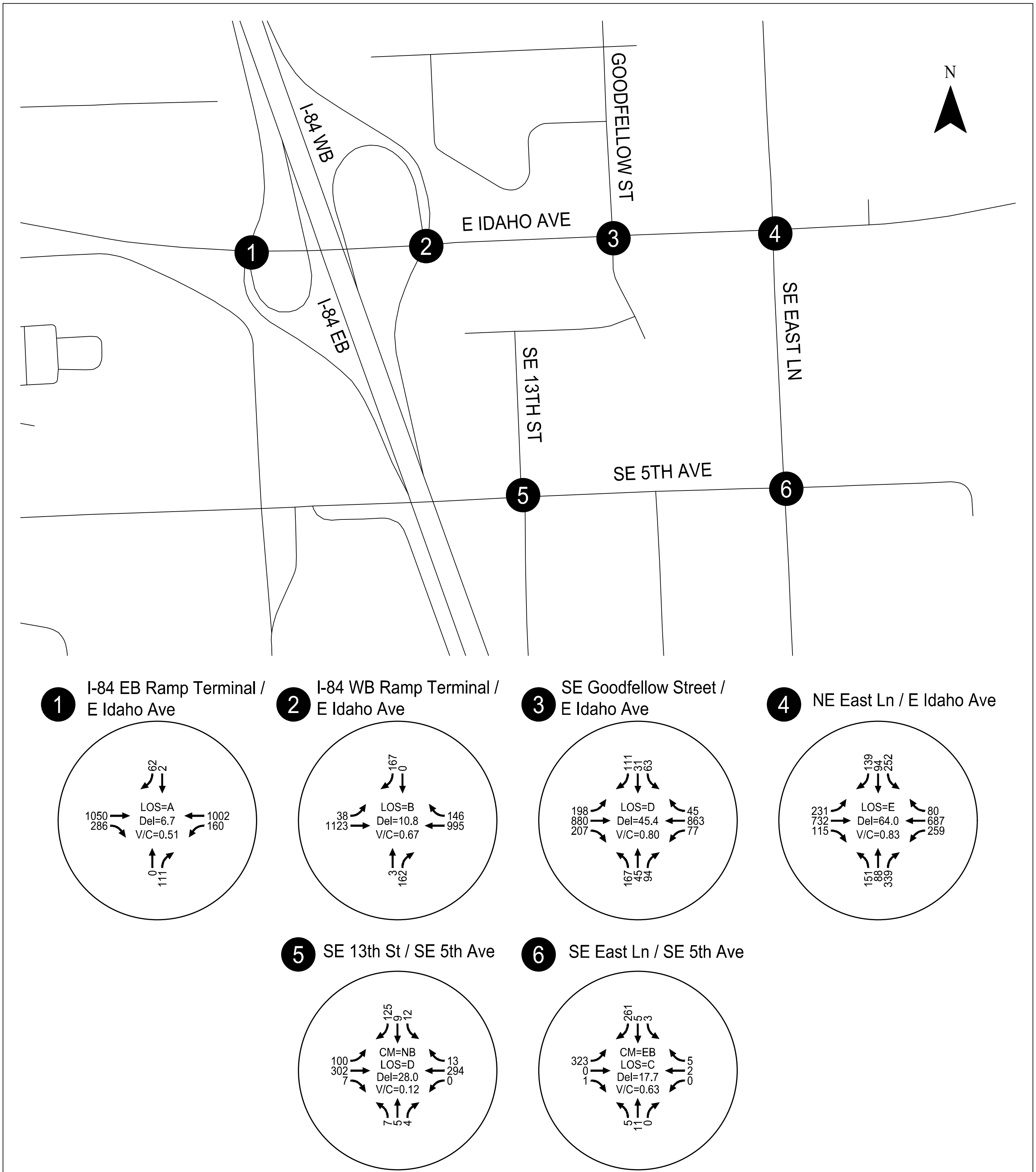
[1]Crash rate per million entering vehicles. Crash rates **bolded**, *italicized*, and shaded red are above the 90th percentile crash rates of similar intersections.



\# - Study Intersections
CM - Critical Movement
LOS - Level of Service
Del - Vehicle Delay (s)
V/C - Volume-To-Capacity Ratio

Existing AM Peak Hour Operations
East Idaho Ave Refinement Area
Ontario, OR

Figure 10



\# - Study Intersections
CM - Critical Movement
LOS - Level of Service
Del - Vehicle Delay (s)
V/C - Volume-To-Capacity Ratio

Existing PM Peak Hour Operations
East Idaho Ave Refinement Area
Ontario, OR

Figure 11

The 90th percentile crash rate at 4-leg signalized and stop-controlled intersections in Oregon is 0.86 crashes/MEV and 0.41 crashes/MEV, respectively, as per the ODOT APM (Reference 1). The East Idaho Avenue/Goodfellow Street and East Idaho Avenue/East Lane intersections both have crash rates higher than the 90th percentile crash rate and are also noted as intersections in the 90th to 95th percentile category of the ODOT Safety Priority Index System (SPIS). These intersections will be evaluated further in the next phase of the project.

Approximately 65% of all crashes in the East Idaho Refinement Area are rear-ends. There is currently no coordination between the traffic signals on East Idaho Avenue, which could contribute to congestion on the corridor and an increase in rear-end related crashes. Other key crash data findings for study intersections on East Idaho Avenue are as follows:

- East Idaho Avenue/I-84 EB Ramps
  - 4 of the turning crashes were between vehicles turning left onto the I-84 EB Ramp and vehicles going straight on East Idaho Avenue
- East Idaho Avenue/I-84 WB Ramps
  - 5 of the turning crashes were between vehicles turning left onto the I-84 WB Ramp and vehicles going straight on East Idaho Avenue
  - 9 rear-ends on south approach
  - 2 bike crashes on south side of intersection
- East Idaho Avenue/Goodfellow Street
  - 7 of the turning crashes were between straight and turning vehicles from opposite directions
  - Crash activity primarily in center of intersection (angle/turning) and on east/west approaches (rear-ends)
  - The majority of injury crashes (56%) are turning/angle related
- East Idaho Avenue/East Lane
  - Highest amount of crashes and highest crash rate in East Idaho Avenue Refinement Area
  - The highest number of rear-end crashes (18) are on the EB approach
  - The majority of injury crashes (83%) are rear-end crashes

Bicycle and Pedestrian Activity in the East Idaho Avenue Refinement Area

The following section describes bicycle and pedestrian counts at the East Idaho Avenue study intersections and provides an inventory of existing bicycle and pedestrian facilities in the East Idaho Avenue Refinement Area.

Bicycle and Pedestrian Counts

Pedestrian counts were included in the 16-hour traffic counts at the East Idaho Avenue study intersections. Bicycle counts were included in the 16-hour traffic counts at the East Idaho

Avenue/Goodfellow Street and East Idaho Avenue/East Lane intersections. Figure 12 shows the 16-hour bicyclist and pedestrian counts at the East Idaho Avenue study intersections.

Figure 12 Bicycle and Pedestrian Counts on East Idaho Avenue

Pedestrian crossing volumes are the highest at the Goodfellow Street intersection with similar amounts of activity across all four legs of the intersection. Crossings of E Idaho Avenue are similar at the Goodfellow Street and East Lane intersections. There is little recorded bicyclist activity at all study intersections. Generators of pedestrian activity in the area include restaurants, motels, the Greyhound bus station and transit center, and other commercial businesses.

Bicycle and Pedestrian Facilities

Bicycle and pedestrian facilities within the Refinement Area are shown in Figure 2 and Figure 3. East Idaho Avenue has bike lanes and full sidewalk coverage within the study area. There are marked pedestrian crossings on all signalized intersection legs, with the exceptions of the east leg of the East Idaho Avenue / I-84 WB Ramp Terminal intersection and the west leg of East Idaho Avenue / I-84 EB Ramp Terminal intersection.

There are some gaps in sidewalk coverage and no bike lanes on Goodfellow Street, East Lane, and SE 13th Street within the East Idaho Avenue Refinement Area. The majority of SE 5th Avenue does not have sidewalk coverage.

REFERENCES

1. Oregon Department of Transportation. *Analysis Procedures Album*. 2019.
2. Oregon Department of Transportation. *Oregon Highway Plan.* 2015.
3. City of Ontario. *Transportation System Plan*. 2006.
4. Oregon Department of Transportation. *TransGIS Website*. https://gis.odot.state.or.us/transgis/. Accessed in March 2020.
5. Institute of Transportation Engineers. *Trip Generation Manual 10th Edition*. 2017.

Attachment A
Active Transportation and Transit Toolbox

This document provides a compilation of active transportation treatments including bicycle, pedestrian and transit development features that could potentially be considered for implementation within the Ontario Active Transportation Plan Update study area. This toolbox provides illustrative examples of design elements, including text explanations of the pros and cons for use within the Study Area, and outlines the approximate right-of-way (ROW) as well as other factors to consider in development of alternatives.

ACTIVE TRANSPORTATION TREATMENTS

The treatments are organized into the following categories:

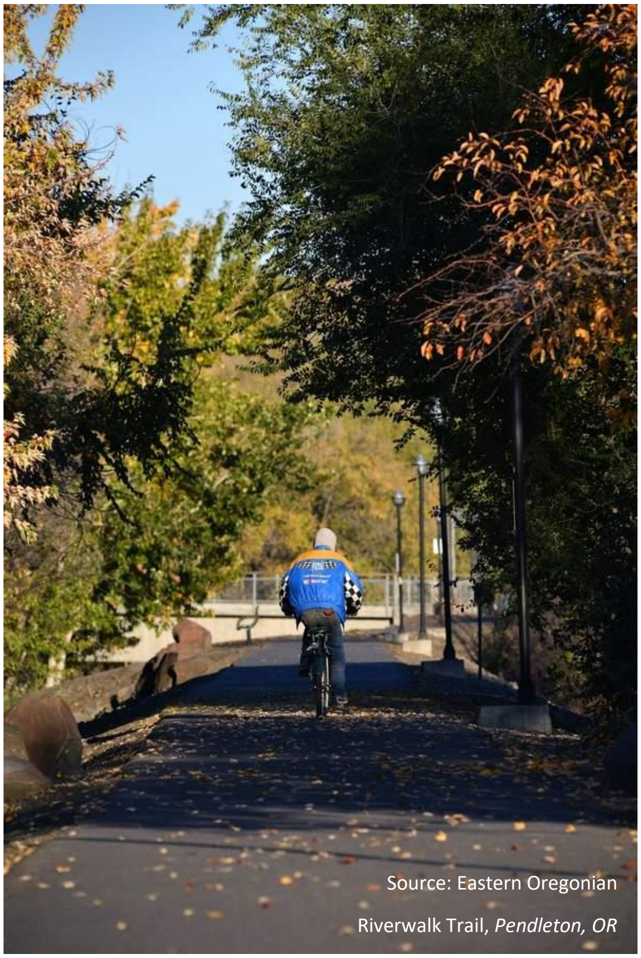
- Bicycle Facilities & Amenities
- Pedestrian Facilities & Amenities
- Transit Facilities & Amenities

Headers and footers indicate the categories. Where applicable, the treatments are organized from highest level of protection to lowest level of protection. Typically, the treatments that provide the most protection will have the highest appeal to a wide variety of users. For example, bicycle treatments are commonly categorized by the level of separation they provide bicyclists from motor vehicles. Separated facilities have been found to attract more bicyclists of a variety of ages and abilities and are generally considered “lower stress” facilities. However, separated facilities must be carefully designed to allow for safe crossings and turning movements for both motor vehicles and bicyclists at intersections. As another example, treatments for pedestrian mid-block crossings range from a high-level of protection with a pedestrian signal to a lower level of protection with a high-visibility crosswalk. Intermediary levels of protection can be provided with a pedestrian hybrid beacon or rectangular rapid flashing beacon.

Each treatment page also includes a section with resources for additional guidance on that treatment. The ODOT Blueprint for Urban Design can also be used as a resource for identifying appropriate treatment types based on a performance based, context sensitive, and practical design approach to accommodate all modes of transportation.

MULTI-USE PATH

Cost: $$$



Source: Eastern Oregonian

Riverwalk Trail, *Pendleton, OR*

Powder River Trail, *Baker City, OR*

Multi-use paths are paved, bi-directional, trails away from roadways that can serve both pedestrians and bicyclists. Multi-use paths can be used to create longer-distance links within and between communities and provide regional connections. They play an integral role in recreation, commuting, and accessibility due to their appeal to users of all ages and skill levels.

Benefits

- Provides facility for both pedestrians and bicyclists in less space than separate facilities.
- Separation from motor vehicles can attract users of all levels.

Constraints

- May be unsafe in areas with frequent crossings or driveways.
- When parallel to roadways, requires substantial space for buffer.
- Potential for conflicts between bicyclists and pedestrians due to shared facility.
- Isolated paths may introduce personal security concerns.

Typical Applications

- Medium- to long-distance links within and between communities that also serve as recreational facilities.
- Parallel to roads in rural areas where sidewalks and on-street facilities are not present.

Design Considerations

- Best suited in areas where roadway crossings can be minimized (such as parallel to travel barriers such as highways, railroad tracks, rivers, shorelines, natural areas, etc.).
- Necessitate high-visibility treatments for crossings.
- A minimum width of 10 feet is recommended for low-pedestrian/bicycle-traffic contexts; 12 to 20 feet should be considered in areas with moderate to high levels of bicycle and pedestrian traffic.
- Pavement markings can be used to indicate distinct space for pedestrian and bicycle travel.

Additional Guidance

- AASHTO Guide for the Development of Bicycle Facilities
- ODOT Highway Design Manual

BUFFERED BIKE LANE

Cost: $-$$$

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

- A parking-edge buffer on streets with on-street parking can reduce the likelihood of "dooring."
- Increased separation from motor vehicles (over standard bicycle lanes) can increase bicyclist comfort.

Constraints

- Does not provide physical protection and therefore may not attract bicyclists of all levels.
- 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

ONE-WAY SEPARATED BIKE LANE

Cost: $-$$$

A one-way separated bike lane (SBL), also known as a cycle track or protected bike lane, is a bicycle facility within the street right-of-way separated from motor vehicle traffic by a buffer and a physical barrier, such as planters, flexible posts, parked cars, or a mountable curb. On two-way streets, a one-way SBL would be found on each side of the street, like a standard bike lane.

Benefits

- Provides physical separation from motor vehicle traffic, which can attract users of all levels.
- Buffer can provide opportunities for landscaping.
- Reduced risk of "dooring" when parked cars are present.

Constraints

- Requires additional right-of-way over standard bike lane.
- Construction may be more expensive than standard bike lane.
- May introduce street maintenance considerations, depending on buffer type.

Typical Applications

- Roadway segments with sufficient right-of-way or where a "road diet" (vehicle lane reduction) can be implemented.
- Key segments of the bicycle network where more protection is desirable, such as areas with higher traffic volumes or speeds, or routes to common destinations, like schools.
- Roadways with infrequent driveways and side street accesses.

Design Considerations

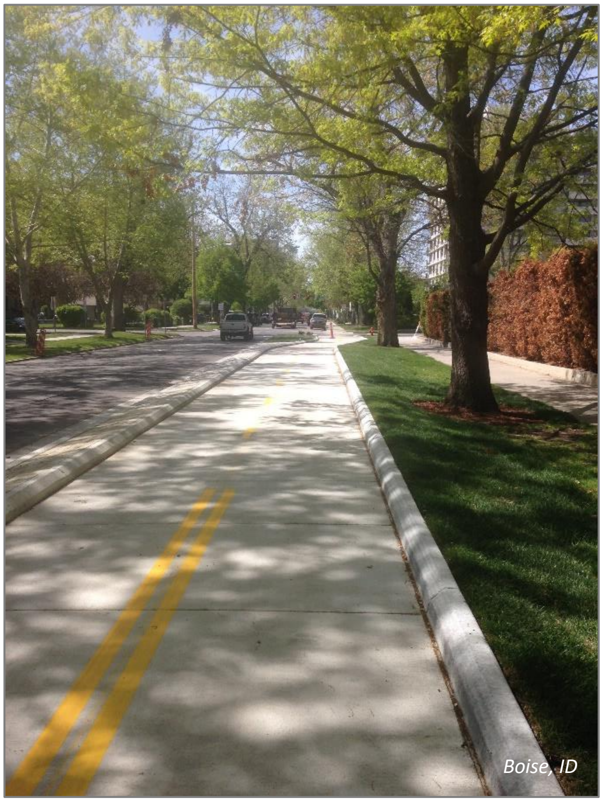
- Intersections must be designed to ensure visibility of bicyclists using the facility. Treatments include separate signal phases for bicyclists and high visibility pavement markings.
- Buffer type can vary depending on context, presence of parking, and available right-of-way.
- Green pavement markings or striping can add visibility and awareness in "conflict areas" or intersections where bicycle and vehicle travel paths cross.

Additional Guidance

- NACTO Urban Bikeway Design Guide
- CROW Design Manual for Bicycle Traffic
- ODOT Highway Design Manual
- ODOT Bicycle and Pedestrian Design Guide
- FHWA Separated Bike Lane Planning and Design Guide

TWO-WAY SEPARATED BIKE LANE

Cost: $-$$$



A two-way separated bike lane (SBL), also known as a two-way cycle track or protected bike lane, is a facility within the street right-of-way separated from motor vehicle traffic by a buffer and a physical barrier, such as planters, flexible posts, parked cars, or a mountable curb. Two-way SBLs serve bi-directional bicycle travel within the facility on one side of the street.

Benefits

- Requires less right-of-way than a one-way SBL, due to the need for only one buffer.
- Provides physical separation from motor vehicle traffic, which can attract users of all levels.
- Reduced risk of “dooring” when parked cars are present.

Constraints

- May be less intuitive due to apparent “wrong-way” travel on one side of street.
- Concern about crashes in areas with frequent crossings or driveways.
- Construction may be more expensive than standard bike lane.
- May introduce street maintenance considerations, depending on buffer type.

Typical Applications

- On-street connections between off-street multi-use paths.
- Roadways with infrequent driveways and side street accesses.
- Key segments of the bicycle network where more protection is desirable, such as areas with higher traffic volumes or speeds or routes to common destinations, like schools.
- On one-way streets where two-way bicycle travel is desirable.

Design Considerations

- Intersections must be designed to ensure visibility of bicyclists using the facility. Treatments include separate signal phases for bicyclists and high visibility pavement markings.
- Buffer type can vary depending on context, presence of parking, and available right-of-way.
- Green pavement markings or striping can add visibility and awareness in “conflict areas” or intersections where bicycle and vehicle travel paths cross.

Additional Guidance

- Same as for one-way SBLs

STANDARD BIKE LANE

Cost: $-$$$

A standard bike lane is an on-street facility that provides space designated for bicyclists, separated from vehicles by pavement markings.

Heppner, OR

Redmond, OR

Benefits

- Provides a designated facility for bicyclists using the minimum pavement width.
- 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 does not attract bicyclists of all levels.

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

PAVED SHOULDER

Cost: $-$$

Tucson, AZ

Irrigon, OR

A paved road shoulder can serve as a bicycle facility that provides space separated from motor vehicle traffic in rural areas.

Benefits

- Provides a space separated from motorists.
- Requires less right-of-way than a separated multi-use path.

Constraints

- Does not provide physical protection from vehicles and may not attract bicyclists of all levels.
- Shoulders serving other uses, such as broken-down vehicles, may force bicyclists into travel lanes.

Typical Applications

- Typically applied on rural roadways.
- Also used as an interim treatment in urbanizing areas.

Design Considerations

- A 6-foot width is preferred to accommodate bicycle travel, with a 4-foot minimum in constrained areas. Greater widths can be used in higher-speed locations.
- Rumble strips or profiled striping can be used to enhance safety and minimize motorists encroaching on the shoulder.

Additional Guidance

- AASHTO Guide for the Development of Bicycle Facilities
- ODOT Highway Design Manual
- ODOT Bicycle and Pedestrian Design Guide

SHARED LANE ROADWAYS

Cost: <$

Prince George's County, MD

Portland, OR

Boise, ID

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.
- 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)

BICYCLE PARKING

Cost: $

Baker City, OR

Boise, ID

Devices and/or areas that allow secure bicycle parking, often located at areas of high bicycle and pedestrian traffic such as bus stations, shopping centers, schools, and multi-use trails.

Benefits

- Provides a secure location to store and lock bicycles.
- Relatively inexpensive and easy installation.
- Encourages community bicycle use and makes local attractions/businesses more accessible to bicyclists.

Constraints

- Requires space in potentially busy areas, such as sidewalks.
- May remove on-street parking space if located on the roadway.

Typical Applications

- Typically provided at areas of high bicycle and pedestrian traffic such as bus stations, shopping centers, schools, and multi-use trails.

Design Considerations

- The size and design of the bicycle rack can vary based on the estimated number of users and available space.
- Covered bicycle parking can provide protection from the weather for parked bicycles and people as they lock and unlock bikes. Bike lockers can provide additional security.
- If possible, bicycle racks should be placed immediately adjacent to the entrance/location they serve.
- Rack should not be placed to block the entrance of a building or inhibit pedestrian flow.
- Racks should be easy to find, convenient, and secure.

Additional Guidance

- APBP Bicycle Parking Guidelines

PEDESTRIAN PATH (SIDEPATH)

Cost: $$


Heppner, OR


Portland, OR

A pedestrian path is a hard-surface path adjacent to the roadway in lieu of a sidewalk in areas where other bicycle facilities exist. Similar to a multi-use path, pedestrian paths are narrower in width and generally do not invite bicycle travel.

Benefits

- Provides a hard surface for pedestrians buffered from the roadway.
- Requires less right-of-way than a multi-use path.
- Lower cost than construction of a full sidewalk with curb and gutter.

Constraints

- May also attract bicyclists, creating the potential for conflicts between pedestrians and bicyclists.

Typical Applications

- In constrained rural areas where sidewalks are not present and multi-use paths cannot be accommodated.
- As an interim treatment in urbanizing areas to make connections between sidewalk facilities.

Design Considerations

- Typically 5- to 8-foot wide asphalt surface.
- Pedestrian paths are typically separated from the roadway by a gravel or vegetated buffer instead of a curb and gutter.
- Should follow ADA standards to allow for universal access.
- Though not intended for bicyclists, pedestrian paths may attract bicyclists if a separate bicycle facility is not provided.

Additional Guidance

- FHWA Designing Sidewalks and Trails for Access
- ODOT Highway Design Manual

SIDEWALK

Cost: $$$


Boise, ID


Heppner, OR

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.
- 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

SHOULDER PEDESTRIAN FACILITY

Cost: $-$$

Portland, OR

Boise, ID

A paved shoulder facility provides access for pedestrians on a hard surface in rural areas where sidewalks are not present.

Benefits

- Provides a hard surface space separated from motorists.
- Requires less right-of-way than a separated multi-use path.
- More cost-effective than installing sidewalks.

Constraints

- Does not provide physical protection of a curb and may not be comfortable for all users.
- Shoulders serving other uses, such as broken-down vehicles, may force pedestrians into travel lanes.

Typical Applications

- Typically applied on rural roadways.
- Also used as an interim treatment in urbanizing areas.

Design Considerations

- A 6-foot width is preferred to accommodate pedestrian travel, with a 4-foot minimum of paved surface in constrained areas. Greater widths can be used in higher-speed locations.
- Rumble strips or profiled striping can be used to enhance safety and minimize motorists encroaching on the shoulder.

Additional Guidance

- ODOT Highway Design Manual
- AASHTO Green Book

PEDESTRIAN HYBRID BEACON

Cost: $$$-$$$$

Juneau, AK


Boise, ID

A pedestrian hybrid beacon (sometimes called a HAWK signal) is a pedestrian activated signal that is unlit when not in use. It begins with a yellow light alerting drivers to slow, and then displays a solid red light requiring drivers to remain stopped while pedestrians cross the street. Finally, the beacon shifts to flashing red lights to signal that motorists may proceed after pedestrians have completed their crossing.

Benefits

- Has nearly 100 percent rate of motorist yielding behavior at crossing locations.
- Improves pedestrian safety and reduces pedestrian-involved crashes.
- Less delay to motor vehicle drivers than a signal.

Constraints

- Must be activated by pedestrians.
- More costly than other crossing treatments.

Typical Applications

- Midblock crossings with high pedestrian or bicycle demand and/or high traffic volumes.
- At locations where multi-use paths intersect with roadways.

Design Considerations

- The push button to activate the pedestrian hybrid beacon should be easily accessible by pedestrians, wheelchair users, and bicyclists (if applicable).

Additional Guidance

- Manual on Uniform Traffic Control Devices (MUTCD)
- NACTO Urban Street Design Guide
- NCHRP Report 562 Improving Pedestrian Safety at Unsignalized Crossings
- http://safety.fhwa.dot.gov/provencountermeasures/

RECTANGULAR RAPID FLASHING BEACON (RRFB)

Cost: $$-$$$

Pendleton, OR

Irrigon, OR

Bend, 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

CROSSING ISLAND (PEDESTRIAN REFUGE)

Cost: $-$$


Bend, OR

Sacramento, CA

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

- Reduces pedestrian exposure at marked and unmarked crosswalks.
- Requires shorter gaps in traffic to cross the street.
- Allows pedestrians to cross in two phases.
- Proven safety countermeasure.

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.

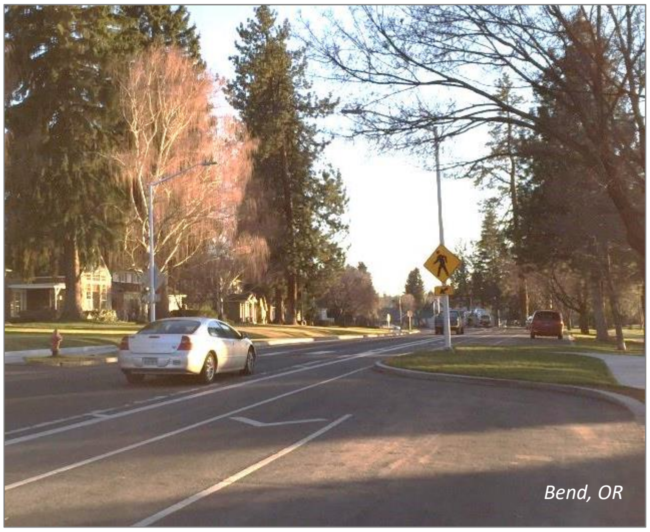
Additional Guidance

- ODOT Bicycle and Pedestrian Design Guide
- NACTO Urban Streets Design Guide
- NCHRP Report 562 Improving Pedestrian Safety at Unsignalized Crossings
- http://safety.fhwa.dot.gov/provencountermeasures/

BULB-OUT/CURB EXTENSIONS

Cost: $$

Heppner, OR



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.
- Reduces motorist turning speeds.
- Increases visibility between motorists and pedestrians.
- Enables permanent parking
- Enables tree and landscape planting and water runoff treatment.

Constraints

- Can only be used on streets with unrestricted on-street parking.
- 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*

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 busses, large trucks, snow plows, and low ground clearance vehicles.
- Relatively expensive.
- Forces emergency vehicles to slow down

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.

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*

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.
- Designates a preferred crossing location for pedestrians.
- Motorists are required to stop for pedestrians entering crosswalks.
- 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

STREET FURNITURE AND LIGHTING

Cost: $-$$$


Austin, TX


Ft Lauderdale, FL

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.

Benefits

- Encourages walking and sense of comfort and security for pedestrians.
- Street furniture can be relatively inexpensive and easy installation.
- Encourages foot traffic and can make local attractions/ businesses inviting.

Constraints

- Requires space in potentially busy areas, such as sidewalks.
- Can reduce the pedestrian travel spaces on narrower sections.

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

Transit Facilities/Service Types

BUS STOP

Cost: $$$


Molalla, OR


Pendleton, OR

Transit stop shelters help protect passengers waiting to load the bus from the elements and provides a great level of comfort. They also increase the visibility of transit stops and attractiveness for riders.

Benefits

- Provides protection from the elements and a place to sit for people waiting for transit.
- Provides a prominent visual cue about where the transit stop is located.

Constraints

- Require sufficient space along the street for bus to safely pull over and stop.
- Sign poles and stop amenities require maintenance

Typical Applications

- Install bus stops at locations with potential or existing transit demand
- Inclusion of amenities such as shelters and seating can be determined based upon daily boardingsor market served (e.g. bus stop at senior center probably needs seating)

Design Considerations

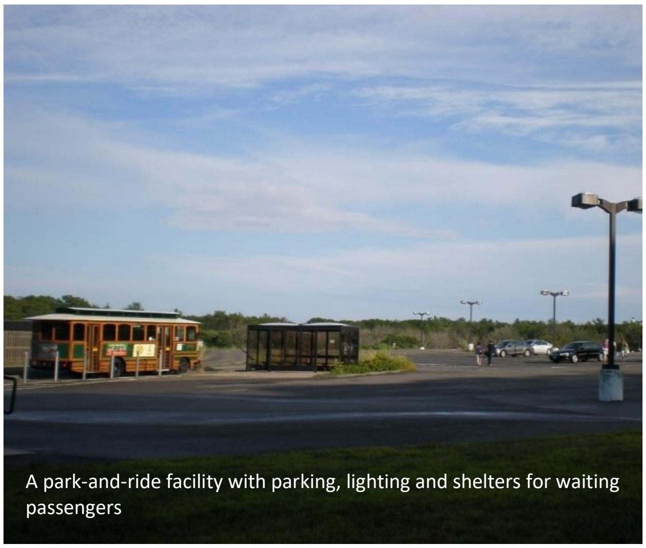
- The style of the transit stop shelter can depend on the preferences of the local jurisdiction.
- At stops with a high number of daily boardings (i.e. over 100), a larger shelter or multiple shelters should be considered.
- Shelters should be cleaned and maintained regularly.
- Shelters should have transparent sides for greater visibility and panels should be resistant to fading or clouding.

Additional Guidance

- TCRP Report 19: Guidelines for the Location and Design of Bus Stops
- Transit in Small Cities: A Primer for Planning, Siting and Designing Transit Facilities in Oregon

PARK-AND-POOL OR PARK-AND-RIDE

Cost: $



A park-and-ride facility with parking, lighting and shelters for waiting passengers

People meet at a park-and-pool facility to commute by vanpool

Application to Ontario

Park-and-pool may be a low-cost option for organizing rides between Ontario and common work, shopping, and service destinations such as Caldwell, Nampa, Meridian, and Boise. Park-and-pool locations could be upgraded to transit stops depending on future demand.

Park-and-pool or park-and-ride facilities allow travelers to drive to a parking facility, park, and use transit or carpool to their eventual destination. Park-and-ride or park-and-pool lots may be owned by a city, transit agency, or by a business that has excess parking during typical work hours.

Benefits

- Reduces the need for parking in downtown areas and activity centers
- Reduces single-occupant vehicle travel, which supports environmental goals
- Saves money by reducing gas costs for individual commuters

Constraints

- Requires agreement with property owners to allow shared parking between users

Typical Applications

- These programs work well in rural or suburban areas where fixed-route transit is limited, and in communities with long commutes and common work destinations.
- They may be located in a downtown area, at the edge of a downtown, or within a neighborhood.

Design Considerations

- Integrate park-and-ride/park-and-pool lots into existing downtowns to provide a central meeting point for people to meet and pool or take transit
- Add aesthetic treatments such as landscaping to integrate the parking area into the surrounding neighborhood.
- Provide adequate signage visible from the street indicating that parking is available, at what times, and at what (if any) cost. Ensure signage clearly states that park-and-ride/park-and-pool users are allowed to park

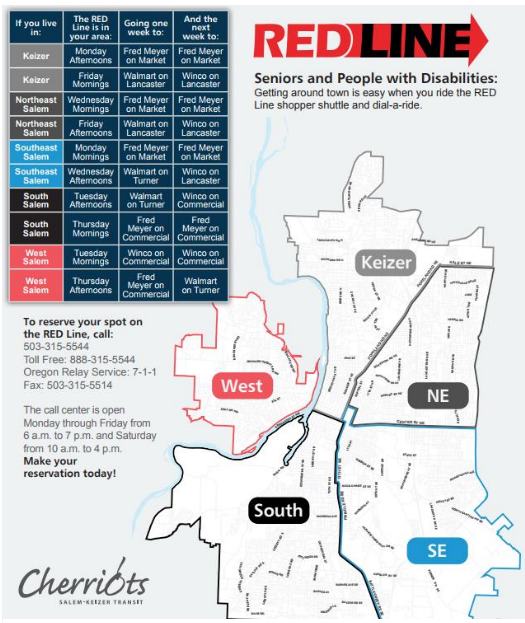
Additional Guidance

- TCRP Report 19: Guidelines for the Location and Design of Bus Stops
- Transit in Small Cities: A Primer for Planning, Siting and Designing Transit Facilities in Oregon

Transit Facilities/Service Types

DEMAND-RESPONSE SERVICE

Cost: $$$



Cherriots RED Line is an example of both a shopper shuttle and zone service

Demand-response services pick-up and drop-off passengers at their door or at the curb. Transit vehicles providing demand-response service do not follow a fixed route, but travel throughout the community transporting passengers according to their specific requests. Passengers must call ahead to book a trip.

Benefits

- High level of service for those with mobility challenges

Constraints

- Demand-response typically has low productivity, carrying 2-3 passengers per hour compared to other transit services
- Passengers must schedule service in advance

Typical Applications

- Works well in low-density areas without a strong market for fixed-route transit
- Often used to serve markets that have mobility challenges

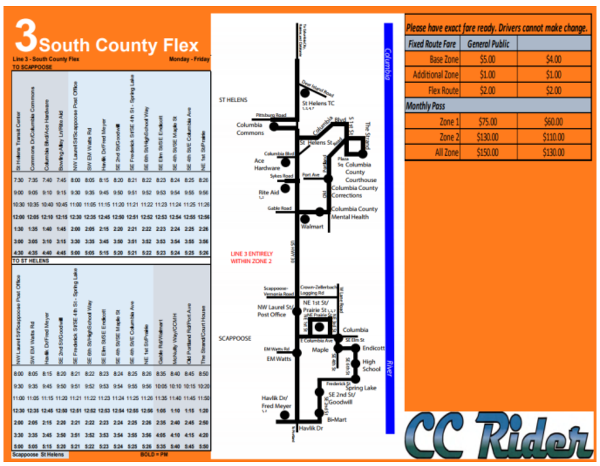
Service Variations

- _Shopper Shuttle_ - A shopper shuttle caters to shopping trips. Shopper shuttles may be provided daily or periodically, connecting passengers from their home to a major shopping destination.
- _Zone Service_ – In rural or suburban communities, transit agencies may provide service in a particular neighborhood or zone during days of the week
- _Taxi Vouchers_ – Public agencies may subsidize taxi fares as a way of providing demand-response service using existing general public taxi services. Passengers may either buy vouchers in advance at a discounted rate or pay the fare and submit for reimbursement.
- _Volunteer Programs_ – Volunteers may subsidize taxi fares as a way of providing demand-response service using existing general public taxi services. Passengers may either buy vouchers in advance at a discounted rate or pay the fare and submit for reimbursement.
- _Vanpools_ – Vanpools are a prearranged ridesharing service in which a number of people travel together on a regular basis in a van. Vanpools may be publicly operated, employer operated, individually owned, or leased.

Transit Facilities/Service Types

FLEX SERVICE

Cost: $$



CC Rider's Route 3 provides flex service between Scappoose and St. Helen's. Riders can call in advance to schedule a pick-up no more than ½ mile from the published route.

Flex service is a hybrid service type that combines the structure of a fixed-route with the flexibility of demand-response service. There are many models of flex service, ranging from those that are primarily fixed routes but offer limited deviations upon request, to those that are primarily demand-response zones but offer fixed time points.

Benefits

- In lower demand areas where deviations can be accommodated, both fixed-route and ADA paratransit service can be provided with one vehicle
- Meets ADA paratransit requirements as long as schedule builds in additional time for deviations and service is open to the general public

Constraints

- Deviations add travel time and may discourage choice riders
- In rural areas with disconnected road networks, accommodating out-and-back deviations may add significant travel time

Typical Applications

- Flex service works in areas with low to medium densities where deviations to pick-up passengers can be supported while maintaining service along advertised routes.

Service Variations

- _Point-Deviated Service_ – Point deviated routes have several fixed timepoints, and passengers who live between the time points may call to request a curbside pick-up. The driver takes the most direct route between time points to pick-up each passenger.
- _Deviated Service_ – Deviated service operates via a set route. Passengers may call ahead to request a deviation from that route, and as long as the pickup allows the bus to stay on schedule, the driver will deviate from the route to pick-up a passenger in front of their destination. Deviations are "out-and-back," meaning the bus returns back to the same point at which it started the deviation.

Transit Facilities/Service Types

FIXED-ROUTE

Cost: $$

Fixed-route service means that transit vehicles run along a set route during a set schedule. Typically, fixed-route service is characterized by designated bus stops where passengers board and alight, and is supported with service information (maps and timetables).

Service Variations

Local Route

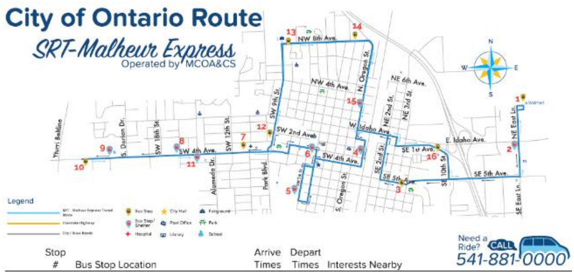
Transit Service that involves frequent stops that circulate passengers within a community

Intercity

Intercity transit routes provide direct service along major travel corridors with limited stops. These routes typically service longer distances than local fixed-routes. Between destinations, intercity services typically operate on arterials or interstate roadways.

Commuter

Commuter service is specifically designed to bring people from residential areas to employment centers. These routes may look similar to intercity routes, but only operate during employment peak hours.



The SRT-Malheur Express and Snake River Transit services provide a mix of local and intercity service between Ontario, Fruitland and Payette.

Benefits

- Predictable service that riders can access by following the schedule and map
- Cost effective (cost per rider) when serving high ridership corridors
- Can provide fairly direct travel times competitive with driving, making service more attractive to choice riders

Constraints

- Not well suited to serving large service areas or dispersed origins and destination
- Requires ADA complementary paratransit service (demand-response) within ¾ mile of fixed route, operating during the same days and hours

Typical Applications

- Connects origins and destinations within a community or between communities

Service Variations

- *Point-Deviated Service* – Point deviated routes have several fixed timepoints, and passengers who live between the time points may call to request a curbside pick-up. The driver takes the most direct route between time points to pick-up each passenger.
- *Deviated Service* – Deviated service operates via a set route. Passengers may call ahead to request a deviation from that route, and as long as the pickup allows the bus to stay on schedule, the driver will deviate from the route to pick-up a passenger in front of their destination. Deviations are "out-and-back," meaning the bus returns back to the same point at which it started the deviation.

Attachment B

Crash Data

TRANSPORTATION DATA SECTION - CRASH ANALYSIS AND REPORTING UNIT

CRASH SUMMARIES BY YEAR BY COLLISION TYPE - INJURY COUNTS ON PARTICIPANTS

Ontario Bicycle-Involved Crashes with Counts of Bicyclists Killed or Injured

January 1, 2013 through December 31, 2017

COLLISION TYPE	FATAL CRASHES	NON-FATAL CRASHES	PROPERTY DAMAGE ONLY	TOTAL CRASHES	PEOPLE KILLED	PEOPLE INJURED	DRY SURF	WET SURF	DAY	DARK	INTER-SECTION	INTER-SECTION RELATED	OFF-ROAD
YEAR: 2017													
SIDESWIPE - OVERTAKING	0	1	0	1	0	1	1	0	1	0	0	0	0
2017 TOTAL	0	1	0	1	0	1	1	0	1	0	0	0	0
YEAR: 2016													
ANGLE	0	3	0	3	0	3	3	0	3	0	2	0	1
TURNING MOVEMENTS	0	1	0	1	0	1	1	0	1	0	1	0	0
2016 TOTAL	0	4	0	4	0	4	4	0	4	0	3	0	1
YEAR: 2015													
TURNING MOVEMENTS	0	4	0	4	0	4	4	0	4	0	3	0	0
2015 TOTAL	0	4	0	4	0	4	4	0	4	0	3	0	0
YEAR: 2013													
ANGLE	0	2	0	2	0	2	2	0	1	1	2	0	0
TURNING MOVEMENTS	0	2	0	2	0	2	2	0	2	0	1	0	0
2013 TOTAL	0	4	0	4	0	4	4	0	3	1	3	0	0
FINAL TOTAL	0	13	0	13	0	13	13	0	12	1	9	0	1

Effective 2015, “Property damage only” (PDO) was discontinued as a “crash severity” option for Pedestrian and Pedalcycle-Involved motor vehicle crashes. There is no legal requirement, nor option, for bicyclists and pedestrians to report when they’re involved in a crash. In the absence of formal reporting from these participants, a decision had to be made regarding their injury severity. It was determined that, as vulnerable road users, bicyclists and pedestrians must receive at least a “possible injury” in collisions with motor vehicles. Expect data for this Injury category to increase.

Intersectional Crashes East Ln & SE 5th Ave
January 1, 2013 through December 31, 2017

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

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

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TRANSPORTATION DATA SECTION - CRASH ANALYSIS AND REPORTING UNIT

CRASH SUMMARIES BY YEAR BY COLLISION TYPE

Intersectional Crashes SE 13th St & SE 5th Ave
January 1, 2013 through December 31, 2017

COLLISION TYPE	FATAL CRASHES	NON-FATAL CRASHES	PROPERTY DAMAGE ONLY	TOTAL CRASHES	PEOPLE KILLED	PEOPLE INJURED	TRUCKS	DRY SURF	WET SURF	DAY	DARK	INTER-SECTION	INTER-SECTION RELATED	OFF-ROAD
YEAR: 2017														
TURNING MOVEMENTS	0	1	0	1	0	1	0	1	0	1	0	1	0	0
2017 TOTAL	0	1	0	1	0	1	0	1	0	1	0	1	0	0
FINAL TOTAL	0	1	0	1	0	1	0	1	0	1	0	1	0	0

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TRANSPORTATION DATA SECTION - CRASH ANALYSIS AND REPORTING UNIT

CRASH SUMMARIES BY YEAR BY COLLISION TYPE

Intersectional Crashes at US30, Ontario Spur (493) & East Ln

January 1, 2013 through December 31, 2017

COLLISION TYPE	FATAL CRASHES	NON-FATAL CRASHES	PROPERTY DAMAGE ONLY	TOTAL CRASHES	PEOPLE KILLED	PEOPLE INJURED	TRUCKS	DRY SURF	WET SURF	DAY	DARK	INTER-SECTION	INTER-SECTION RELATED	OFF-ROAD
YEAR: 2017														
REAR-END	0	1	1	2	0	1	0	1	1	1	1	2	0	0
TURNING MOVEMENTS	0	1	2	3	0	1	0	3	0	1	2	3	0	0
2017 TOTAL	0	2	3	5	0	2	0	4	1	2	3	5	0	0
YEAR: 2016														
REAR-END	0	3	2	5	0	3	0	5	0	4	1	5	0	0
SIDESWIPE - OVERTAKING	0	1	0	1	0	3	0	1	0	1	0	1	0	0
2016 TOTAL	0	4	2	6	0	6	0	6	0	5	1	6	0	0
YEAR: 2015														
REAR-END	0	9	2	11	0	11	0	10	1	9	2	11	0	0
2015 TOTAL	0	9	2	11	0	11	0	10	1	9	2	11	0	0
YEAR: 2014														
BACKING	0	0	1	1	0	0	1	1	0	1	0	1	0	0
REAR-END	0	2	3	5	0	2	1	3	2	5	0	5	0	0
TURNING MOVEMENTS	0	0	1	1	0	0	0	1	0	1	0	1	0	0
2014 TOTAL	0	2	5	7	0	2	2	5	2	7	0	7	0	0
YEAR: 2013														
ANGLE	0	1	0	1	0	1	0	1	0	1	0	1	0	0
BACKING	0	0	1	1	0	0	0	1	0	1	0	1	0	0
REAR-END	0	1	1	2	0	1	0	2	0	1	1	2	0	0
TURNING MOVEMENTS	0	1	0	1	0	1	0	1	0	1	0	1	0	0
2013 TOTAL	0	3	2	5	0	3	0	5	0	4	1	5	0	0
FINAL TOTAL	0	20	14	34	0	24	2	30	4	27	7	34	0	0

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

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

TRANSPORTATION DATA SECTION - CRASH ANALYSIS AND REPORTING UNIT

CRASH SUMMARIES BY YEAR BY COLLISION TYPE

Intersectional Crashes at US30, Ontario Spur (493) & Goodfellow St

January 1, 2013 through December 31, 2017

COLLISION TYPE	FATAL CRASHES	NON-FATAL CRASHES	PROPERTY DAMAGE ONLY	TOTAL CRASHES	PEOPLE KILLED	PEOPLE INJURED	TRUCKS	DRY SURF	WET SURF	DAY	DARK	INTER-SECTION	INTER-SECTION RELATED	OFF-ROAD
YEAR: 2017														
ANGLE	0	0	1	1	0	0	0	1	0	1	0	1	0	0
REAR-END	0	0	2	2	0	0	0	2	0	2	0	2	0	0
TURNING MOVEMENTS	0	2	0	2	0	5	0	2	0	1	1	2	0	0
2017 TOTAL	0	2	3	5	0	5	0	5	0	4	1	5	0	0
YEAR: 2016														
ANGLE	0	0	1	1	0	0	0	1	0	1	0	1	0	0
REAR-END	0	1	3	4	0	1	0	4	0	3	1	4	0	0
TURNING MOVEMENTS	0	1	1	2	0	2	0	1	1	2	0	2	0	0
2016 TOTAL	0	2	5	7	0	3	0	6	1	6	1	7	0	0
YEAR: 2015														
ANGLE	0	3	2	5	0	4	0	5	0	4	1	5	0	0
REAR-END	0	1	3	4	0	1	0	4	0	3	1	4	0	0
TURNING MOVEMENTS	0	1	2	3	0	3	0	3	0	2	1	3	0	0
2015 TOTAL	0	5	7	12	0	8	0	12	0	9	3	12	0	0
YEAR: 2014														
REAR-END	0	1	2	3	0	1	0	3	0	2	1	3	0	0
TURNING MOVEMENTS	0	2	0	2	0	2	0	2	0	2	0	2	0	0
2014 TOTAL	0	3	2	5	0	3	0	5	0	4	1	5	0	0
YEAR: 2013														
ANGLE	0	1	0	1	0	1	0	1	0	0	1	1	0	0
TURNING MOVEMENTS	0	0	1	1	0	0	0	1	0	1	0	1	0	0
2013 TOTAL	0	1	1	2	0	1	0	2	0	1	1	2	0	0
FINAL TOTAL	0	13	18	31	0	20	0	30	1	24	7	31	0	0

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TRANSPORTATION DATA SECTION - CRASH ANALYSIS AND REPORTING UNIT

CRASH SUMMARIES BY YEAR BY COLLISION TYPE

Intersectional Crashes at US30, Ontario Spur (493) & NB I-84 Ramps, Old Oregon Trail Hwy (006)

January 1, 2013 through December 31, 2017

COLLISION TYPE	FATAL CRASHES	NON-FATAL CRASHES	PROPERTY DAMAGE ONLY	TOTAL CRASHES	PEOPLE KILLED	PEOPLE INJURED	TRUCKS	DRY SURF	WET SURF	DAY	DARK	INTER-SECTION	INTER-SECTION RELATED	OFF-ROAD
YEAR: 2017														
ANGLE	0	0	1	1	0	0	1	0	1	0	1	1	0	0
REAR-END	0	1	1	2	0	1	0	2	0	2	0	2	0	0
2017 TOTAL	0	1	2	3	0	1	1	2	1	2	1	3	0	0
YEAR: 2016														
ANGLE	0	1	0	1	0	1	0	1	0	1	0	1	0	0
REAR-END	0	3	0	3	0	5	0	2	1	2	1	3	0	0
2016 TOTAL	0	4	0	4	0	6	0	3	1	3	1	4	0	0
YEAR: 2015														
REAR-END	0	5	1	6	0	15	0	5	1	5	1	6	0	0
TURNING MOVEMENTS	0	1	1	2	0	1	1	0	2	1	1	2	0	0
2015 TOTAL	0	6	2	8	0	16	1	5	3	6	2	8	0	0
YEAR: 2014														
REAR-END	0	0	2	2	0	0	0	2	0	2	0	2	0	0
TURNING MOVEMENTS	0	2	2	4	0	2	3	3	1	4	0	4	0	0
2014 TOTAL	0	2	4	6	0	2	3	5	1	6	0	6	0	0
YEAR: 2013														
ANGLE	0	1	0	1	0	1	0	1	0	1	0	1	0	0
REAR-END	0	4	1	5	0	4	0	5	0	5	0	5	0	0
TURNING MOVEMENTS	0	1	0	1	0	3	1	1	0	1	0	1	0	0
2013 TOTAL	0	6	1	7	0	8	1	7	0	7	0	7	0	0
FINAL TOTAL	0	19	9	28	0	33	6	22	6	24	4	28	0	0

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

Intersectional Crashes at US30, Ontario Spur (493) & SB I-84 Ramps, Old Oregon Trail Hwy (006)
January 1, 2013 through December 31, 2017

COLLISION TYPE	FATAL CRASHES	NON-FATAL CRASHES	PROPERTY DAMAGE ONLY	TOTAL CRASHES	PEOPLE KILLED	PEOPLE INJURED	TRUCKS	DRY SURF	WET SURF	DAY	DARK	INTER-SECTION	INTER-SECTION RELATED	OFF-ROAD
YEAR: 2017														
REAR-END	0	1	1	2	0	1	1	2	0	1	1	2	0	0
TURNING MOVEMENTS	0	0	1	1	0	0	1	1	0	0	1	1	0	0
2017 TOTAL	0	1	2	3	0	1	2	3	0	1	2	3	0	0
YEAR: 2016														
REAR-END	0	2	0	2	0	6	0	1	0	2	0	2	0	0
TURNING MOVEMENTS	0	1	2	3	0	1	1	2	0	3	0	3	0	0
2016 TOTAL	0	3	2	5	0	7	1	3	0	5	0	5	0	0
YEAR: 2015														
REAR-END	0	3	1	4	0	4	0	4	0	3	1	4	0	0
TURNING MOVEMENTS	0	1	0	1	0	1	0	1	0	1	0	1	0	0
2015 TOTAL	0	4	1	5	0	5	0	5	0	4	1	5	0	0
YEAR: 2014														
ANGLE	0	1	0	1	0	2	0	1	0	1	0	1	0	0
REAR-END	0	1	1	2	0	1	0	1	1	1	1	2	0	0
TURNING MOVEMENTS	0	1	0	1	0	2	0	1	0	1	0	1	0	0
2014 TOTAL	0	3	1	4	0	5	0	3	1	3	1	4	0	0
YEAR: 2013														
REAR-END	0	2	0	2	0	3	0	2	0	2	0	2	0	0
TURNING MOVEMENTS	0	0	1	1	0	0	0	1	0	1	0	1	0	0
2013 TOTAL	0	2	1	3	0	3	0	3	0	3	0	3	0	0
FINAL TOTAL	0	13	7	20	0	21	3	17	1	16	4	20	0	0

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

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OREGON DEPARTMENT OF TRANSPORTATION - TRANSPORTATION DEVELOPMENT DIVISION
TRANSPORTATION DATA SECTION - CRASH ANALYSIS AND REPORTING UNIT
CRASH SUMMARIES BY YEAR BY COLLISION TYPE - INJURY COUNTS ON PARTICIPANTS

Ontario Pedestrian-Involved Crashes with Counts of Pedestrians Killed or Injured
January 1, 2013 through December 31, 2017

COLLISION TYPE	FATAL CRASHES	NON-FATAL CRASHES	PROPERTY DAMAGE ONLY	TOTAL CRASHES	PEOPLE KILLED	PEOPLE INJURED	DRY SURF	WET SURF	DAY	DARK	INTER-SECTION	INTER-SECTION RELATED	OFF-ROAD
YEAR: 2017													
PEDESTRIAN	0	1	0	1	0	1	0	1	1	0	1	0	0
2017 TOTAL	0	1	0	1	0	1	0	1	1	0	1	0	0
YEAR: 2016													
PEDESTRIAN	0	5	0	5	0	6	5	0	4	1	1	0	2
REAR-END	0	1	0	1	0	1	0	1	0	1	0	0	0
2016 TOTAL	0	6	0	6	0	7	5	1	4	2	1	0	2
YEAR: 2015													
PEDESTRIAN	0	5	0	5	0	5	3	2	3	2	4	0	1
2015 TOTAL	0	5	0	5	0	5	3	2	3	2	4	0	1
YEAR: 2014													
PEDESTRIAN	0	2	0	2	0	2	2	0	0	2	2	0	0
2014 TOTAL	0	2	0	2	0	2	2	0	0	2	2	0	0
YEAR: 2013													
PEDESTRIAN	0	4	0	4	0	4	4	0	4	0	3	0	0
2013 TOTAL	0	4	0	4	0	4	4	0	4	0	3	0	0
FINAL TOTAL	0	18	0	18	0	19	14	4	12	6	11	0	3

Effective 2015, “Property damage only” (PDO) was discontinued as a “crash severity” option for Pedestrian and Pedalcycle-Involved motor vehicle crashes. There is no legal requirement, nor option, for bicyclists and pedestrians to report when they’re involved in a crash. In the absence of formal reporting from these participants, a decision had to be made regarding their injury severity. It was determined that, as vulnerable road users, bicyclists and pedestrians must receive at least a “possible injury” in collisions with motor vehicles. Expect data for this Injury category to increase.

TRANSPORTATION DATA SECTION - CRASH ANALYSIS AND REPORTING UNIT
CRASH SUMMARIES BY YEAR BY COLLISION TYPE

Crashes on Mainline US 30, Ontario Spur 493, Idaho Ave from MP 27.65 to 28.39
January 1, 2013 through December 31, 2017

COLLISION TYPE	FATAL CRASHES	NON-FATAL CRASHES	PROPERTY DAMAGE ONLY	TOTAL CRASHES	PEOPLE KILLED	PEOPLE INJURED	TRUCKS	DRY SURF	WET SURF	DAY	DARK	INTER-SECTION	INTER-SECTION RELATED	OFF-ROAD
YEAR: 2017														
ANGLE	0	0	2	2	0	0	1	1	1	1	1	2	0	0
REAR-END	0	5	8	13	0	7	0	10	3	11	2	6	0	0
SIDESWIPE - OVERTAKING	0	1	0	1	0	2	0	1	0	1	0	0	1	0
TURNING MOVEMENTS	0	3	3	6	0	6	0	6	0	3	3	5	0	0
2017 TOTAL	0	9	13	22	0	15	1	18	4	16	6	13	1	0
YEAR: 2016														
ANGLE	0	0	1	1	0	0	0	1	0	1	0	1	0	0
FIXED / OTHER OBJECT	0	0	1	1	0	0	0	1	0	0	1	0	0	1
REAR-END	0	8	11	19	0	14	1	18	1	16	3	13	3	0
SIDESWIPE - OVERTAKING	0	1	1	2	0	3	0	2	0	2	0	1	0	0
TURNING MOVEMENTS	0	2	2	4	0	3	1	2	1	4	0	4	0	0
2016 TOTAL	0	11	16	27	0	20	2	24	2	23	4	19	3	1
YEAR: 2015														
ANGLE	0	3	2	5	0	4	0	5	0	4	1	5	0	0
BACKING	0	0	1	1	0	0	0	1	0	1	0	0	1	0
PEDESTRIAN	0	1	0	1	0	3	0	1	0	1	0	0	0	0
REAR-END	0	17	10	27	0	27	0	23	4	22	5	20	6	0
TURNING MOVEMENTS	0	3	5	8	0	5	1	6	2	6	2	6	1	0
2015 TOTAL	0	24	18	42	0	39	1	36	6	34	8	31	8	0
YEAR: 2014														
BACKING	0	0	1	1	0	0	1	1	0	1	0	1	0	0
FIXED / OTHER OBJECT	0	1	0	1	0	1	0	1	0	0	1	0	0	1
REAR-END	0	2	5	7	0	2	1	5	2	5	2	6	1	0
TURNING MOVEMENTS	0	5	1	6	0	6	2	6	0	6	0	6	0	0
2014 TOTAL	0	8	7	15	0	9	4	13	2	12	3	13	1	1
YEAR: 2013														
ANGLE	0	2	0	2	0	2	0	2	0	2	0	2	0	0
REAR-END	0	9	6	15	0	10	0	14	1	14	1	8	0	0
SIDESWIPE - OVERTAKING	0	1	1	2	0	1	0	1	1	2	0	0	0	0
TURNING MOVEMENTS	0	2	2	4	0	4	1	4	0	4	0	4	0	0
2013 TOTAL	0	14	9	23	0	17	1	21	2	22	1	14	0	0
FINAL TOTAL	0	66	63	129	0	100	9	112	16	107	22	90	13	2

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TRANSPORTATION DATA SECTION - CRASH ANALYSIS AND REPORTING UNIT

CRASH SUMMARIES BY YEAR BY COLLISION TYPE

Crashes on Mainline US 30, Ontario Spur 493, Idaho Ave from MP 27.65 to 28.39 **Excludes all Intersectional Crashes**

January 1, 2013 through December 31, 2017

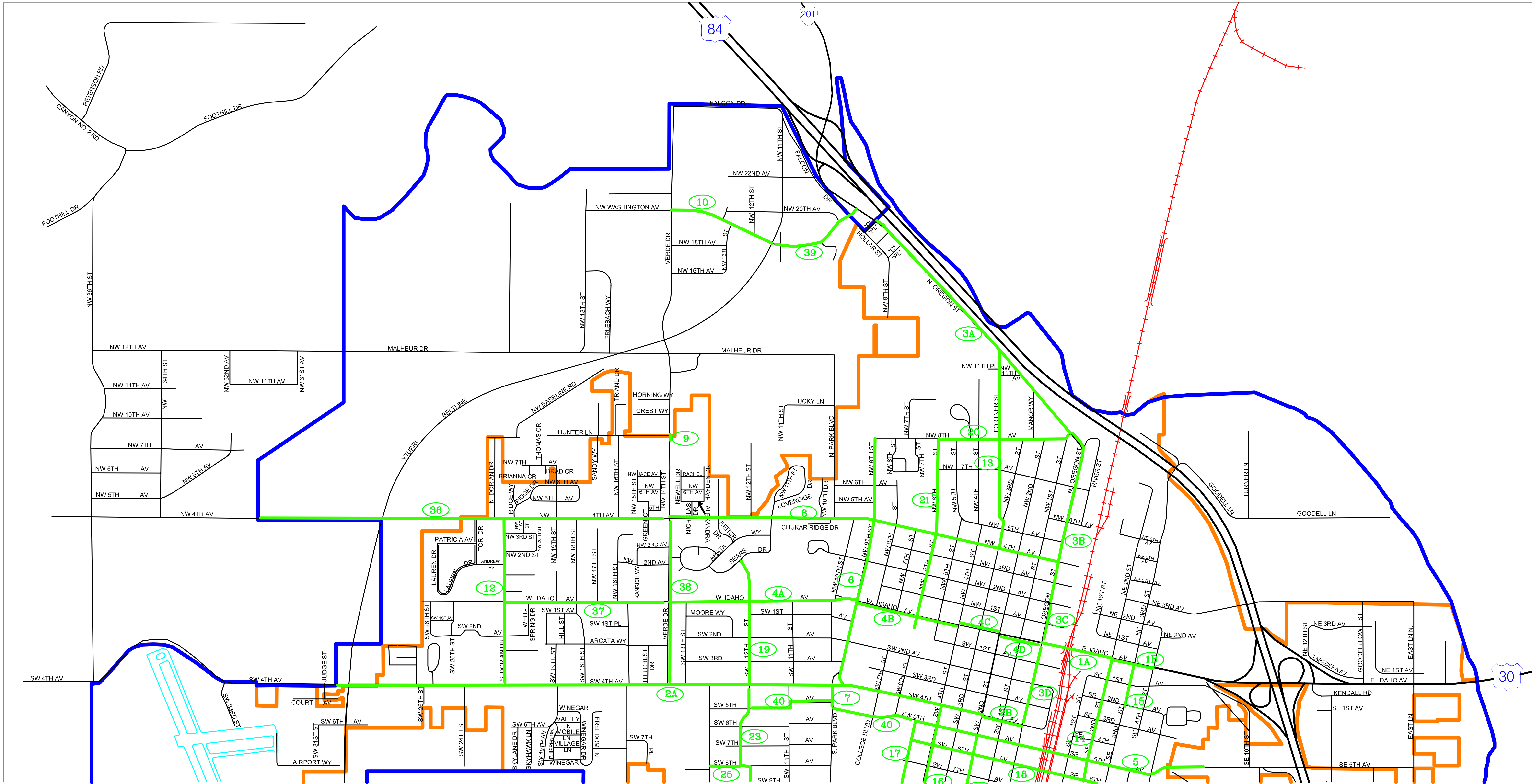
COLLISION TYPE	FATAL CRASHES	NON-FATAL CRASHES	PROPERTY DAMAGE ONLY	TOTAL CRASHES	PEOPLE KILLED	PEOPLE INJURED	TRUCKS	DRY SURF	WET SURF	DAY	DARK	INTER-SECTION	INTER-SECTION RELATED	OFF-ROAD
YEAR: 2017														
REAR-END	0	4	3	7	0	6	0	5	2	6	1	0	0	0
SIDESWIPE - OVERTAKING	0	1	0	1	0	2	0	1	0	1	0	0	1	0
TURNING MOVEMENTS	0	0	1	1	0	0	0	1	0	1	0	0	0	0
2017 TOTAL	0	5	4	9	0	8	0	7	2	8	1	0	1	0
YEAR: 2016														
FIXED / OTHER OBJECT	0	0	1	1	0	0	0	1	0	0	1	0	0	1
REAR-END	0	0	6	6	0	0	1	6	0	6	0	0	3	0
SIDESWIPE - OVERTAKING	0	0	1	1	0	0	0	1	0	1	0	0	0	0
2016 TOTAL	0	0	8	8	0	0	1	8	0	7	1	0	3	1
YEAR: 2015														
BACKING	0	0	1	1	0	0	0	1	0	1	0	0	1	0
PEDESTRIAN	0	1	0	1	0	3	0	1	0	1	0	0	0	0
REAR-END	0	3	4	7	0	3	0	4	3	6	1	0	6	0
TURNING MOVEMENTS	0	0	2	2	0	0	0	2	0	2	0	0	1	0
2015 TOTAL	0	4	7	11	0	6	0	8	3	10	1	0	8	0
YEAR: 2014														
FIXED / OTHER OBJECT	0	1	0	1	0	1	0	1	0	0	1	0	0	1
REAR-END	0	0	1	1	0	0	0	0	1	0	1	0	1	0
2014 TOTAL	0	1	1	2	0	1	0	1	1	0	2	0	1	1
YEAR: 2013														
REAR-END	0	2	5	7	0	2	0	6	1	7	0	0	0	0
SIDESWIPE - OVERTAKING	0	1	1	2	0	1	0	1	1	2	0	0	0	0
2013 TOTAL	0	3	6	9	0	3	0	7	2	9	0	0	0	0
FINAL TOTAL	0	13	26	39	0	18	1	31	8	34	5	0	13	2

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

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

Attachment C

2016 TSP and 2018 Parks and Recreation Master Plan Projects



City of Ontario Transportation System Plan

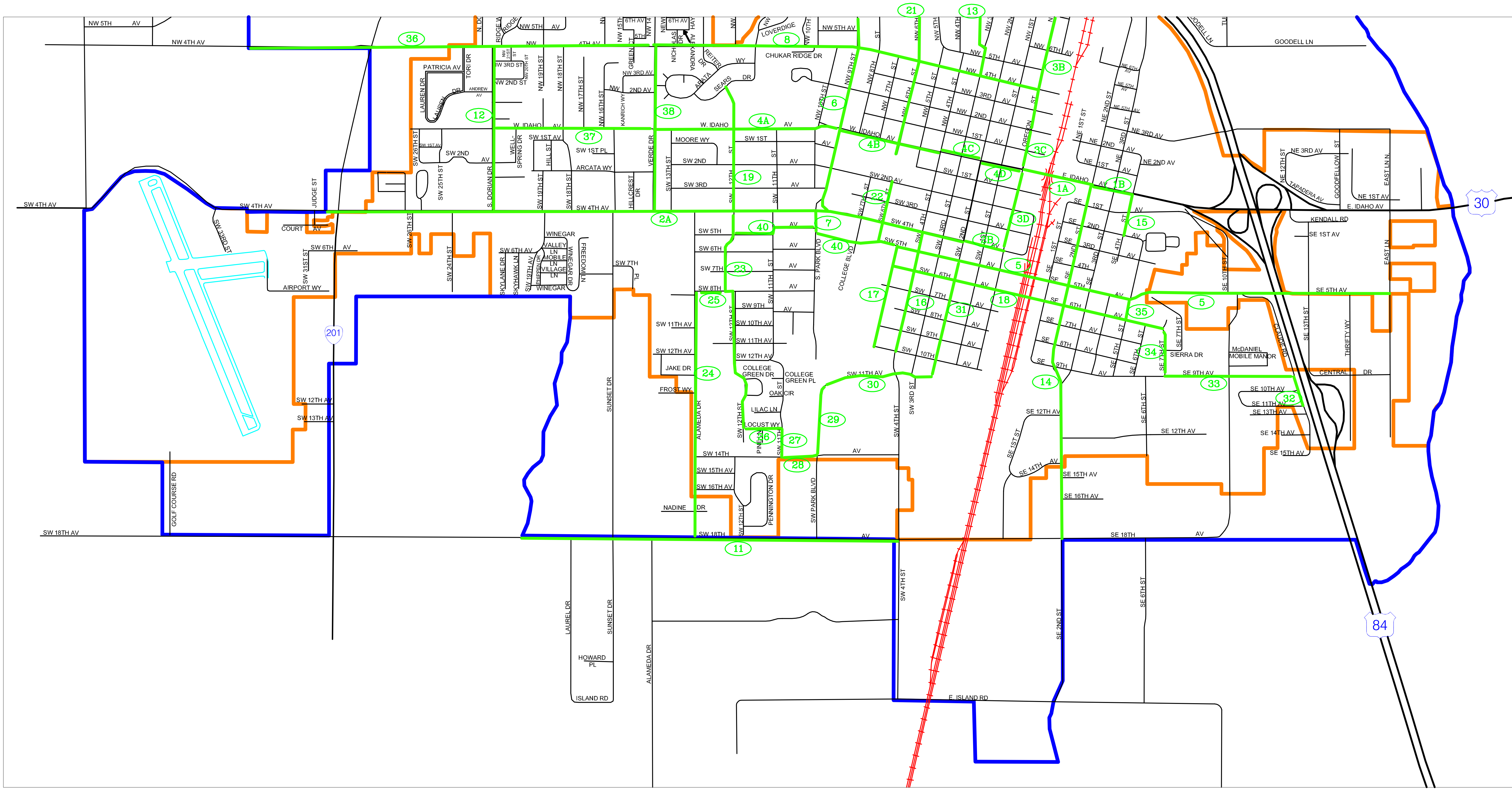
NOT TO SCALE

LEGEND

Improvement

Figure 7-14a

Bicycle and Pedestrian Improvement Project Locations



City of Ontario Transportation System Plan

LEGEND

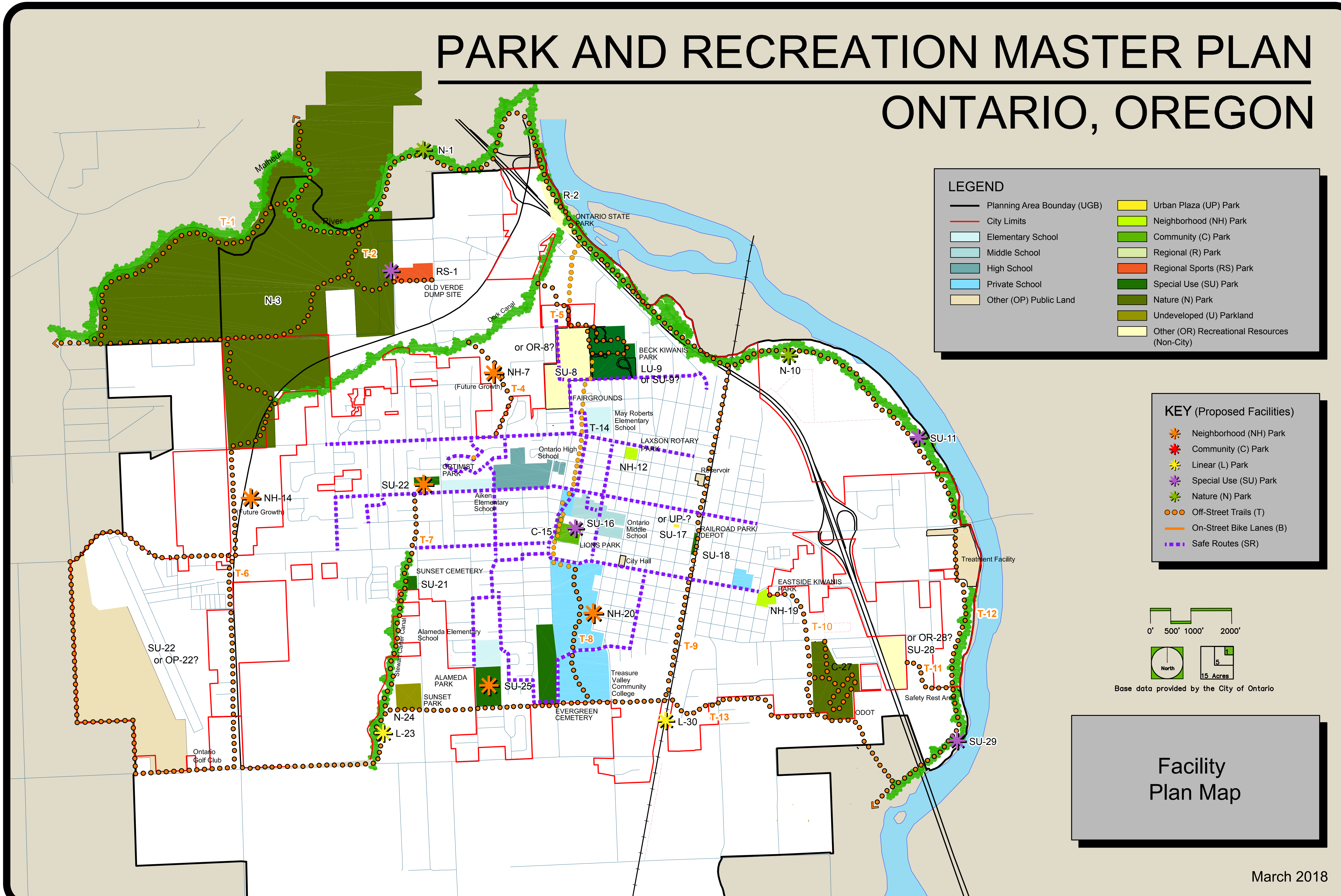
Improvement

Figure 7-14b

Bicycle and Pedestrian Improvement Project Locations

PARK AND RECREATION MASTER PLAN

ONTARIO, OREGON



Facility Plan Map

March 2018

Attachment D
Intersection Operations
Worksheets

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	0	455	163	100	856	0	0	0	123	0	0	54
Future Volume (vph)	0	455	163	100	856	0	0	0	123	0	0	54
Ideal Flow (vphpl)	1750	1750	1750	1750	1750	1750	1750	1750	1750	1750	1750	1750
Total Lost time (s)		4.5	4.5	4.5	4.5				4.5		4.5	
Lane Util. Factor		0.95	1.00	1.00	0.95				1.00		1.00	
Frt		1.00	0.85	1.00	1.00				0.85		0.86	
Flt Protected		1.00	1.00	0.95	1.00				1.00		1.00	
Satd. Flow (prot)		3050	1282	1554	3197				1430		1211	
Flt Permitted		1.00	1.00	0.38	1.00				1.00		1.00	
Satd. Flow (perm)		3050	1282	623	3197				1430		1211	
Peak-hour factor, PHF	0.87	0.87	0.87	0.87	0.87	0.87	0.87	0.87	0.87	0.87	0.87	0.87
Adj. Flow (vph)	0	523	187	115	984	0	0	0	141	0	0	62
RTOR Reduction (vph)	0	0	93	0	0	0	0	0	129	0	57	0
Lane Group Flow (vph)	0	523	94	115	984	0	0	0	12	0	5	0
Heavy Vehicles (%)	0%	9%	16%	7%	4%	0%	0%	0%	4%	0%	0%	25%
Turn Type		NA	Perm	pm+pt	NA				Perm		NA	
Protected Phases		2		1	6			8			4	
Permitted Phases			2	6					8			
Actuated Green, G (s)		22.2	22.2	31.5	31.5				3.8		3.8	
Effective Green, g (s)		22.2	22.2	31.5	31.5				3.8		3.8	
Actuated g/C Ratio		0.50	0.50	0.71	0.71				0.09		0.09	
Clearance Time (s)		4.5	4.5	4.5	4.5				4.5		4.5	
Vehicle Extension (s)		4.8	4.8	2.5	4.8				2.5		2.5	
Lane Grp Cap (vph)		1528	642	543	2273				122		103	
v/s Ratio Prot		0.17		0.02	c0.31						0.00	
v/s Ratio Perm			0.07	0.13					c0.01			
v/c Ratio		0.34	0.15	0.21	0.43				0.10		0.05	
Uniform Delay, d1		6.7	5.9	2.3	2.7				18.7		18.6	
Progression Factor		1.00	1.00	1.00	1.00				1.00		1.00	
Incremental Delay, d2		0.3	0.2	0.1	0.3				0.3		0.2	
Delay (s)		6.9	6.2	2.4	2.9				18.9		18.7	
Level of Service		A	A	A	A				B		B	
Approach Delay (s)		6.7			2.9			18.9			18.7	
Approach LOS		A			A			B			B	

Intersection Summary			
HCM 2000 Control Delay	5.8	HCM 2000 Level of Service	A
HCM 2000 Volume to Capacity ratio	0.45		
Actuated Cycle Length (s)	44.3	Sum of lost time (s)	13.5
Intersection Capacity Utilization	37.4%	ICU Level of Service	A
Analysis Period (min)	15		
c Critical Lane Group			

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	0	455	163	100	856	0	0	0	123	0	0	54
Future Volume (veh/h)	0	455	163	100	856	0	0	0	123	0	0	54
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	0	1627	1532	1654	1695	0	0	1750	1695	0	1750	1750
Adj Flow Rate, veh/h	0	523	187	115	984	0	0	0	141	0	0	62
Peak Hour Factor	0.87	0.87	0.87	0.87	0.87	0.87	0.87	0.87	0.87	0.87	0.87	0.87
Percent Heavy Veh, %	0	9	16	7	4	0	0	0	4	0	0	0
Cap, veh/h	0	1304	548	526	1986	0	0	217	178	0	0	184
Arrive On Green	0.00	0.42	0.42	0.06	0.62	0.00	0.00	0.00	0.12	0.00	0.00	0.12
Sat Flow, veh/h	0	3173	1298	1576	3306	0	0	1750	1437	0	0	1483
Grp Volume(v), veh/h	0	523	187	115	984	0	0	0	141	0	0	62
Grp Sat Flow(s),veh/h/ln	0	1546	1298	1576	1611	0	0	1750	1437	0	0	1483
Q Serve(g_s), s	0.0	4.1	3.4	1.2	5.8	0.0	0.0	0.0	3.3	0.0	0.0	1.3
Cycle Q Clear(g_c), s	0.0	4.1	3.4	1.2	5.8	0.0	0.0	0.0	3.3	0.0	0.0	1.3
Prop In Lane	0.00		1.00	1.00		0.00	0.00		1.00	0.00		1.00
Lane Grp Cap(c), veh/h	0	1304	548	526	1986	0	0	217	178	0	0	184
V/C Ratio(X)	0.00	0.40	0.34	0.22	0.50	0.00	0.00	0.00	0.79	0.00	0.00	0.34
Avail Cap(c_a), veh/h	0	3167	1329	901	3299	0	0	1035	850	0	0	877
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	0.00	1.00	1.00	1.00	1.00	0.00	0.00	0.00	1.00	0.00	0.00	1.00
Uniform Delay (d), s/veh	0.0	7.0	6.8	4.5	3.7	0.0	0.0	0.0	14.8	0.0	0.0	13.9
Incr Delay (d2), s/veh	0.0	0.4	0.7	0.2	0.4	0.0	0.0	0.0	5.8	0.0	0.0	0.8
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.0	0.9	0.7	0.2	0.7	0.0	0.0	0.0	2.8	0.0	0.0	0.4
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	0.0	7.4	7.5	4.7	4.0	0.0	0.0	0.0	20.6	0.0	0.0	14.7
LnGrp LOS	A	A	A	A	A	A	A	A	C	A	A	B
Approach Vol, veh/h		710			1099			141			62	
Approach Delay, s/veh		7.4			4.1			20.6			14.7	
Approach LOS		A			A			C			B	

Timer - Assigned Phs	1	2		4		6		8				
Phs Duration (G+Y+Rc), s	6.7	19.1		8.8		25.9		8.8				
Change Period (Y+Rc), s	4.5	4.5		4.5		4.5		4.5				
Max Green Setting (Gmax), s	10.5	35.5		20.5		35.5		20.5				
Max Q Clear Time (g_c+I1), s	3.2	6.1		3.3		7.8		5.3				
Green Ext Time (p_c), s	0.1	8.4		0.2		13.5		0.3				

Intersection Summary			
HCM 6th Ctrl Delay			6.7
HCM 6th LOS			A

Notes

User approved pedestrian interval to be less than phase max green.

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	31	547	0	0	711	96	0	0	175	0	0	245
Future Volume (vph)	31	547	0	0	711	96	0	0	175	0	0	245
Ideal Flow (vphpl)	1750	1750	1750	1750	1750	1750	1750	1750	1750	1750	1750	1750
Total Lost time (s)	4.5	5.0			5.0	5.0		4.5				4.5
Lane Util. Factor	1.00	0.95			0.95	1.00		1.00				1.00
Frt	1.00	1.00			1.00	0.85		0.86				0.85
Flt Protected	0.95	1.00			1.00	1.00		1.00				1.00
Satd. Flow (prot)	1108	3197			3167	1365		1402				1417
Flt Permitted	0.26	1.00			1.00	1.00		1.00				1.00
Satd. Flow (perm)	309	3197			3167	1365		1402				1417
Peak-hour factor, PHF	0.87	0.87	0.87	0.87	0.87	0.87	0.87	0.87	0.87	0.87	0.87	0.87
Adj. Flow (vph)	36	629	0	0	817	110	0	0	201	0	0	282
RTOR Reduction (vph)	0	0	0	0	0	53	0	176	0	0	0	246
Lane Group Flow (vph)	36	629	0	0	817	57	0	25	0	0	0	36
Heavy Vehicles (%)	50%	4%	0%	0%	5%	9%	0%	0%	8%	0%	0%	5%
Turn Type	pm+pt	NA			NA	Perm		NA				Perm
Protected Phases	5	2			6			8			4	
Permitted Phases	2					6						4
Actuated Green, G (s)	30.0	30.0			23.3	23.3		5.7				5.7
Effective Green, g (s)	30.0	30.0			23.3	23.3		5.7				5.7
Actuated g/C Ratio	0.66	0.66			0.52	0.52		0.13				0.13
Clearance Time (s)	4.5	5.0			5.0	5.0		4.5				4.5
Vehicle Extension (s)	2.5	4.8			4.8	4.8		2.5				2.5
Lane Grp Cap (vph)	243	2121			1632	703		176				178
v/s Ratio Prot	0.01	c0.20			c0.26			0.02				
v/s Ratio Perm	0.09					0.04						c0.03
v/c Ratio	0.15	0.30			0.50	0.08		0.14				0.20
Uniform Delay, d1	3.1	3.2			7.2	5.5		17.6				17.7
Progression Factor	1.00	1.00			1.00	1.00		1.00				1.00
Incremental Delay, d2	0.2	0.2			0.5	0.1		0.3				0.4
Delay (s)	3.3	3.3			7.6	5.6		17.9				18.1
Level of Service	A	A			A	A		B				B
Approach Delay (s)		3.3			7.4			17.9			18.1	
Approach LOS		A			A			B			B	

Intersection Summary			
HCM 2000 Control Delay	8.6	HCM 2000 Level of Service	A
HCM 2000 Volume to Capacity ratio	0.45		
Actuated Cycle Length (s)	45.2	Sum of lost time (s)	14.0
Intersection Capacity Utilization	47.7%	ICU Level of Service	A
Analysis Period (min)	15		
c Critical Lane Group			

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	31	547	0	0	711	96	0	0	175	0	0	245
Future Volume (veh/h)	31	547	0	0	711	96	0	0	175	0	0	245
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1068	1695	0	0	1682	1627	0	1750	1750	0	1750	1682
Adj Flow Rate, veh/h	36	629	0	0	817	110	0	0	201	0	0	282
Peak Hour Factor	0.87	0.87	0.87	0.87	0.87	0.87	0.87	0.87	0.87	0.87	0.87	0.87
Percent Heavy Veh, %	50	4	0	0	5	9	0	0	0	0	0	5
Cap, veh/h	284	1880	0	0	1464	632	0	0	324	0	382	311
Arrive On Green	0.03	0.58	0.00	0.00	0.46	0.46	0.00	0.00	0.22	0.00	0.00	0.22
Sat Flow, veh/h	1017	3306	0	0	3279	1379	0	0	1483	0	1750	1425
Grp Volume(v), veh/h	36	629	0	0	817	110	0	0	201	0	0	282
Grp Sat Flow(s),veh/h/ln	1017	1611	0	0	1598	1379	0	0	1483	0	1750	1425
Q Serve(g_s), s	0.8	4.9	0.0	0.0	8.9	2.3	0.0	0.0	5.9	0.0	0.0	9.3
Cycle Q Clear(g_c), s	0.8	4.9	0.0	0.0	8.9	2.3	0.0	0.0	5.9	0.0	0.0	9.3
Prop In Lane	1.00		0.00	0.00		1.00	0.00		1.00	0.00		1.00
Lane Grp Cap(c), veh/h	284	1880	0	0	1464	632	0	0	324	0	382	311
V/C Ratio(X)	0.13	0.33	0.00	0.00	0.56	0.17	0.00	0.00	0.62	0.00	0.00	0.91
Avail Cap(c_a), veh/h	580	2347	0	0	2328	1004	0	0	324	0	382	311
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	0.00	0.00	1.00	1.00	0.00	0.00	1.00	0.00	0.00	1.00
Uniform Delay (d), s/veh	6.8	5.2	0.0	0.0	9.5	7.7	0.0	0.0	17.0	0.0	0.0	18.3
Incr Delay (d2), s/veh	0.1	0.2	0.0	0.0	0.7	0.3	0.0	0.0	3.2	0.0	0.0	28.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.1	1.1	0.0	0.0	2.5	0.6	0.0	0.0	2.0	0.0	0.0	2.4
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	7.0	5.4	0.0	0.0	10.1	7.9	0.0	0.0	20.2	0.0	0.0	46.3
LnGrp LOS	A	A	A	A	B	A	A	A	C	A	A	D
Approach Vol, veh/h		665			927			201			282	
Approach Delay, s/veh		5.5			9.9			20.2			46.3	
Approach LOS		A			A			C			D	
Timer - Assigned Phs		2		4	5	6		8				
Phs Duration (G+Y+Rc), s		33.0		15.0	6.0	27.0		15.0				
Change Period (Y+Rc), s		5.0		4.5	4.5	5.0		4.5				
Max Green Setting (Gmax), s		35.0		10.5	15.5	35.0		10.5				
Max Q Clear Time (g_c+I1), s		6.9		11.3	2.8	10.9		7.9				
Green Ext Time (p_c), s		8.2		0.0	0.0	11.1		0.2				
Intersection Summary												
HCM 6th Ctrl Delay			14.4									
HCM 6th LOS			B									

Notes

User approved pedestrian interval to be less than phase max green.

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	111	487	124	74	654	35	73	23	24	47	11	80
Future Volume (vph)	111	487	124	74	654	35	73	23	24	47	11	80
Ideal Flow (vphpl)	1750	1750	1750	1750	1750	1750	1750	1750	1750	1750	1750	1750
Total Lost time (s)	4.5	5.0	5.0	4.5	5.0	5.0		4.5	4.5		4.5	4.5
Lane Util. Factor	1.00	0.95	1.00	1.00	0.95	1.00		1.00	1.00		1.00	1.00
Frt	1.00	1.00	0.85	1.00	1.00	0.85		1.00	0.85		1.00	0.85
Flt Protected	0.95	1.00	1.00	0.95	1.00	1.00		0.96	1.00		0.96	1.00
Satd. Flow (prot)	1568	3167	1430	1599	3107	1488		1534	1488		1681	1377
Flt Permitted	0.27	1.00	1.00	0.47	1.00	1.00		0.74	1.00		0.70	1.00
Satd. Flow (perm)	449	3167	1430	783	3107	1488		1176	1488		1221	1377
Peak-hour factor, PHF	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96
Adj. Flow (vph)	116	507	129	77	681	36	76	24	25	49	11	83
RTOR Reduction (vph)	0	0	66	0	0	18	0	0	22	0	0	72
Lane Group Flow (vph)	116	507	63	77	681	18	0	100	3	0	60	11
Heavy Vehicles (%)	6%	5%	4%	4%	7%	0%	13%	0%	0%	0%	0%	8%
Turn Type	pm+pt	NA	Perm	pm+pt	NA	Perm	Perm	NA	Perm	Perm	NA	Perm
Protected Phases	5	2		1	6			8			4	
Permitted Phases	2		2	6		6	8		8	4		4
Actuated Green, G (s)	26.3	26.3	26.3	27.4	26.9	26.9		6.9	6.9		6.9	6.9
Effective Green, g (s)	26.3	26.3	26.3	27.4	26.9	26.9		6.9	6.9		6.9	6.9
Actuated g/C Ratio	0.49	0.49	0.49	0.51	0.50	0.50		0.13	0.13		0.13	0.13
Clearance Time (s)	4.5	5.0	5.0	4.5	5.0	5.0		4.5	4.5		4.5	4.5
Vehicle Extension (s)	2.5	4.8	4.8	2.5	4.8	4.8		2.5	2.5		2.5	2.5
Lane Grp Cap (vph)	345	1545	697	499	1550	742		150	190		156	176
v/s Ratio Prot	0.04	c0.16		0.02	c0.22							
v/s Ratio Perm	0.13		0.04	0.06		0.01		c0.09	0.00		0.05	0.01
v/c Ratio	0.34	0.33	0.09	0.15	0.44	0.02		0.67	0.02		0.38	0.06
Uniform Delay, d1	8.1	8.4	7.4	7.2	8.7	6.8		22.4	20.5		21.6	20.7
Progression Factor	1.00	1.00	1.00	1.00	1.00	1.00		1.00	1.00		1.00	1.00
Incremental Delay, d2	0.4	0.2	0.1	0.1	0.4	0.0		9.7	0.0		1.1	0.1
Delay (s)	8.5	8.7	7.5	7.3	9.1	6.9		32.1	20.6		22.7	20.8
Level of Service	A	A	A	A	A	A		C	C		C	C
Approach Delay (s)		8.4			8.8			29.8			21.6	
Approach LOS		A			A			C			C	

Intersection Summary			
HCM 2000 Control Delay	11.1	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.48		
Actuated Cycle Length (s)	53.9	Sum of lost time (s)	14.0
Intersection Capacity Utilization	50.3%	ICU Level of Service	A
Analysis Period (min)	15		
c Critical Lane Group			

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	111	487	124	74	654	35	73	23	24	47	11	80
Future Volume (veh/h)	111	487	124	74	654	35	73	23	24	47	11	80
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1668	1682	1695	1695	1654	1750	1750	1750	1750	1750	1750	1641
Adj Flow Rate, veh/h	116	507	129	77	681	36	76	24	25	49	11	83
Peak Hour Factor	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96
Percent Heavy Veh, %	6	5	4	4	7	0	0	0	0	0	0	8
Cap, veh/h	280	1045	470	464	1251	590	135	24	332	140	17	312
Arrive On Green	0.08	0.33	0.33	0.14	0.40	0.40	0.22	0.22	0.22	0.22	0.22	0.22
Sat Flow, veh/h	1589	3195	1437	1615	3143	1483	0	105	1483	0	75	1391
Grp Volume(v), veh/h	116	507	129	77	681	36	100	0	25	60	0	83
Grp Sat Flow(s),veh/h/ln	1589	1598	1437	1615	1572	1483	105	0	1483	75	0	1391
Q Serve(g_s), s	2.7	5.9	3.1	0.0	7.8	0.7	0.0	0.0	0.6	0.0	0.0	2.3
Cycle Q Clear(g_c), s	2.7	5.9	3.1	0.0	7.8	0.7	10.5	0.0	0.6	10.5	0.0	2.3
Prop In Lane	1.00		1.00	1.00		1.00	0.76		1.00	0.82		1.00
Lane Grp Cap(c), veh/h	280	1045	470	464	1251	590	159	0	332	156	0	312
V/C Ratio(X)	0.41	0.49	0.27	0.17	0.54	0.06	0.63	0.00	0.08	0.38	0.00	0.27
Avail Cap(c_a), veh/h	510	2387	1073	600	2348	1108	159	0	332	156	0	312
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.00	1.00	1.00	0.00	1.00
Uniform Delay (d), s/veh	14.2	12.6	11.7	14.7	10.8	8.7	21.0	0.0	14.3	20.6	0.0	15.0
Incr Delay (d2), s/veh	0.7	0.7	0.6	0.1	0.7	0.1	7.0	0.0	0.1	1.1	0.0	0.3
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.9	1.9	0.9	0.6	2.3	0.2	1.3	0.0	0.2	0.7	0.0	0.7
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	14.9	13.3	12.3	14.8	11.6	8.8	28.0	0.0	14.4	21.7	0.0	15.3
LnGrp LOS	B	B	B	B	B	A	C	A	B	C	A	B
Approach Vol, veh/h		752			794			125			143	
Approach Delay, s/veh		13.4			11.8			25.3			18.0	
Approach LOS		B			B			C			B	
Timer - Assigned Phs	1	2		4	5	6		8				
Phs Duration (G+Y+Rc), s	11.5	20.3		15.0	8.2	23.6		15.0				
Change Period (Y+Rc), s	5.0	* 5		4.5	4.5	5.0		4.5				
Max Green Setting (Gmax), s	10.5	* 35		10.5	10.5	35.0		10.5				
Max Q Clear Time (g_c+I1), s	2.0	7.9		12.5	4.7	9.8		12.5				
Green Ext Time (p_c), s	0.1	7.4		0.0	0.1	8.8		0.0				
Intersection Summary												
HCM 6th Ctrl Delay			13.9									
HCM 6th LOS			B									

Notes

User approved pedestrian interval to be less than phase max green.

* HCM 6th computational engine requires equal clearance times for the phases crossing the barrier.

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	88	355	95	237	597	41	75	38	125	59	29	44
Future Volume (vph)	88	355	95	237	597	41	75	38	125	59	29	44
Ideal Flow (vphpl)	1750	1750	1750	1750	1750	1750	1750	1750	1750	1750	1750	1750
Total Lost time (s)	4.5	5.0	5.0	4.5	5.0	5.0	4.5	4.5	4.5	4.5	4.5	4.5
Lane Util. Factor	1.00	0.95	1.00	1.00	0.95	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Frt	1.00	1.00	0.85	1.00	1.00	0.85	1.00	1.00	0.85	1.00	1.00	0.85
Flt Protected	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00
Satd. Flow (prot)	1614	3197	1403	1630	3260	1444	1583	1699	1390	1568	1577	1458
Flt Permitted	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00
Satd. Flow (perm)	1614	3197	1403	1630	3260	1444	1583	1699	1390	1568	1577	1458
Peak-hour factor, PHF	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89
Adj. Flow (vph)	99	399	107	266	671	46	84	43	140	66	33	49
RTOR Reduction (vph)	0	0	77	0	0	27	0	0	122	0	0	44
Lane Group Flow (vph)	99	399	30	266	671	19	84	43	18	66	33	5
Heavy Vehicles (%)	3%	4%	6%	2%	2%	3%	5%	3%	7%	6%	11%	2%
Turn Type	Prot	NA	Perm	Prot	NA	Perm	Split	NA	Perm	Split	NA	Perm
Protected Phases	5	2		1	6		8	8		4	4	
Permitted Phases			2			6			8			4
Actuated Green, G (s)	7.9	19.7	19.7	16.9	28.7	28.7	9.3	9.3	9.3	6.7	6.7	6.7
Effective Green, g (s)	7.9	19.7	19.7	16.9	28.7	28.7	9.3	9.3	9.3	6.7	6.7	6.7
Actuated g/C Ratio	0.11	0.28	0.28	0.24	0.40	0.40	0.13	0.13	0.13	0.09	0.09	0.09
Clearance Time (s)	4.5	5.0	5.0	4.5	5.0	5.0	4.5	4.5	4.5	4.5	4.5	4.5
Vehicle Extension (s)	2.5	4.8	4.8	2.5	4.8	4.8	2.5	2.5	2.5	2.5	2.5	2.5
Lane Grp Cap (vph)	179	885	388	387	1315	582	207	222	181	147	148	137
v/s Ratio Prot	0.06	0.12		c0.16	c0.21		c0.05	0.03		c0.04	0.02	
v/s Ratio Perm			0.02			0.01			0.01			0.00
v/c Ratio	0.55	0.45	0.08	0.69	0.51	0.03	0.41	0.19	0.10	0.45	0.22	0.03
Uniform Delay, d1	29.9	21.2	19.0	24.7	15.9	12.8	28.4	27.6	27.2	30.5	29.8	29.3
Progression 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
Incremental Delay, d2	2.9	0.7	0.2	4.6	0.6	0.0	0.9	0.3	0.2	1.6	0.6	0.1
Delay (s)	32.9	21.9	19.1	29.3	16.5	12.9	29.3	27.9	27.4	32.0	30.3	29.3
Level of Service	C	C	B	C	B	B	C	C	C	C	C	C
Approach Delay (s)		23.2			19.8			28.1			30.8	
Approach LOS		C			B			C			C	

Intersection Summary			
HCM 2000 Control Delay	22.8	HCM 2000 Level of Service	C
HCM 2000 Volume to Capacity ratio	0.56		
Actuated Cycle Length (s)	71.1	Sum of lost time (s)	18.5
Intersection Capacity Utilization	47.8%	ICU Level of Service	A
Analysis Period (min)	15		
c Critical Lane Group			

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	88	355	95	237	597	41	75	38	125	59	29	44
Future Volume (veh/h)	88	355	95	237	597	41	75	38	125	59	29	44
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1709	1695	1668	1723	1723	1709	1682	1709	1654	1668	1600	1723
Adj Flow Rate, veh/h	99	399	107	266	671	46	84	43	140	66	33	49
Peak Hour Factor	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89
Percent Heavy Veh, %	3	4	6	2	2	3	5	3	7	6	11	2
Cap, veh/h	140	794	348	324	1172	519	222	237	195	116	117	107
Arrive On Green	0.09	0.25	0.25	0.20	0.36	0.36	0.14	0.14	0.14	0.07	0.07	0.07
Sat Flow, veh/h	1628	3221	1414	1641	3273	1448	1602	1709	1402	1589	1600	1460
Grp Volume(v), veh/h	99	399	107	266	671	46	84	43	140	66	33	49
Grp Sat Flow(s),veh/h/ln	1628	1611	1414	1641	1637	1448	1602	1709	1402	1589	1600	1460
Q Serve(g_s), s	3.2	5.7	3.3	8.4	8.9	1.1	2.6	1.2	5.1	2.2	1.1	1.7
Cycle Q Clear(g_c), s	3.2	5.7	3.3	8.4	8.9	1.1	2.6	1.2	5.1	2.2	1.1	1.7
Prop In Lane	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	140	794	348	324	1172	519	222	237	195	116	117	107
V/C Ratio(X)	0.71	0.50	0.31	0.82	0.57	0.09	0.38	0.18	0.72	0.57	0.28	0.46
Avail Cap(c_a), veh/h	771	2095	919	777	2129	942	461	492	404	458	461	420
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	23.9	17.4	16.5	20.7	14.0	11.5	21.1	20.5	22.2	24.1	23.6	23.9
Incr Delay (d2), s/veh	4.8	1.0	1.0	3.9	0.9	0.1	0.8	0.3	3.7	3.2	1.0	2.3
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	1.3	2.0	1.0	3.2	2.9	0.3	1.0	0.5	1.8	0.9	0.4	0.6
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	28.7	18.4	17.5	24.6	14.8	11.6	21.8	20.7	25.9	27.3	24.6	26.2
LnGrp LOS	C	B	B	C	B	B	C	C	C	C	C	C
Approach Vol, veh/h		605			983			267			148	
Approach Delay, s/veh		19.9			17.3			23.8			26.3	
Approach LOS		B			B			C			C	
Timer - Assigned Phs	1	2		4	5	6		8				
Phs Duration (G+Y+Rc), s	15.1	18.3		8.4	9.1	24.3		12.0				
Change Period (Y+Rc), s	4.5	5.0		4.5	4.5	5.0		4.5				
Max Green Setting (Gmax), s	25.5	35.0		15.5	25.5	35.0		15.5				
Max Q Clear Time (g_c+I1), s	10.4	7.7		4.2	5.2	10.9		7.1				
Green Ext Time (p_c), s	0.5	5.5		0.3	0.2	8.3		0.5				
Intersection Summary												
HCM 6th Ctrl Delay			19.6									
HCM 6th LOS			B									

Notes

User approved pedestrian interval to be less than phase max green.

Intersection	
Int Delay, s/veh	2.5

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	45	217	9	2	229	2	5	1	0	3	5	87
Future Vol, veh/h	45	217	9	2	229	2	5	1	0	3	5	87
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Free	Free	Stop	Stop	Stop	Stop	Stop	Stop
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	120	-	-	-	-	-	-	-	-	-	-	0
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	88	88	88	88	88	88	88	88	88	88	88	88
Heavy Vehicles, %	8	8	8	8	8	8	8	8	8	8	8	8
Mvmt Flow	51	247	10	2	260	2	6	1	0	3	6	99

Major/Minor	Major1			Major2			Minor1			Minor2		
Conflicting Flow All	262	0	0	257	0	0	672	620	252	620	624	261
Stage 1	-	-	-	-	-	-	354	354	-	265	265	-
Stage 2	-	-	-	-	-	-	318	266	-	355	359	-
Critical Hdwy	4.18	-	-	4.18	-	-	7.18	6.58	6.28	7.18	6.58	6.28
Critical Hdwy Stg 1	-	-	-	-	-	-	6.18	5.58	-	6.18	5.58	-
Critical Hdwy Stg 2	-	-	-	-	-	-	6.18	5.58	-	6.18	5.58	-
Follow-up Hdwy	2.272	-	-	2.272	-	-	3.572	4.072	3.372	3.572	4.072	3.372
Pot Cap-1 Maneuver	1268	-	-	1274	-	-	361	396	772	392	394	763
Stage 1	-	-	-	-	-	-	651	620	-	727	679	-
Stage 2	-	-	-	-	-	-	681	678	-	650	617	-
Platoon blocked, %		-	-		-	-						
Mov Cap-1 Maneuver	1268	-	-	1274	-	-	301	379	772	379	377	763
Mov Cap-2 Maneuver	-	-	-	-	-	-	301	379	-	379	377	-
Stage 1	-	-	-	-	-	-	625	595	-	698	678	-
Stage 2	-	-	-	-	-	-	587	677	-	623	592	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	1.3	0.1	16.8	10.8
HCM LOS			C	B

Minor Lane/Major Mvmt	NBLn1	EBL	EBT	EBR	WBL	WBT	WBR	SBLn1	SBLn2
Capacity (veh/h)	312	1268	-	-	1274	-	-	378	763
HCM Lane V/C Ratio	0.022	0.04	-	-	0.002	-	-	0.024	0.13
HCM Control Delay (s)	16.8	8	-	-	7.8	0	-	14.8	10.4
HCM Lane LOS	C	A	-	-	A	A	-	B	B
HCM 95th %tile Q(veh)	0.1	0.1	-	-	0	-	-	0.1	0.4

Intersection	
Intersection Delay, s/veh	9.8
Intersection LOS	A

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	186	7	0	0	2	7	2	10	0	4	5	201
Future Vol, veh/h	186	7	0	0	2	7	2	10	0	4	5	201
Peak Hour Factor	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88
Heavy Vehicles, %	6	6	6	6	6	6	6	6	6	6	6	6
Mvmt Flow	211	8	0	0	2	8	2	11	0	5	6	228
Number of Lanes	0	1	1	0	1	0	0	1	0	0	1	0

Approach	EB	WB	NB	SB
Opposing Approach	WB	EB	SB	NB
Opposing Lanes	1	2	1	1
Conflicting Approach Left	SB	NB	EB	WB
Conflicting Lanes Left	1	1	2	1
Conflicting Approach Right	NB	SB	WB	EB
Conflicting Lanes Right	1	1	1	2
HCM Control Delay	11.3	7.6	8.1	8.7
HCM LOS	B	A	A	A

Lane	NBLn1	EBLn1	EBLn2	WBLn1	SBLn1
Vol Left, %	17%	96%	0%	0%	2%
Vol Thru, %	83%	4%	100%	22%	2%
Vol Right, %	0%	0%	0%	78%	96%
Sign Control	Stop	Stop	Stop	Stop	Stop
Traffic Vol by Lane	12	193	0	9	210
LT Vol	2	186	0	0	4
Through Vol	10	7	0	2	5
RT Vol	0	0	0	7	201
Lane Flow Rate	14	219	0	10	239
Geometry Grp	2	7	7	5	2
Degree of Util (X)	0.019	0.345	0	0.013	0.274
Departure Headway (Hd)	4.97	5.67	5.186	4.487	4.128
Convergence, Y/N	Yes	Yes	Yes	Yes	Yes
Cap	719	638	0	794	871
Service Time	3.007	3.37	2.886	2.537	2.146
HCM Lane V/C Ratio	0.019	0.343	0	0.013	0.274
HCM Control Delay	8.1	11.3	7.9	7.6	8.7
HCM Lane LOS	A	B	N	A	A
HCM 95th-tile Q	0.1	1.5	0	0	1.1

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	0	1050	286	160	1002	0	0	0	111	0	2	62
Future Volume (vph)	0	1050	286	160	1002	0	0	0	111	0	2	62
Ideal Flow (vphpl)	1750	1750	1750	1750	1750	1750	1750	1750	1750	1750	1750	1750
Total Lost time (s)		4.5	4.5	4.5	4.5			4.5			4.5	
Lane Util. Factor		0.95	1.00	1.00	0.95			1.00			1.00	
Frt		1.00	0.85	1.00	1.00			0.86			0.87	
Flt Protected		1.00	1.00	0.95	1.00			1.00			1.00	
Satd. Flow (prot)		3260	1390	1614	3228			1442			1214	
Flt Permitted		1.00	1.00	0.18	1.00			1.00			1.00	
Satd. Flow (perm)		3260	1390	313	3228			1442			1214	
Peak-hour factor, PHF	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96
Adj. Flow (vph)	0	1094	298	167	1044	0	0	0	116	0	2	65
RTOR Reduction (vph)	0	0	123	0	0	0	0	107	0	0	60	0
Lane Group Flow (vph)	0	1094	175	167	1044	0	0	9	0	0	7	0
Heavy Vehicles (%)	0%	2%	7%	3%	3%	0%	0%	0%	5%	0%	0%	26%
Turn Type		NA	Perm	pm+pt	NA			NA			NA	
Protected Phases		2		1	6			8			4	
Permitted Phases			2	6								
Actuated Green, G (s)		36.1	36.1	47.6	47.6			4.9			4.9	
Effective Green, g (s)		36.1	36.1	47.6	47.6			4.9			4.9	
Actuated g/C Ratio		0.59	0.59	0.77	0.77			0.08			0.08	
Clearance Time (s)		4.5	4.5	4.5	4.5			4.5			4.5	
Vehicle Extension (s)		4.8	4.8	2.5	4.8			2.5			2.5	
Lane Grp Cap (vph)		1913	815	390	2498			114			96	
v/s Ratio Prot		c0.34		0.05	c0.32			c0.01			0.01	
v/s Ratio Perm			0.13	0.28								
v/c Ratio		0.57	0.21	0.43	0.42			0.08			0.07	
Uniform Delay, d1		7.9	6.0	3.6	2.3			26.2			26.2	
Progression Factor		1.00	1.00	1.00	1.00			1.00			1.00	
Incremental Delay, d2		0.6	0.3	0.6	0.2			0.2			0.2	
Delay (s)		8.5	6.3	4.2	2.5			26.4			26.4	
Level of Service		A	A	A	A			C			C	
Approach Delay (s)		8.0			2.8			26.4			26.4	
Approach LOS		A			A			C			C	

Intersection Summary			
HCM 2000 Control Delay	7.0	HCM 2000 Level of Service	A
HCM 2000 Volume to Capacity ratio	0.52		
Actuated Cycle Length (s)	61.5	Sum of lost time (s)	13.5
Intersection Capacity Utilization	59.8%	ICU Level of Service	B
Analysis Period (min)	15		
c Critical Lane Group			

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	0	1050	286	160	1002	0	0	0	111	0	2	62
Future Volume (veh/h)	0	1050	286	160	1002	0	0	0	111	0	2	62
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	0	1723	1654	1709	1709	0	0	1750	1750	0	1750	1750
Adj Flow Rate, veh/h	0	1094	298	167	1044	0	0	0	116	0	2	65
Peak Hour Factor	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96
Percent Heavy Veh, %	0	2	7	3	3	0	0	0	0	0	0	0
Cap, veh/h	0	1835	786	392	2345	0	0	0	148	0	4	144
Arrive On Green	0.00	0.56	0.56	0.07	0.72	0.00	0.00	0.00	0.10	0.00	0.10	0.10
Sat Flow, veh/h	0	3359	1402	1628	3333	0	0	0	1483	0	44	1445
Grp Volume(v), veh/h	0	1094	298	167	1044	0	0	0	116	0	0	67
Grp Sat Flow(s),veh/h/ln	0	1637	1402	1628	1624	0	0	0	1483	0	0	1490
Q Serve(g_s), s	0.0	11.2	6.0	1.9	6.7	0.0	0.0	0.0	3.9	0.0	0.0	2.1
Cycle Q Clear(g_c), s	0.0	11.2	6.0	1.9	6.7	0.0	0.0	0.0	3.9	0.0	0.0	2.1
Prop In Lane	0.00		1.00	1.00		0.00	0.00		1.00	0.00		0.97
Lane Grp Cap(c), veh/h	0	1835	786	392	2345	0	0	0	148	0	0	149
V/C Ratio(X)	0.00	0.60	0.38	0.43	0.45	0.00	0.00	0.00	0.78	0.00	0.00	0.45
Avail Cap(c_a), veh/h	0	2299	985	611	2345	0	0	0	601	0	0	604
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	0.00	1.00	1.00	1.00	1.00	0.00	0.00	0.00	1.00	0.00	0.00	1.00
Uniform Delay (d), s/veh	0.0	7.3	6.2	6.0	2.9	0.0	0.0	0.0	22.2	0.0	0.0	21.4
Incr Delay (d2), s/veh	0.0	0.6	0.6	0.5	0.3	0.0	0.0	0.0	6.6	0.0	0.0	1.6
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.0	2.9	1.4	0.4	0.9	0.0	0.0	0.0	1.5	0.0	0.0	0.8
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	0.0	7.9	6.8	6.6	3.1	0.0	0.0	0.0	28.9	0.0	0.0	23.0
LnGrp LOS	A	A	A	A	A	A	A	A	C	A	A	C
Approach Vol, veh/h		1392			1211			116			67	
Approach Delay, s/veh		7.7			3.6			28.9			23.0	
Approach LOS		A			A			C			C	

Timer - Assigned Phs	1	2	4	6	8
Phs Duration (G+Y+Rc), s	8.2	32.8	9.5	41.0	9.5
Change Period (Y+Rc), s	4.5	4.5	4.5	4.5	4.5
Max Green Setting (Gmax), s	10.5	35.5	20.5	35.5	20.5
Max Q Clear Time (g_c+I1), s	3.9	13.2	4.1	8.7	5.9
Green Ext Time (p_c), s	0.2	15.2	0.2	14.2	0.4

Intersection Summary	
HCM 6th Ctrl Delay	7.2
HCM 6th LOS	A

Notes

User approved pedestrian interval to be less than phase max green.

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	38	1123	0	0	995	146	0	3	162	0	0	167
Future Volume (vph)	38	1123	0	0	995	146	0	3	162	0	0	167
Ideal Flow (vphpl)	1750	1750	1750	1750	1750	1750	1750	1750	1750	1750	1750	1750
Total Lost time (s)	4.5	5.0			5.0	5.0		4.5			4.5	
Lane Util. Factor	1.00	0.95			0.95	1.00		1.00			1.00	
Frt	1.00	1.00			1.00	0.85		0.87			0.86	
Flt Protected	0.95	1.00			1.00	1.00		1.00			1.00	
Satd. Flow (prot)	1397	3228			3260	1390		1453			1376	
Flt Permitted	0.17	1.00			1.00	1.00		1.00			1.00	
Satd. Flow (perm)	255	3228			3260	1390		1453			1376	
Peak-hour factor, PHF	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89
Adj. Flow (vph)	43	1262	0	0	1118	164	0	3	182	0	0	188
RTOR Reduction (vph)	0	0	0	0	0	72	0	97	0	0	162	0
Lane Group Flow (vph)	43	1262	0	0	1118	92	0	88	0	0	26	0
Heavy Vehicles (%)	19%	3%	0%	0%	2%	7%	0%	33%	4%	0%	0%	10%
Turn Type	pm+pt	NA			NA	Perm		NA			NA	
Protected Phases	5	2			6			8			4	
Permitted Phases	2					6						
Actuated Green, G (s)	40.4	40.4			32.5	32.5		7.9			7.9	
Effective Green, g (s)	40.4	40.4			32.5	32.5		7.9			7.9	
Actuated g/C Ratio	0.70	0.70			0.56	0.56		0.14			0.14	
Clearance Time (s)	4.5	5.0			5.0	5.0		4.5			4.5	
Vehicle Extension (s)	2.5	4.8			4.8	4.8		2.5			2.5	
Lane Grp Cap (vph)	245	2256			1833	781		198			188	
v/s Ratio Prot	0.01	c0.39			c0.34			c0.06			0.02	
v/s Ratio Perm	0.11					0.07						
v/c Ratio	0.18	0.56			0.61	0.12		0.45			0.14	
Uniform Delay, d1	4.1	4.3			8.4	5.9		22.9			21.9	
Progression Factor	1.00	1.00			1.00	1.00		1.00			1.00	
Incremental Delay, d2	0.3	0.5			0.8	0.1		1.2			0.2	
Delay (s)	4.3	4.8			9.2	6.1		24.1			22.2	
Level of Service	A	A			A	A		C			C	
Approach Delay (s)		4.8			8.8			24.1			22.2	
Approach LOS		A			A			C			C	

Intersection Summary			
HCM 2000 Control Delay	8.8	HCM 2000 Level of Service	A
HCM 2000 Volume to Capacity ratio	0.60		
Actuated Cycle Length (s)	57.8	Sum of lost time (s)	14.0
Intersection Capacity Utilization	53.4%	ICU Level of Service	A
Analysis Period (min)	15		
c Critical Lane Group			

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	38	1123	0	0	995	146	0	3	162	0	0	167
Future Volume (veh/h)	38	1123	0	0	995	146	0	3	162	0	0	167
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1491	1709	0	0	1723	1654	0	1300	1300	0	1750	1750
Adj Flow Rate, veh/h	43	1262	0	0	1118	164	0	3	182	0	0	188
Peak Hour Factor	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89
Percent Heavy Veh, %	19	3	0	0	2	7	0	33	33	0	0	0
Cap, veh/h	282	2071	0	0	1707	731	0	3	207	0	0	282
Arrive On Green	0.03	0.64	0.00	0.00	0.52	0.52	0.00	0.19	0.19	0.00	0.00	0.19
Sat Flow, veh/h	1420	3333	0	0	3359	1402	0	18	1086	0	0	1483
Grp Volume(v), veh/h	43	1262	0	0	1118	164	0	0	185	0	0	188
Grp Sat Flow(s),veh/h/ln	1420	1624	0	0	1637	1402	0	0	1104	0	0	1483
Q Serve(g_s), s	0.7	12.7	0.0	0.0	13.7	3.5	0.0	0.0	9.0	0.0	0.0	6.5
Cycle Q Clear(g_c), s	0.7	12.7	0.0	0.0	13.7	3.5	0.0	0.0	9.0	0.0	0.0	6.5
Prop In Lane	1.00		0.00	0.00		1.00	0.00		0.98	0.00		1.00
Lane Grp Cap(c), veh/h	282	2071	0	0	1707	731	0	0	210	0	0	282
V/C Ratio(X)	0.15	0.61	0.00	0.00	0.66	0.22	0.00	0.00	0.88	0.00	0.00	0.67
Avail Cap(c_a), veh/h	631	2071	0	0	2074	889	0	0	210	0	0	282
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	0.00	0.00	1.00	1.00	0.00	0.00	1.00	0.00	0.00	1.00
Uniform Delay (d), s/veh	7.3	5.9	0.0	0.0	9.6	7.2	0.0	0.0	21.8	0.0	0.0	20.7
Incr Delay (d2), s/veh	0.2	0.7	0.0	0.0	0.9	0.3	0.0	0.0	31.9	0.0	0.0	5.4
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.2	3.0	0.0	0.0	4.0	0.9	0.0	0.0	4.0	0.0	0.0	2.5
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	7.4	6.7	0.0	0.0	10.5	7.5	0.0	0.0	53.7	0.0	0.0	26.2
LnGrp LOS	A	A	A	A	B	A	A	A	D	A	A	C
Approach Vol, veh/h		1305			1282			185			188	
Approach Delay, s/veh		6.7			10.1			53.7			26.2	
Approach LOS		A			B			D			C	

Timer - Assigned Phs		2		4	5	6		8				
Phs Duration (G+Y+Rc), s		40.2		15.0	6.4	33.8		15.0				
Change Period (Y+Rc), s		5.0		4.5	4.5	5.0		4.5				
Max Green Setting (Gmax), s		35.0		10.5	15.5	35.0		10.5				
Max Q Clear Time (g_c+I1), s		14.7		8.5	2.7	15.7		11.0				
Green Ext Time (p_c), s		14.1		0.2	0.0	13.1		0.0				

Intersection Summary			
HCM 6th Ctrl Delay			12.4
HCM 6th LOS			B

Notes

User approved pedestrian interval to be less than phase max green.

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	198	880	207	77	863	45	167	45	94	63	31	111
Future Volume (vph)	198	880	207	77	863	45	167	45	94	63	31	111
Ideal Flow (vphpl)	1750	1750	1750	1750	1750	1750	1750	1750	1750	1750	1750	1750
Total Lost time (s)	4.5	5.0	5.0	4.5	5.0	5.0		4.5	4.5		4.5	4.5
Lane Util. Factor	1.00	0.95	1.00	1.00	0.95	1.00		1.00	1.00		1.00	1.00
Frt	1.00	1.00	0.85	1.00	1.00	0.85		1.00	0.85		1.00	0.85
Flt Protected	0.95	1.00	1.00	0.95	1.00	1.00		0.96	1.00		0.97	1.00
Satd. Flow (prot)	1599	3197	1473	1662	3228	1377		1646	1473		1671	1444
Flt Permitted	0.17	1.00	1.00	0.31	1.00	1.00		0.71	1.00		0.50	1.00
Satd. Flow (perm)	293	3197	1473	550	3228	1377		1210	1473		871	1444
Peak-hour factor, PHF	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97
Adj. Flow (vph)	204	907	213	79	890	46	172	46	97	65	32	114
RTOR Reduction (vph)	0	0	98	0	0	25	0	0	80	0	0	95
Lane Group Flow (vph)	204	907	115	79	890	21	0	218	17	0	97	19
Heavy Vehicles (%)	4%	4%	1%	0%	3%	8%	1%	7%	1%	2%	0%	3%
Turn Type	pm+pt	NA	Perm	pm+pt	NA	Perm	Perm	NA	Perm	Perm	NA	Perm
Protected Phases	5	2		1	6			8			4	
Permitted Phases	2		2	6		6	8		8	4		4
Actuated Green, G (s)	33.9	33.9	33.9	29.5	29.0	29.0		10.7	10.7		10.7	10.7
Effective Green, g (s)	33.9	33.9	33.9	29.5	29.0	29.0		10.7	10.7		10.7	10.7
Actuated g/C Ratio	0.54	0.54	0.54	0.47	0.46	0.46		0.17	0.17		0.17	0.17
Clearance Time (s)	4.5	5.0	5.0	4.5	5.0	5.0		4.5	4.5		4.5	4.5
Vehicle Extension (s)	2.5	4.8	4.8	2.5	4.8	4.8		2.5	2.5		2.5	2.5
Lane Grp Cap (vph)	345	1728	796	331	1493	636		206	251		148	246
v/s Ratio Prot	0.08	c0.28		0.02	c0.28							
v/s Ratio Perm	0.23		0.08	0.10		0.02		c0.18	0.01		0.11	0.01
v/c Ratio	0.59	0.52	0.14	0.24	0.60	0.03		1.06	0.07		0.66	0.08
Uniform Delay, d1	9.2	9.2	7.2	10.3	12.5	9.2		26.0	21.8		24.3	21.9
Progression Factor	1.00	1.00	1.00	1.00	1.00	1.00		1.00	1.00		1.00	1.00
Incremental Delay, d2	2.3	0.5	0.2	0.3	0.9	0.0		78.9	0.1		9.0	0.1
Delay (s)	11.5	9.8	7.3	10.5	13.4	9.2		104.9	21.9		33.2	22.0
Level of Service	B	A	A	B	B	A		F	C		C	C
Approach Delay (s)		9.6			13.0			79.4			27.1	
Approach LOS		A			B			E			C	

Intersection Summary			
HCM 2000 Control Delay	19.8	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.71		
Actuated Cycle Length (s)	62.7	Sum of lost time (s)	14.0
Intersection Capacity Utilization	68.8%	ICU Level of Service	C
Analysis Period (min)	15		
c Critical Lane Group			

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	198	880	207	77	863	45	167	45	94	63	31	111
Future Volume (veh/h)	198	880	207	77	863	45	167	45	94	63	31	111
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1695	1695	1736	1750	1709	1641	1654	1654	1736	1750	1750	1709
Adj Flow Rate, veh/h	204	907	213	79	890	46	172	46	97	65	32	114
Peak Hour Factor	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97
Percent Heavy Veh, %	4	4	1	0	3	8	7	7	1	0	0	3
Cap, veh/h	352	1497	684	383	1432	613	116	0	279	108	31	274
Arrive On Green	0.12	0.46	0.46	0.08	0.44	0.44	0.19	0.19	0.19	0.19	0.19	0.19
Sat Flow, veh/h	1615	3221	1471	1667	3247	1391	0	0	1471	0	164	1448
Grp Volume(v), veh/h	204	907	213	79	890	46	218	0	97	97	0	114
Grp Sat Flow(s),veh/h/ln	1615	1611	1471	1667	1624	1391	0	0	1471	164	0	1448
Q Serve(g_s), s	4.7	11.6	5.0	0.0	11.7	1.1	0.0	0.0	3.2	0.0	0.0	3.8
Cycle Q Clear(g_c), s	4.7	11.6	5.0	0.0	11.7	1.1	10.5	0.0	3.2	10.5	0.0	3.8
Prop In Lane	1.00		1.00	1.00		1.00	0.79		1.00	0.67		1.00
Lane Grp Cap(c), veh/h	352	1497	684	383	1432	613	116	0	279	139	0	274
V/C Ratio(X)	0.58	0.61	0.31	0.21	0.62	0.08	1.88	0.00	0.35	0.70	0.00	0.42
Avail Cap(c_a), veh/h	468	2032	928	557	2049	877	116	0	279	139	0	274
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.00	1.00	1.00	0.00	1.00
Uniform Delay (d), s/veh	13.0	11.1	9.3	15.9	11.9	9.0	27.7	0.0	19.5	24.5	0.0	19.8
Incr Delay (d2), s/veh	1.1	0.8	0.5	0.2	0.9	0.1	425.8	0.0	0.6	13.2	0.0	0.7
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	1.5	3.5	1.4	0.8	3.7	0.3	15.2	0.0	1.0	1.7	0.0	1.2
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	14.1	11.8	9.8	16.1	12.8	9.1	453.5	0.0	20.1	37.8	0.0	20.5
LnGrp LOS	B	B	A	B	B	A	F	A	C	D	A	C
Approach Vol, veh/h		1324			1015			315			211	
Approach Delay, s/veh		11.9			12.9			320.0			28.5	
Approach LOS		B			B			F			C	

Timer - Assigned Phs	1	2		4	5	6		8				
Phs Duration (G+Y+Rc), s	9.7	30.8		15.0	11.0	29.5		15.0				
Change Period (Y+Rc), s	5.0	* 5		4.5	4.5	5.0		4.5				
Max Green Setting (Gmax), s	10.5	* 35		10.5	10.5	35.0		10.5				
Max Q Clear Time (g_c+I1), s	2.0	13.6		12.5	6.7	13.7		12.5				
Green Ext Time (p_c), s	0.1	12.1		0.0	0.2	10.8		0.0				

Intersection Summary			
HCM 6th Ctrl Delay			47.3
HCM 6th LOS			D

Notes

User approved pedestrian interval to be less than phase max green.
* HCM 6th computational engine requires equal clearance times for the phases crossing the barrier.

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	231	732	115	259	687	80	151	88	339	252	94	139
Future Volume (vph)	231	732	115	259	687	80	151	88	339	252	94	139
Ideal Flow (vphpl)	1750	1750	1750	1750	1750	1750	1750	1750	1750	1750	1750	1750
Total Lost time (s)	4.5	5.0	5.0	4.5	5.0	5.0	4.5	4.5	4.5	4.5	4.5	4.5
Lane Util. Factor	1.00	0.95	1.00	1.00	0.95	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Frt	1.00	1.00	0.85	1.00	1.00	0.85	1.00	1.00	0.85	1.00	1.00	0.85
Flt Protected	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00
Satd. Flow (prot)	1646	3228	1473	1630	3260	1444	1630	1716	1458	1630	1577	1403
Flt Permitted	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00
Satd. Flow (perm)	1646	3228	1473	1630	3260	1444	1630	1716	1458	1630	1577	1403
Peak-hour factor, PHF	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91
Adj. Flow (vph)	254	804	126	285	755	88	166	97	373	277	103	153
RTOR Reduction (vph)	0	0	71	0	0	59	0	0	323	0	0	129
Lane Group Flow (vph)	254	804	55	285	755	29	166	97	50	277	103	24
Heavy Vehicles (%)	1%	3%	1%	2%	2%	3%	2%	2%	2%	2%	11%	6%
Turn Type	Prot	NA	Perm	Prot	NA	Perm	Split	NA	Perm	Split	NA	Perm
Protected Phases	5	2		1	6		8	8		4	4	
Permitted Phases			2			6			8			4
Actuated Green, G (s)	19.7	31.6	31.6	21.3	33.2	33.2	13.6	13.6	13.6	15.7	15.7	15.7
Effective Green, g (s)	19.7	31.6	31.6	21.3	33.2	33.2	13.6	13.6	13.6	15.7	15.7	15.7
Actuated g/C Ratio	0.20	0.31	0.31	0.21	0.33	0.33	0.14	0.14	0.14	0.16	0.16	0.16
Clearance Time (s)	4.5	5.0	5.0	4.5	5.0	5.0	4.5	4.5	4.5	4.5	4.5	4.5
Vehicle Extension (s)	2.5	4.8	4.8	2.5	4.8	4.8	2.5	2.5	2.5	2.5	2.5	2.5
Lane Grp Cap (vph)	322	1012	462	344	1074	476	220	231	196	254	245	218
v/s Ratio Prot	0.15	c0.25		c0.17	0.23		c0.10	0.06		c0.17	0.07	
v/s Ratio Perm			0.04			0.02			0.03			0.02
v/c Ratio	0.79	0.79	0.12	0.83	0.70	0.06	0.75	0.42	0.26	1.09	0.42	0.11
Uniform Delay, d1	38.5	31.6	24.6	38.0	29.4	23.1	41.9	39.9	39.0	42.5	38.4	36.5
Progression 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
Incremental Delay, d2	11.7	5.0	0.2	14.8	2.6	0.1	13.0	0.9	0.5	82.8	0.8	0.2
Delay (s)	50.2	36.5	24.8	52.7	32.0	23.2	55.0	40.8	39.5	125.3	39.2	36.7
Level of Service	D	D	C	D	C	C	D	D	D	F	D	D
Approach Delay (s)		38.2			36.5			43.8			83.2	
Approach LOS		D			D			D			F	

Intersection Summary			
HCM 2000 Control Delay	45.6	HCM 2000 Level of Service	D
HCM 2000 Volume to Capacity ratio	0.85		
Actuated Cycle Length (s)	100.7	Sum of lost time (s)	18.5
Intersection Capacity Utilization	71.6%	ICU Level of Service	C
Analysis Period (min)	15		
c Critical Lane Group			

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	231	732	115	259	687	80	151	88	339	252	94	139
Future Volume (veh/h)	231	732	115	259	687	80	151	88	339	252	94	139
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1736	1709	1736	1723	1723	1709	1723	1723	1723	1723	1600	1668
Adj Flow Rate, veh/h	254	804	126	285	755	88	166	97	373	277	103	153
Peak Hour Factor	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91
Percent Heavy Veh, %	1	3	1	2	2	3	2	2	2	2	11	6
Cap, veh/h	287	1004	455	317	1077	477	256	268	227	256	249	220
Arrive On Green	0.17	0.31	0.31	0.19	0.33	0.33	0.16	0.16	0.16	0.16	0.16	0.16
Sat Flow, veh/h	1654	3247	1471	1641	3273	1448	1641	1723	1460	1641	1600	1414
Grp Volume(v), veh/h	254	804	126	285	755	88	166	97	373	277	103	153
Grp Sat Flow(s),veh/h/ln	1654	1624	1471	1641	1637	1448	1641	1723	1460	1641	1600	1414
Q Serve(g_s), s	14.9	22.6	6.4	16.9	20.0	4.3	9.5	5.0	15.5	15.5	5.8	10.2
Cycle Q Clear(g_c), s	14.9	22.6	6.4	16.9	20.0	4.3	9.5	5.0	15.5	15.5	5.8	10.2
Prop In Lane	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	287	1004	455	317	1077	477	256	268	227	256	249	220
V/C Ratio(X)	0.89	0.80	0.28	0.90	0.70	0.18	0.65	0.36	1.64	1.08	0.41	0.69
Avail Cap(c_a), veh/h	424	1142	518	420	1151	509	256	268	227	256	249	220
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	40.2	31.5	26.0	39.2	29.1	23.8	39.4	37.6	42.0	42.0	37.9	39.8
Incr Delay (d2), s/veh	12.7	4.5	0.6	16.9	2.3	0.4	5.2	0.6	307.0	80.4	0.8	8.5
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	6.9	9.2	2.3	8.1	7.9	1.5	4.2	2.2	25.0	12.0	2.3	4.1
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	52.9	36.0	26.6	56.1	31.4	24.2	44.6	38.2	349.0	122.4	38.7	48.3
LnGrp LOS	D	D	C	E	C	C	D	D	F	F	D	D
Approach Vol, veh/h		1184			1128			636			533	
Approach Delay, s/veh		38.6			37.1			222.2			85.0	
Approach LOS		D			D			F			F	

Timer - Assigned Phs	1	2		4	5	6		8				
Phs Duration (G+Y+Rc), s	23.7	35.8		20.0	21.8	37.7		20.0				
Change Period (Y+Rc), s	4.5	5.0		4.5	4.5	5.0		4.5				
Max Green Setting (Gmax), s	25.5	35.0		15.5	25.5	35.0		15.5				
Max Q Clear Time (g_c+I1), s	18.9	24.6		17.5	16.9	22.0		17.5				
Green Ext Time (p_c), s	0.4	6.2		0.0	0.4	6.7		0.0				

Intersection Summary			
HCM 6th Ctrl Delay			78.8
HCM 6th LOS			E

Notes

User approved pedestrian interval to be less than phase max green.

Intersection	
Int Delay, s/veh	3.9

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	100	302	7	0	294	13	7	5	4	12	9	125
Future Vol, veh/h	100	302	7	0	294	13	7	5	4	12	9	125
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Free	Free	Stop	Stop	Stop	Stop	Stop	Stop
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	120	-	-	-	-	-	-	-	-	-	-	0
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	77	77	77	77	77	77	77	77	77	77	77	77
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	130	392	9	0	382	17	9	6	5	16	12	162

Major/Minor	Major1			Major2			Minor1			Minor2		
Conflicting Flow All	399	0	0	401	0	0	1135	1056	397	1053	1052	391
Stage 1	-	-	-	-	-	-	657	657	-	391	391	-
Stage 2	-	-	-	-	-	-	478	399	-	662	661	-
Critical Hdwy	4.12	-	-	4.12	-	-	7.12	6.52	6.22	7.12	6.52	6.22
Critical Hdwy Stg 1	-	-	-	-	-	-	6.12	5.52	-	6.12	5.52	-
Critical Hdwy Stg 2	-	-	-	-	-	-	6.12	5.52	-	6.12	5.52	-
Follow-up Hdwy	2.218	-	-	2.218	-	-	3.518	4.018	3.318	3.518	4.018	3.318
Pot Cap-1 Maneuver	1160	-	-	1158	-	-	179	225	652	204	227	658
Stage 1	-	-	-	-	-	-	454	462	-	633	607	-
Stage 2	-	-	-	-	-	-	568	602	-	451	460	-
Platoon blocked, %		-	-		-	-						
Mov Cap-1 Maneuver	1160	-	-	1158	-	-	118	200	652	181	202	658
Mov Cap-2 Maneuver	-	-	-	-	-	-	118	200	-	181	202	-
Stage 1	-	-	-	-	-	-	403	410	-	562	607	-
Stage 2	-	-	-	-	-	-	420	602	-	391	408	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	2.1	0	28	14.4
HCM LOS			D	B

Minor Lane/Major Mvmt	NBLn1	EBL	EBT	EBR	WBL	WBT	WBR	SBLn1	SBLn2
Capacity (veh/h)	177	1160	-	-	1158	-	-	189	658
HCM Lane V/C Ratio	0.117	0.112	-	-	-	-	-	0.144	0.247
HCM Control Delay (s)	28	8.5	-	-	0	-	-	27.2	12.3
HCM Lane LOS	D	A	-	-	A	-	-	D	B
HCM 95th %tile Q(veh)	0.4	0.4	-	-	0	-	-	0.5	1

Intersection	
Intersection Delay, s/veh	14.3
Intersection LOS	B

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	323	0	1	0	2	5	5	11	0	3	5	261
Future Vol, veh/h	323	0	1	0	2	5	5	11	0	3	5	261
Peak Hour Factor	0.84	0.84	0.84	0.84	0.84	0.84	0.84	0.84	0.84	0.84	0.84	0.84
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	385	0	1	0	2	6	6	13	0	4	6	311
Number of Lanes	0	1	1	0	1	0	0	1	0	0	1	0

Approach	EB	WB	NB	SB
Opposing Approach	WB	EB	SB	NB
Opposing Lanes	1	2	1	1
Conflicting Approach Left	SB	NB	EB	WB
Conflicting Lanes Left	1	1	2	1
Conflicting Approach Right	NB	SB	WB	EB
Conflicting Lanes Right	1	1	1	2
HCM Control Delay	17.7	8.2	8.9	10.7
HCM LOS	C	A	A	B

Lane	NBLn1	EBLn1	EBLn2	WBLn1	SBLn1
Vol Left, %	31%	100%	0%	0%	1%
Vol Thru, %	69%	0%	0%	29%	2%
Vol Right, %	0%	0%	100%	71%	97%
Sign Control	Stop	Stop	Stop	Stop	Stop
Traffic Vol by Lane	16	323	1	7	269
LT Vol	5	323	0	0	3
Through Vol	11	0	0	2	5
RT Vol	0	0	1	5	261
Lane Flow Rate	19	385	1	8	320
Geometry Grp	2	7	7	5	2
Degree of Util (X)	0.03	0.62	0.002	0.012	0.406
Departure Headway (Hd)	5.582	5.8	4.592	5.091	4.56
Convergence, Y/N	Yes	Yes	Yes	Yes	Yes
Cap	634	615	768	707	788
Service Time	3.676	3.599	2.39	3.091	2.603
HCM Lane V/C Ratio	0.03	0.626	0.001	0.011	0.406
HCM Control Delay	8.9	17.7	7.4	8.2	10.7
HCM Lane LOS	A	C	A	A	B
HCM 95th-tile Q	0.1	4.3	0	0	2

Signalized Intersection V/C Calculations

crtical flow ratio

The critical intersection v/c ratio is then calculated using the HCM 6 equation:
Xc = Sum of critical flow ratios * C/(C-L) = 0.87 * 110/(110-16) = 1.02

E Idaho Ave / I-84 EB Ramp Terminal

AM Peak Hour

Crtical Movements	Adj Flow	Sat Flow	Critical Flow Ratio
EBT	523	3173	0.16
WBT	984	3306	0.30
WBL	115	1576	0.07
NBT	141	1437	0.10
SBT	62	1483	0.04
		Sum of Critical Flow Ratios:	**0.40**

Cycle Length	80
Lost time per phase	4.50
Total lost time	13.5

Xc	**0.48**
HCS 2000	0.45

PM Peak Hour

Crtical Movements	Adj Flow	Sat Flow	Critical Flow Ratio
EBT	1094	3359	0.33
WBT	1044	3333	0.31
WBL	167	1628	0.10
NBT	116	1483	0.08
SBT	67	1445	0.05
		Sum of Critical Flow Ratios:	**0.51**

Cycle Length	80
Lost time per phase	4.50
Total lost time	13.5

Xc	**0.61**
HCS 2000	0.52

E Idaho Ave / I-84 WB Ramp Terminal

AM Peak Hour

Crtical Movements	Adj Flow	Sat Flow	Critical Flow Ratio
EBT	629	3306	0.19
EBL	36	1017	0.04
WBT	817	3279	0.25
NBT	201	1483	0.14
SBT	282	1425	0.20
		Sum of Critical Flow Ratios:	**0.48**

Cycle Length	75
Lost time per phase	4.50
Total lost time	13.5

Xc	**0.59**
HCS 2000	0.45

PM Peak Hour

Crtical Movements	Adj Flow	Sat Flow	Critical Flow Ratio
EBT	1262	3333	0.38
EBL	43	1420	0.03
WBT	1118	3359	0.33
NBT	185	1086	0.17
SBT	188	1483	0.13
		Sum of Critical Flow Ratios:	**0.55**

Cycle Length	75
Lost time per phase	4.50
Total lost time	13.5

Xc	**0.67**
HCS 2000	0.6

E Idaho Ave / Goodfellow St

HCS 2000 Output - Errors in HCM 6th Edition Output

AM Peak Hour

Crtical Movements	Adj Flow	Sat Flow	Critical Flow Ratio
EBT	507	3195	0.16
EBL	116	1589	0.07
WBT	681	3143	0.22
WBL	77	1615	0.05
NBT	100	1176	0.09
SBT	60	1221	0.05
		Sum of Critical Flow Ratios:	**0.37**

Cycle Length	70
Lost time per phase	4.75
Total lost time	19.0

Xc	**0.51**
HCS 2000	0.48

PM Peak Hour

Crtical Movements	Adj Flow	Sat Flow	Critical Flow Ratio
EBT	907	3221	0.28
EBL	204	1615	0.13
WBT	890	3247	0.27
WBL	79	1667	0.05
NBT	218	1210	0.18
SBT	97	871	0.11
		Sum of Critical Flow Ratios:	**0.58**

Cycle Length	70
Lost time per phase	4.75
Total lost time	19.0

Xc	**0.80**
HCS 2000	0.71

E Idaho Ave / East Ln

AM Peak Hour

Crtical Movements	Adj Flow	Sat Flow	Critical Flow Ratio
EBT	399	3221	0.12

PM Peak Hour

Crtical Movements	Adj Flow	Sat Flow	Critical Flow Ratio
EBT	804	3247	0.25

EBL	99	1628	0.06
WBT	671	3273	0.21
WBL	266	1641	0.16
NBL	84	1602	0.05
SBL	66	1589	0.04
		Sum of Critical Flow Ratios:	**0.38**

Cycle Length	110
Lost time per phase	4.63
Total lost time	18.5

Xc	**0.46**
HCS 2000	0.56

EBL	254	1654	0.15
WBT	755	3273	0.23
WBL	285	1641	0.17
NBL	166	1641	0.10
SBL	277	1641	0.17
		Sum of Critical Flow Ratios:	**0.69**

Cycle Length	110
Lost time per phase	4.63
Total lost time	18.5

Xc	**0.83**
HCS 2000	0.85

APPENDIX D:

Healthy Communities Impact Assessment

HEALTHY COMMUNITY IMPACT ASSESSMENT

City of Ontario

HOW DOES TRANSPORTATION AFFECT YOUR HEALTH?

The transportation options available to you affect your ability to access employment, medical care, and shopping. Direct, safe, and affordable options can increase your quality of life by reducing the amount you spend on transportation, increasing access to job opportunities, and freeing up time for other important pursuits. Further, people who walk and bike to their destinations receive a direct health benefit from increased physical activity. Your community's investment in active transportation (i.e., walking, biking, taking the bus) infrastructure and programs can help you lead a healthy lifestyle and lead to positive outcomes for you and for all of Ontario.

This healthy community impact assessment describes Ontario's health-related transportation barriers and opportunities to overcome these challenges:

1. THE ABILITY TO WALK, BIKE, AND TAKE TRANSIT
2. SAFE ACCESS FOR PEOPLE WALKING AND BIKING
3. ACCESS TO HEALTH-SUPPORTIVE RESOURCES
4. ACCESS TO JOBS AND SCHOOLS
5. COMMUNITY WELLNESS AND SOCIAL CONNECTIVITY
6. AIR QUALITY

1 THE ABILITY TO WALK, BIKE, AND TAKE TRANSIT

CHALLENGES

- Only 35% of roads in Ontario have a complete sidewalk on both sides of the road
- In a community survey, 35% of respondents said that a lack of public transit availability in Ontario was their top transportation concern (2020 Ontario Region Community Health Needs Assessment)
- SW Fifth Avenue, one of two roadway connections across I-84, has no sidewalks and only a narrow shoulder on the bridge over the freeway

OPPORTUNITIES

- The City recently completed a walking and biking path near Treasure Valley Community College, and it plans to build one along the Snake River, as well
- Explore funding opportunities to increase the frequency and coverage of bus routes
- Improve the visibility of existing bus stops within Ontario

DID YOU KNOW?

- According to U.S. Census data, 28% of residents in Ontario are under the age of 18[1]
- More than 53% of all occupied housing units in Ontario either do not have access to a vehicle or have access to only one vehicle[2]

1 ACS 5-year 2014-2018
2 ACS 5-year 2014-2018

2 SAFE ACCESS FOR PEOPLE WALKING AND BIKING

CHALLENGES

- There are few connected sidewalks in residential neighborhoods, which make it difficult for people to walk from their homes to locations across Ontario
- Low-income housing areas, especially south of SW Fourth Avenue, have very few sidewalks within the immediate neighborhoods or connecting to the rest of Ontario
- There are few low-stress bike routes connecting Ontario residents to jobs, services, and shopping opportunities

OPPORTUNITIES

- Schools provide an opportunity to incorporate walking and biking into lessons about living a healthier lifestyle
- Identify and prioritize sidewalk gaps
- Identify priority bicycle connections and plan for improvements that will serve a wide range of ages and abilities

DID YOU KNOW?

- According to the Malheur County Health Department, 90% of public-school students ride the bus to and from school

3 ACCESS TO HEALTH-SUPPORTIVE RESOURCES

CHALLENGES

- According to the St. Alphonsus 2020 Ontario Region Community Health Needs Assessment, affordable, safe housing and financial stability are the top two community health needs for Ontario
- 18% of community respondents say that a lack of transportation has made it more difficult to get health and social services
- There are numerous grocery stores in Ontario, but reaching these stores without a car is challenging with few connected sidewalks
- Specialty appointments in communities outside of Ontario can be a challenge for people to reach by any means other than a personal vehicle

OPPORTUNITIES

- Since 2018, Ontario has been a community hub for OHSU's Nutrition Oregon Campaign, which is addressing food insecurity locally to drive down rates of chronic disease
- Prioritize improvements on routes that provide access to health-supportive services, including medical facilities and grocery stores

DID YOU KNOW?

- According to the Robert Wood Johnson Foundation's 2020 County Health Rankings Report, there are nine primary care doctors in Malheur County, or 3,387 residents per every doctor, the second-worst ratio in the state of Oregon
- Healthy behaviors are the single largest predictor of health outcomes[1]

1 https://bipartisanpolicy.org/report/what-makes-us-healthy-vs-what-we-spend-on-being-healthy/

4 ACCESS TO JOBS AND SCHOOLS

CHALLENGES

- The fastest-growing commercial areas in Ontario are on E Idaho Avenue to the east of I-84, while the majority of residents in Ontario live on the west side of I-84 and the railroad tracks
  - There are only two roads that cross both I-84 and the railroad tracks that connect these two areas of Ontario
- SW Fourth Avenue is a five-lane thoroughfare with grocery stores, the hospital, parks, and numerous other businesses, yet there are few marked crosswalks for people needing to cross the street
- Several schools, including Alameda Elementary, May Roberts Elementary, and Ontario High, have limited sidewalk coverage at or immediately surrounding the schools
- Malheur County's minimum wage is $11.50 an hour, while Idaho's minimum wage is $7.25 an hour, meaning that there is increased competition for jobs in Ontario from Idaho residents, who will likely be driving to get to work

OPPORTUNITIES

- Providing enhanced crossings, such as rectangular rapid flashing beacons, one of which is located on SW Fourth Avenue across from St. Alphonsus Medical Center, can alert drivers to people needing to cross the street away from a stoplight
- Prioritize improvements on routes to schools and employment areas

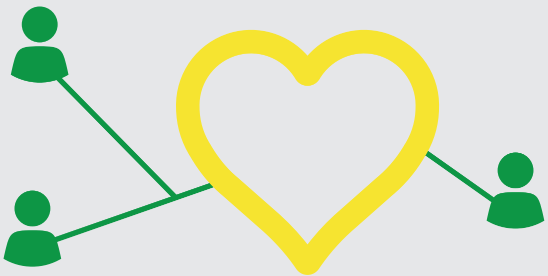
DID YOU KNOW?

- According to the Oregon Health Authority, 6.6% of Malheur County residents walk, bike, or take transit to get to work

5 COMMUNITY WELLNESS AND SOCIAL CONNECTIVITY

CHALLENGES

- Ontario has a population around 11,000 people, but upwards of 50,000 people are in or traveling through the city on any given day, putting a strain on the transportation system
- The median income for a family of four in Malheur County is 19% below the basic survival budget to afford food, housing, childcare, healthcare, and transportation costs
- As Ontario's Hispanic population rises, income disparities are increasingly pronounced: according to the Malheur County Health Department, a single Hispanic mom's median income is $16,000.



OPPORTUNITIES

- The COVID-19 crisis is leading to new partnerships between the City of Ontario and the Malheur County Health Department – formalizing such partnerships and adding new organizations (such as ODOT) in non-crisis times can improve community health and active transportation outcomes
- Identify potential funding opportunities to take advantage of the relatively high commercial activity that occurs in Ontario

DID YOU KNOW?

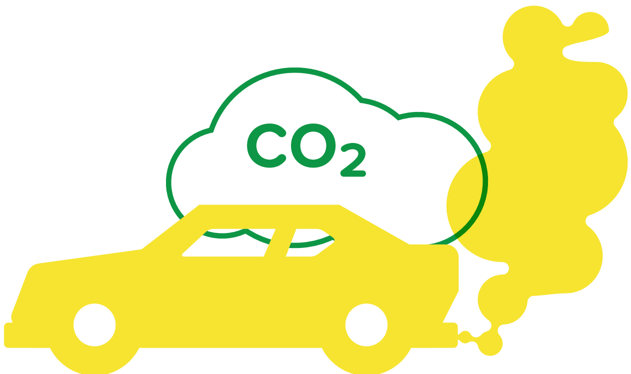
- Nearly 45% of the population in Ontario is Hispanic or Latino as of 2018, compared with 32% of the city's population in 2000[1]

1 ACS 5-year 2014-2018, Census 2000

6 AIR QUALITY

CHALLENGES

- Air pollution is a problem in Ontario, driven by inversions and industrial/agricultural outputs
- 76% of residents in the county drive alone to work



OPPORTUNITIES

- Increasing walking, biking, and public transportation use can lower vehicle-related emissions

DID YOU KNOW?

- According to the Robert Wood Johnson Foundation's 2020 County Health Rankings Report, Malheur County ranks 34th out of 35 participating counties in Oregon for the "Physical Environment" health factor, which includes air & water quality and housing & transit

APPENDIX E:

Transportation Solutions

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MEMORANDUM

Date:	December 30, 2020	Project #: 23858
To:	Project Management Team	
From:	Mark Heisinger, EIT, Russ Doubleday, Nick Foster, AICP, RSP, and Matt Hughart, AICP; Kittelson & Associates	
Project:	City of Ontario, Active Transportation Update and East Idaho Avenue Refinement Area Plan	
Subject:	Technical Memo #9: Transportation Solutions	

This memorandum provides a proposed set of walking/rolling, biking, and crossing projects to be included in the City of Ontario's update to its 2006 Transportation System Plan (TSP). These projects address the gaps and deficiencies identified in *Technical Memorandum #2: Baseline Transportation Assessment* and along the Safe Routes to School (SRTS) network presented in *Technical Memorandum #6: Draft Design Concepts*, as well as public feedback received through multiple engagement efforts. This memorandum also presents a draft prioritization that emphasizes realistic, lower-cost projects to address critical gaps. The recommended projects in this memorandum will be considered for the final TSP update as part of the review and comment process by the Technical Advisory Committee (TAC), Project Management Team (PMT), and the general public.

PROJECT ALTERNATIVES DEVELOPMENT AND SCREENING

The project team developed project alternatives to address the gaps and deficiencies identified in Technical Memoranda #2 and #6. These gaps and deficiencies were identified through feedback provided by the general public, stakeholders the TAC and PMT, the project team's technical analysis (i.e., level of traffic stress [LTS] and qualitative multimodal analysis [QMA]), and previous work by the City to develop a SRTS network. The bikeway selection guidance provided in the Oregon Department of Transportation's (ODOT's) *Blueprint for Urban Design* informed the project team's bikeway recommendations.

In many instances, the project team considered multiple project alternatives for a single gap or deficiency. In these instances, the project team evaluated the different alternatives against the evaluation criteria described in *Technical Memorandum #5: Vision Statement and Guiding Principles*. When the evaluation criteria did not produce a clear choice among alternatives, the project team placed additional weight on the overall project vision of making walking/rolling and biking safer and more comfortable all of Ontario's residents and visitors.

City of Ontario Parks and Recreation Master Plan Paths

In 2018, the City of Ontario completed its *Parks and Recreation Master Plan*. This plan included 14 trail recommendations in and around Ontario, and Figure 1 and Figure 4 include the recommended trail network from this plan. Several trail projects coincide with proposed walking and biking improvements. These include:

- The Treasure Valley Connector Trail along Park Boulevard
- The North-South Connector along NW/SW 9th Avenue from Lions Park to the Malheur County Fairgrounds
- The Cross Town Trail on SW 14th Avenue

PRIORITIZATION

Table 1 shows the four criteria that were used to prioritize walking/rolling, crossing, and biking projects in Ontario. The project team developed the final project prioritization criteria by incorporating criteria contained in Technical Memorandum #5.

Table 1. Factor Description and Weighting for Prioritization

Factor	Criteria	Detail	Weight
Safety	ODOT Bicycle/Pedestrian Safety Plan Draft Criteria • Roadway classification • Number of roadway lanes • Posted speed • Bike lane presence/ sidewalk presence • Mixed-Use zoning • Proximity to schools • Proximity to transit stops • High population of residents over the age of 64	This criterion is a summation of transportation and land use elements that have been shown to impact crash risk for people walking and biking. The resulting index scores were split so that an approximately equal number of segments fell into each of the high, medium, and low categories.	25%
Equity	Transportation Disadvantaged Populations Index	This criterion comes from ODOT's Active Transportation Needs Inventory (ATNI). This index is designed to prioritize improvements on highway segments that serve areas with high numbers of transportation disadvantaged residents and environmental justice communities that have been traditionally underserved. It uses the most recent available American Community Survey data at the block group level for the following attributes: • Elderly populations (65 and older) • Youth populations (under 18) • Non-white and Hispanic populations • Low-income population (households earning less than 200% of the poverty level as determined by the census) • Limited English proficiency population (aggregate of census populations who speak English "not well" or "not at all") • Households without access to a vehicle	25%

Factor	Criteria	Detail	Weight
		• People with a disability (severe or non-severe disability) Each block group received a single TDP score that applied to all segments within the block group. If a segment touched more than one block group, then the block group that contained the majority of the segment was used.	
Connectivity and Accessibility	Access to key destinations	This criterion examines whether a proposed pedestrian or bicycle project would provide a connection to a key destination (defined as schools, parks, and major job locations). Segments that provide a connection to such a destination received a score of 1 and all other segments received a score of 0.	25%
Cost and Implementation	Project cost and project implementation/ feasibility	This criterion examines the relative cost of projects and whether there are any significant physical and legal barriers (i.e. right-of-way). Pedestrian segments were scored on a -1, 0, and 1 scale based on how complete the existing sidewalk segment was (segments received a score of -1 if very little to no sidewalk existed). Since sidewalk construction costs are assumed to be relatively similar, the pedestrian prioritization examines significant physical barriers only. Bike segments were scored on: 1) Relative costs scored protected bike lanes as the most costly, buffered bike lanes and standard bike lanes as moderately costly, and shared lanes as the least costly. 2) Physical and legal barriers were assessed on a similar three-tier scale from lacking curb-to-curb width or right-of-way for the specified treatment to having adequate space to implement the treatment. These combined scores (each were scored on a -1, 0, and 1 scale) were added together for an overall bike cost and implementation score.	25%

Full prioritization scores for each project can be found in Attachment “A.”

PROPOSED WALKING/ROLLING PROJECTS

Figure 1 presents the proposed walking/rolling and intersections projects for the Ontario Active Transportation Plan. Attachment “B” includes the project alternatives for each site.

Sidewalk Projects

The City’s Safe Routes to School map and roadway segments that connect to key destinations, such as schools, parks, and major job centers, create the foundation for the City’s desired continuous sidewalk network. Figure 1 shows the proposed sidewalk network in Ontario.

There are 42 sidewalk projects identified in Figure 1. Table 2 prioritizes these projects into high-priority, medium-priority, and low-priority projects for construction using the criteria identified in Table 1. Prioritized projects are shown in Figure 2.

Table 2. Prioritized Sidewalk Improvement Projects

ID	Roadway	Segment	Proposed Project
High-Priority Segments			
S1	E Idaho Ave	I-84 eastbound ramps to Snake River	Build shared-use path on south side of roadway
P1	Sunset Dr	SW 4th Ave to City Limits	Infill sidewalk on both sides of roadway
P2	SW 8th Ave/ Alameda Dr/SW 14th Ave	SW 8th Ave: Alameda Dr to SW 12th St Alameda Dr: SW 8th Ave to SW 14th Ave SW 14th: Alameda Dr to Park Blvd	Build shared-use path with parallel parking on Alameda Drive from SW 8th Avenue to SW 14th Avenue, infill sidewalk on both sides of roadway along rest of segment
P3	SE 5th Ave	SE 5th St to East Ln	Construct sidewalk on both sides of roadway
P4	Verde Dr	NW 4th Ave to SW 4th Ave	Construct sidewalk on both sides of roadway
P5	S Dorian Way	W Idaho Ave to SW 4th Ave	Infill sidewalk on both sides of roadway
P6	SW 10th St/SW 2nd Ave	SW 10th St: W Idaho Ave to SW 2nd Ave SW 2nd Ave: SW 10th St to Ontario Middle School	Infill sidewalk on both sides of roadway
P7	E Idaho Ave	Oregon St to I-84 eastbound ramps	Reconstruct sidewalks where necessary and install barriers to prevent dirt and debris from washing over the sidewalks
P8	Park Blvd	SW 5th Ave to Evergreen Cemetery	Construct shared-use path on the east side of the road
P9	SW 5th Ave	SW 12th St to SE 5th St	Construct sidewalk on both sides of roadway
P10	SW 14th Ave/SW 4th St/Park Blvd	SW 14th Ave: Park Blvd to SW 4th St SW 4th St: SW 14th Ave to SW 18th Ave Park Blvd: SW 14th Ave to SW 18th Ave	Construct sidewalk on both sides of roadway
P11	Sears Dr/NW 12th St	Sears Dr: NW 4th Ave to NW 12th St NW 12th St: Sears Dr to W Idaho Ave	Construct sidewalk on both sides of roadway
P12	SW 4th St	SW 3rd Ave to SW 11th Ave	Infill sidewalk on both sides of roadway
P13	SW 7th St/SW 6th St/ SW 3rd Ave	SW 7th St: SW 2nd Ave to SW 4th Ave SW 6th St: SW 2nd Ave to SW 5th Ave SW 3rd Ave: SW 7th St to SW 6th St	Infill sidewalk on both sides of roadway
P14	SW 5th St/SW 1st Ave	SW 5th St: W Idaho Ave to SW 1st Ave SW 1st Ave: SW 5th St to SW 4th St	Infill sidewalk on both sides of roadway
P15	SW 2nd Ave	SW 2th St to S Oregon St	Infill sidewalk on both sides of roadway
P16	SW 12th St /Locust Way/SW 11th St	SW 12th St: SW 3rd Ave to Locust Way Locust Way: SW 12th St to SW 11th St SW 11th St: Locust Way to SW 14th Ave	Infill sidewalk on both sides of roadway
Medium-Priority Segments			
P17	SW 2nd St/SW 11th Ave/Park Blvd	SW 2nd St: SW 5th Ave to SW 11th Ave SW 11th Ave: SW 2nd St to Park Blvd Park Blvd: SW 11th Ave to SW 14th Ave	Construct sidewalk on both sides of roadway
P18	NW 4th Ave	N Park Blvd to N Oregon St	Construct sidewalk on both sides of roadway
P19	E Idaho Ave Area Sidewalks	Tapadera Ave: Lincoln Ave to Clarion Inn Access SW 13th St: SE 1st Ave to SE 5th Ave Goodfellow St: E Idaho Ave to End of Roadway	Infill sidewalk on both sides of roadway
P20	SE 2nd St	E Idaho Ave to SE 18th Ave	Construct sidewalk on both sides of roadway
P21	SW 18th Ave	Sunset Dr to SE 2nd Ave	Construct sidewalk on both sides of roadway
P22	NW 9th St/NW 10th St/W Idaho Ave	NW 9th St: NW 4th Ave to W Idaho St NW 10th St: NW 2nd Ave to W Idaho St W Idaho Ave: NW 9th St to NW 10th St	Construct sidewalk on both sides of roadway, construct North-South Connector Trail on east side of NW 9th St
P23	NW 6th St	NW 8th Ave to Ontario Middle School	Construct sidewalk on both sides of roadway
P24	Dorian Dr	NW 4th Ave to W Idaho Ave	Infill sidewalk on both sides of roadway
P25	NW 8th Ave/NW 9th St	NW 8th Ave: NW 9th St to N Oregon St NW 9th St: NW 8th Ave to NW 4th Ave	Construct sidewalk on both sides of roadway, construct North-South Connector Trail on east side of NW 9th St
Low-Priority Segments			

ID	Roadway	Segment	Proposed Project
P26	Sunset Dr	City Limit to SW 18th Ave	Construct sidewalk on both sides of roadway
P27	Alameda Dr	SW 14th Ave to SW 18th Ave	Construct sidewalk on both sides of roadway
P28	SE 5th St/SE 6th Ave	SE 5th St: SE 5th Ave to SE 6th Ave SE 6th Ave: SE 5th St to SE 6th St	Construct sidewalk on both sides of roadway
P29	SE 9th Ave	SE 2nd St to SE Claude Road	Construct sidewalk on both sides of roadway
P30	SE 3rd St	E Idaho Ave to SE 5th Ave	Infill sidewalk on both sides of roadway
P31	NW 5th St/NW 3rd Ave/NW 4th St	NW 5th St: NW 4th Ave to NW 3rd Ave NW 4th St: NW 4th Ave to NW 3rd Av NW 3rd Ave: NW 5th St to NW 4th St	Construct sidewalk on both sides of roadway
P32	N Oregon St	NW 9th St to NW 8th Ave	Construct sidewalk on both sides of roadway
P33	SW 18th Ave	Sunset Dr to Highway 201	Construct sidewalk on both sides of roadway
P34	Hunter Ln	Western End of Road to Verde Dr	Construct sidewalk on both sides of roadway
P35	SE Claude Rd	SE 5th Ave to SE 13th Ave	Construct sidewalk on west side of roadway
P36	Rieter Dr/Arata Way/Sears Dr	Rieter Dr: NW 4th Ave to Arata Way Arata Way: Reiter Dr to Sears Dr Sears Dr: Arata Way to NW 12th St	Construct sidewalk on both sides of roadway
P37	SW 4th Ave	SW 33rd St to Highway 201	Construct sidewalk on south side of roadway
P38	NW 4th Ave	Highway 201 to N Dorian Dr	Construct sidewalk on both sides of roadway
P39	Washington Ave/ Verde Dr	Washington Ave: Verde Dr to Highway 201 Verde Dr: Washington Ave to Highway 201	Construct sidewalk on both sides of roadway
P40	Malheur Dr/Park Blvd	Malheur Dr: Verde Dr to Park Blvd Park Blvd: Malheur Dr to NW 4th Ave	Construct sidewalk on both sides of roadway
P41	Fortner St	N Oregon St to NW 4th Ave	Construct sidewalk on both sides of roadway
P42	NW 12th St	North End of Roadway to NW 4th Ave	Construct sidewalk on both sides of roadway

Crossing Projects

Figure 1 shows 28 proposed crossing projects. These projects are divided into short-term, mid-term, and long-term priority locations in Table 3 using the criteria from Table 1. Crossings in the East Idaho Avenue Refinement Area (see inset in Figure 3) have been evaluated according to methods outlined in National Cooperative Highway Research Program (NCHRP) Research Report 562. The NCHRP Research Report 562 sheets are included in Attachment "C."

All recommended crossing projects in Table 3 are based on a preliminary review of the site. An engineering study consistent with the Manual on Uniform Traffic Control Devices (MUTCD) should be conducted prior to installing any crossing treatments.


Ontario, OR

Source: pedbikesafe.org

The images on this page showcase the various intersection crossing treatments recommended for Ontario. Clockwise from top: a rectangular rapid flashing beacon, an advanced STOP bar for pedestrians, a continental-style crosswalk, and a curb ramp.

Table 3. Prioritized Intersection Crossing Improvement Projects

ID	Intersection	Proposed Project
		High-Priority Projects
I1	Sunset Dr and SW 4th Ave	Install a rectangular rapid flashing beacon across SW 4th Ave at the existing marked crosswalk
I2	Hillcrest Dr and SW 4th Ave	Install a rectangular rapid flashing beacon across SW 4th Ave at the existing marked crosswalk, install curb ramp at south side of crosswalk (1)
I3	SW 12th St and SW 4th Ave	Install a rectangular rapid flashing beacon across SW 4th Ave at existing marked crosswalk
I4	SW 6th St and SW 4th Ave	Install a rectangular rapid flashing beacon across SW 4th Ave on the west side of the intersection at existing marked crosswalk
I5	SE 5th Ave and East Ln	Create all-way stop by removing free southbound right turn
I6	GameStop Lot/Walmart Lot and East Ln	Mark crosswalk and install a rectangular rapid flashing beacon across East Ln on the south side of the intersection
I7	Waremart Lot and East Ln	Mark crosswalk and install a rectangular rapid flashing beacon across East Ln on south side of the intersection with the existing pedestrian path through the parking lot, install curb ramps on both sides of the street at the new crosswalk location (2)
I8	SW 9th St and SW 2nd Ave	Stripe crosswalks and complete curb ramp installation on the south side of the intersection (2)
I9	SW 6th St and W Idaho Ave	Add stop bar for pedestrian crossing and improve pedestrian crossing signage (W11-2 or R1-5b/R1-5c) on W Idaho Ave approaches
I10	Park Blvd and SW Fifth Ave	Stripe crosswalk across Park Blvd to connect offset intersection, stripe crosswalks across SW Fifth Ave in both locations to connect to existing sidewalks, and complete curb ramp installation at all corners without curb ramps (2)
		Medium-Priority Projects
I11	Alameda Dr and SW 8th Ave	Stripe crosswalk across Alameda Dr to connect offset intersection, complete curb ramp installation on west side of Alameda Dr (2)
I12	SW 10th St and W Idaho Ave	Add stop bar for pedestrian crossing and improve pedestrian crossing signage (W11-2 or R1-5b/R1-5c) on W Idaho Ave approaches, complete curb ramp installation on south side of W Idaho Ave (2)
I13	SW 6th St and SW 2nd Ave	Study intersection for all-way stop-control; uncontrolled intersection is located at a major hub for Ontario Middle School
I14	SW 4th St and W Idaho Ave	Study intersection for all-way stop control, install a rectangular rapid flashing beacon across W Idaho Ave on the west side of the intersection
I15	SW 4th St and SW 11th Ave	Add stop bar for pedestrian crossing and improve pedestrian crossing signage (W11-2 or R1-5b/R1-5c) on SW 4th St approaches, complete curb ramp installation at northeast corner of the intersection (1)
I16	SW 12th St and SW 5th Ave	Stripe crosswalks across the north and east side of the intersection, install curb ramps at all intersection corners (4)
I17	SE 5th Ave and SE 13th St	Study intersection for potential enhanced crossing alternatives

ID	Intersection	Proposed Project
I18	Staples Lot and SE 13th St	Stripe crosswalk across SE 13th Ave, install curb ramp at the location of the crosswalk on the east side of the street (1)
I19	SE 1st Ave and Goodfellow St	Stripe crosswalks across Goodfellow St on the south side of the intersection, install curb ramp at southeast corner of intersection with new crosswalk (1)
I20	Dairy Queen Lot and Goodfellow St	Stripe crosswalk across Goodfellow St, install curb ramps on both sides of the street at the new crosswalk location (2)
Low-Priority Projects		
I21	SW 2nd St and SW 5th Ave	Stripe crosswalk across SW 5th Ave on the west side of the intersection, install curb ramps at all corners of the intersection (4)
I22	SE 5th St and SE 5th Ave	Install a rectangular rapid flashing beacon across SW 5th Ave at existing marked crosswalk, complete curb ramp installation at all corners without curb ramps (2)
I23	Tapadera Ave and Goodfellow St	Stripe crosswalk across Goodfellow St on north side of the intersection, install curb ramps on both sides of the street at the new crosswalk location (2)
I24	NW 6th St and NW 4th Ave	Stripe crosswalk across NW 6th St on the north side of the intersection, install curb ramps at all corners of the intersection (4)
I25	NE 18th St and W Idaho Ave	Stripe crosswalks across W Idaho Ave, complete curb ramp installation on north side of the intersection (2)
I26	Dorian Dr and NW 4th Ave	Stripe crosswalk across NW 4th Ave on the west side of the intersection (1)
I27	N Oregon St and NW 4th Ave	Add stop bar for pedestrian crossing and improve pedestrian crossing signage (W11-2 or R1-5b/R1-5c) on N Oregon St approaches
I28	Walmart Lot and East Ln	Restripe existing crossing across East Ln with continental striping, add signage on East Ln approaches

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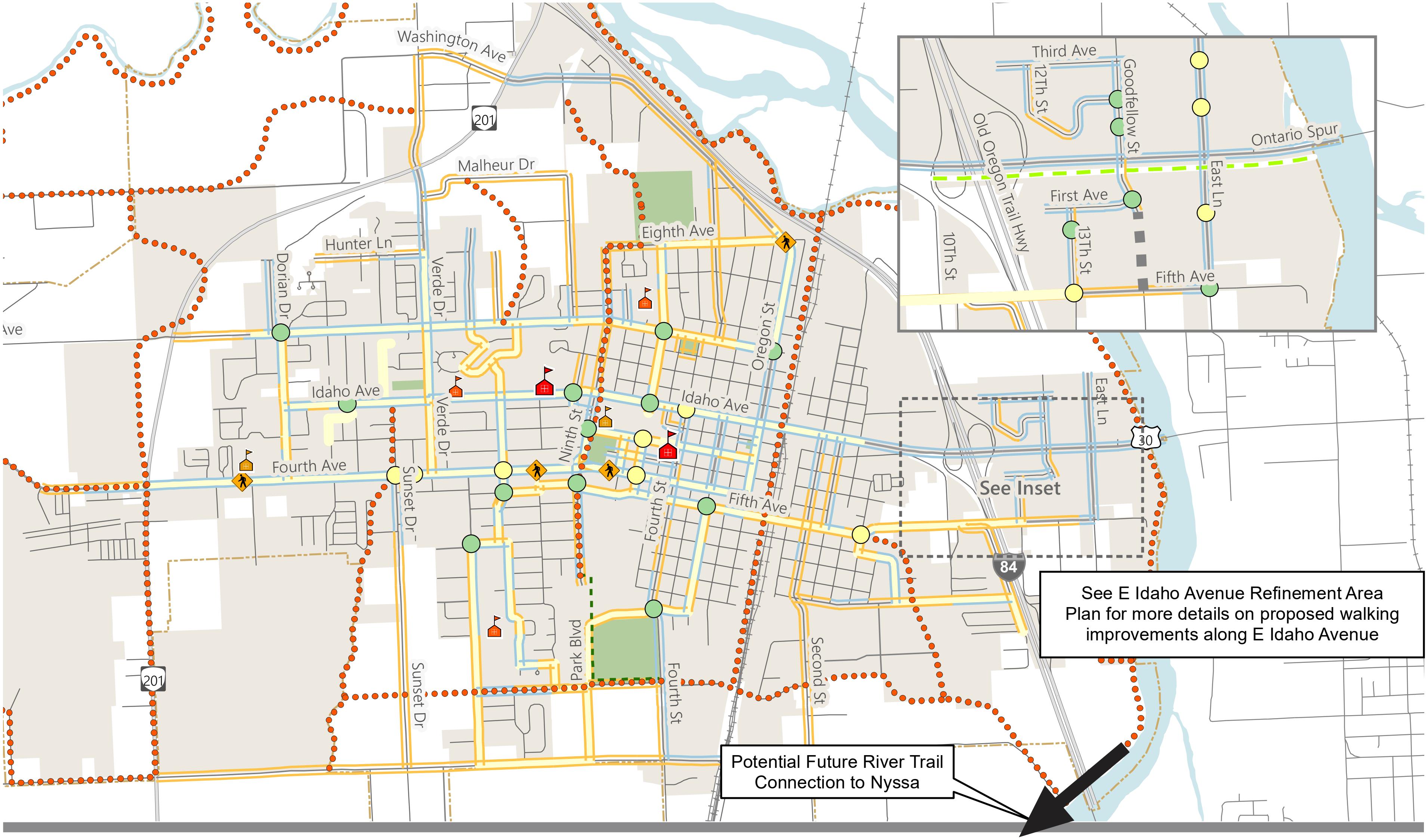

Existing Sidewalk

Existing Rectangular Rapid Flashing Beacon

Existing Safe Routes to School Route

Road Extension (Already Programmed)

Proposed Improvements

Proposed Sidewalk

E Idaho Ave Proposed Shared-Use Path

Enhanced Crossing

Signing and/or Marking Improvements

Proposed Shared-Use Paths (from Ontario Parks and Recreation Master Plan)

Elementary School

Junior/Senior High School

Private School/Charter School

Multi-Use Path (Under Construction)

Parks

Urban Growth Boundary

City Limits

KITTELSON & ASSOCIATES

Figure 1
City of Ontario Active Transportation Plan
Proposed Sidewalk and Crossing Projects

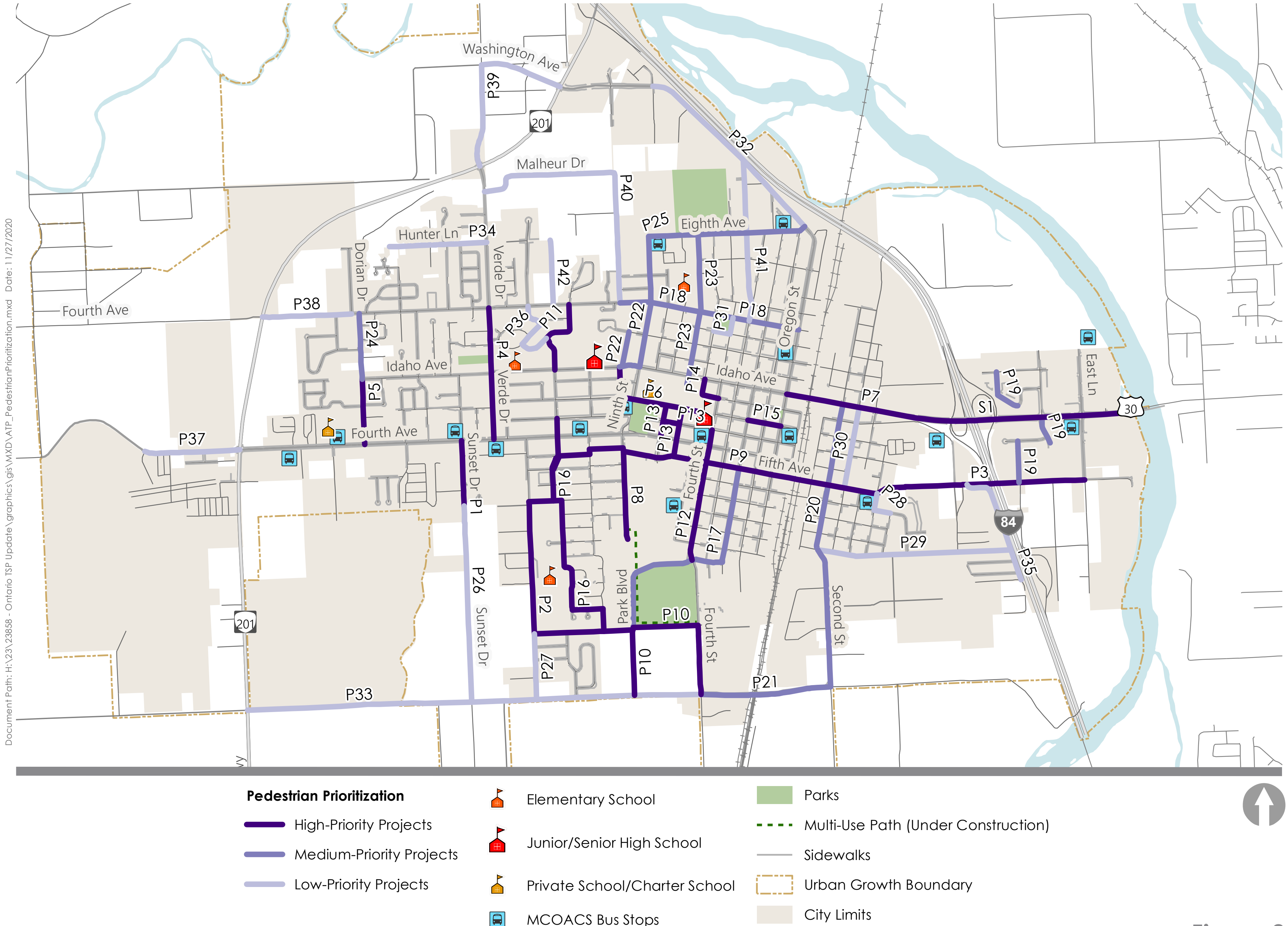

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Figure 2
City of Ontario Active Transportation Plan
Walking Projects Prioritization

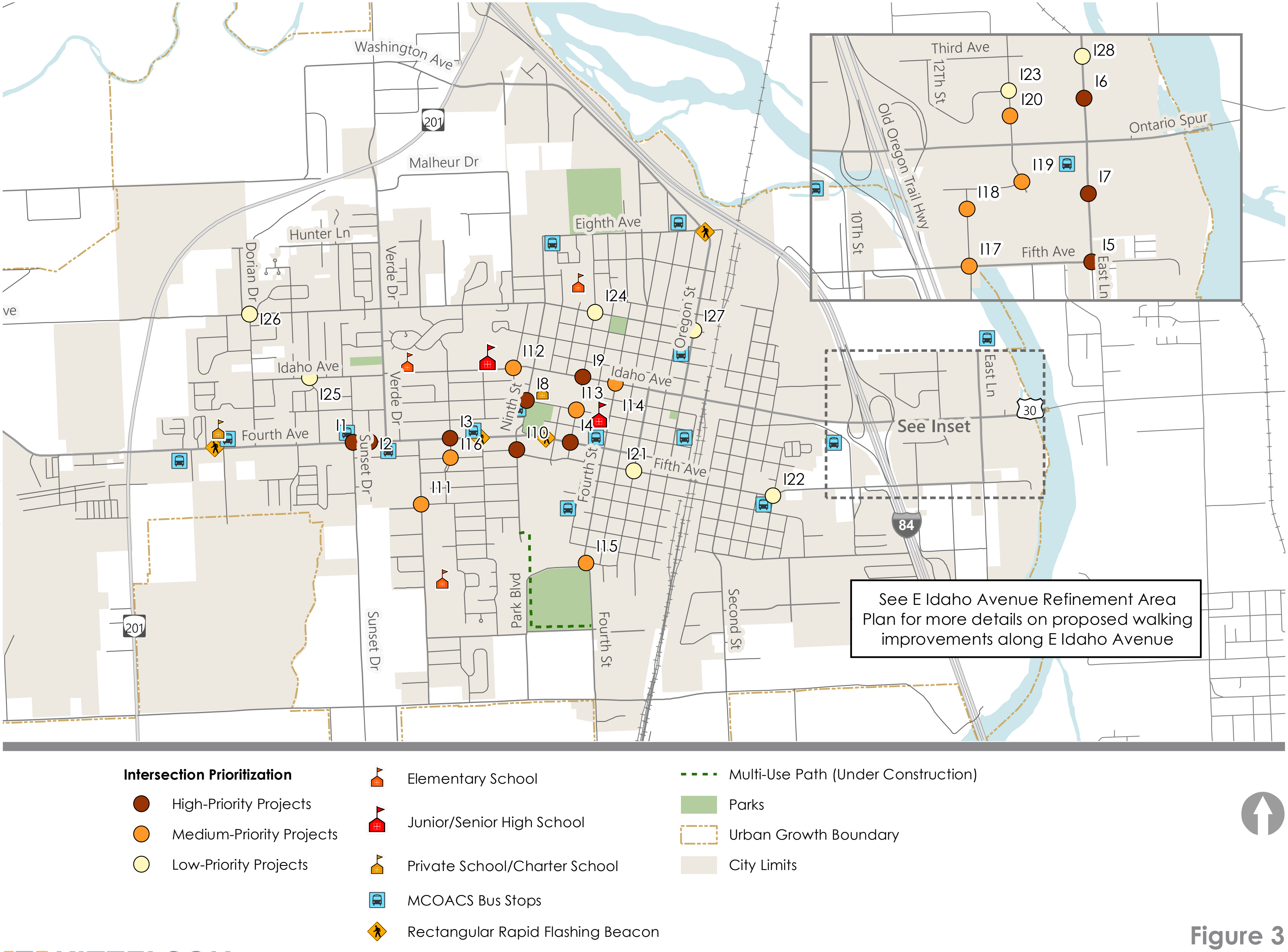


Figure 3
City of Ontario Active Transportation Plan
Crossing Projects Prioritization

KITTELSON & ASSOCIATES

PROPOSED BIKING PROJECTS

Figure 4 presents the proposed biking projects for the Ontario Active Transportation Plan. Proposed biking projects include a shared-use path, protected bike lanes, buffered bike lanes, standard bike lanes, and shared lane routes. Shared lane routes are low-vehicle volume and speed roads where people biking and motor vehicle traffic can comfortably share the same space. This plan identified two classes of these routes, standard shared routes and enhanced bike routes. Enhanced bike routes are where bicycle travel should be elevated to a higher priority than motor vehicle traffic, typically accomplished through the use of traffic calming/diversion techniques. The proposed routes are based on a number of factors, including motor vehicle volumes, roadway classification, number of lanes, travel speeds, street network connectivity, and surrounding land use and the project's goal to create bicycle routes that are comfortable for a wide range of ages and abilities.


Powder River Trail, *Baker City, OR*


Klamath Falls, OR

Some projects can be implemented by marking and signing the new facilities, while other projects may require widening the existing pavement or studying whether it's possible to reallocate the existing roadway space (e.g., on some streets, it may be possible to reduce the number of motor vehicle lanes in order to add in the proposed bicycling facility). Figure 4 highlights roadway sections where such a possible roadway reallocation could be studied to create room for bicycle infrastructure.

Figure 5 and Table 4 prioritize the biking projects using the criteria from Table 1.


Source: movingahead.org

The images on this page showcase the various bike treatments recommended for Ontario. Clockwise from top: a shared-use path, a protected bike lane, a buffered bike lane using paint, a standard bike lane, and a shared lane roadway.

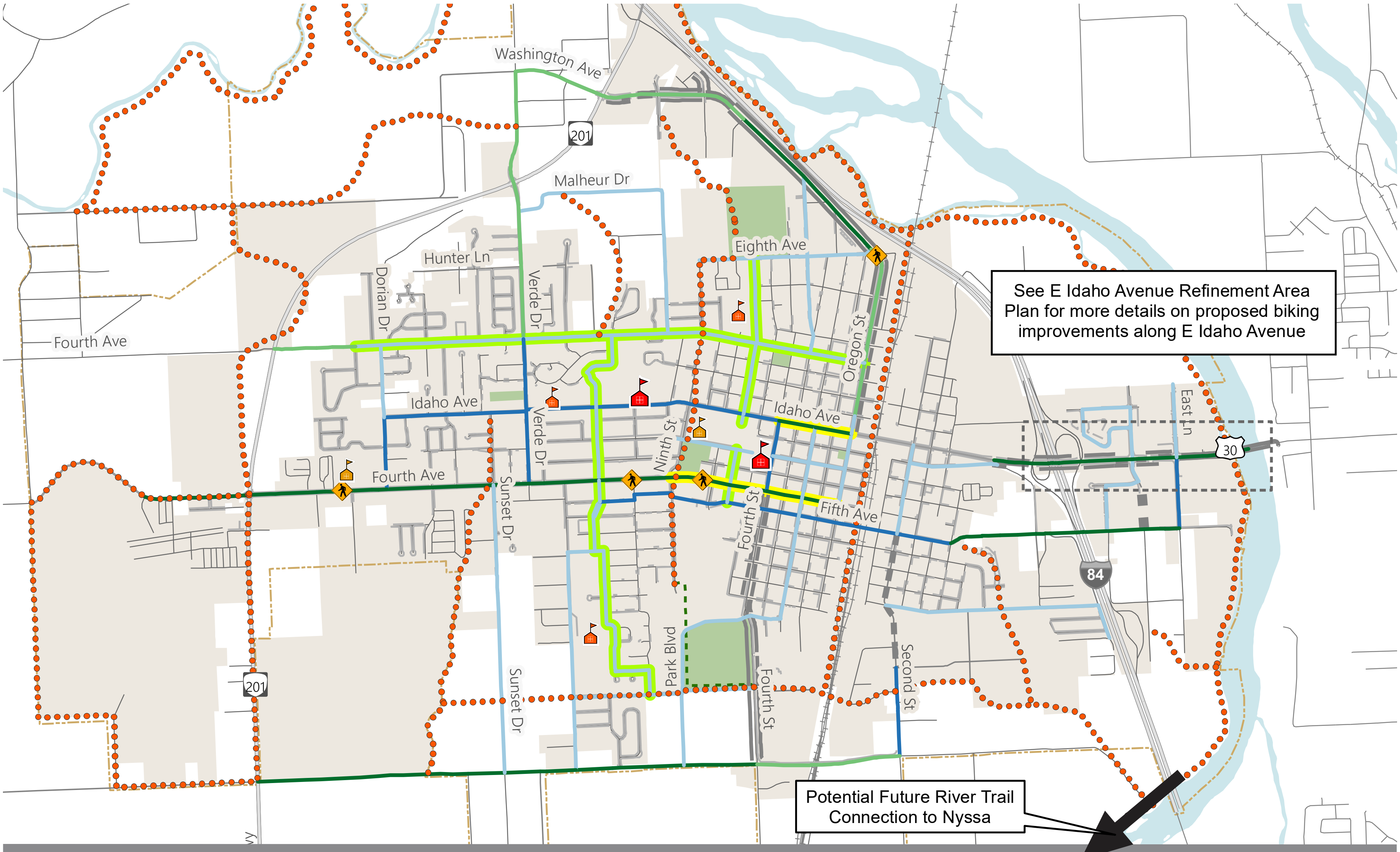

Boise, ID

Redmond, OR

Table 4. Prioritized Bike Improvement Projects

ID	Roadway	Segment	Proposed Project
High-Priority Projects			
S1	E Idaho Ave	I-84 eastbound ramps to Snake River	Construct shared-use path on south side of road
B1	SW 4th Ave	Highway 201 to 9th St	Construct protected bike lanes
B2	Verde Dr	NW 4th Ave to SW 4th Ave	Stripe bike lanes
B3	Sears Dr/NW 12th St	Sears Dr: NW 4th Ave to NW 12th St NW 12th St: Sears Dr to SW 4th Ave	Create enhanced bike route through shared lane markings, wayfinding signage, and enhanced crossings and traffic calming, if necessary
B4	S Oregon St	NW 1st Ave to SW 4th Ave	Add shared lane markings and wayfinding signage
B5	SW 2nd St/SW 11th Ave	SW 2nd St: W Idaho Ave to SW 11th Ave SW 11th Ave: SW 2nd St to SW 4th St	Add shared lane markings and wayfinding signage
B6	W Idaho Ave	Dorian Way to SW 4th St	Stripe bike lanes
B7	Dorian Way	W Idaho Ave to SW Fourth Ave	Stripe bike lanes
B8	SW 6th St	SW 2nd Ave to SW 5th Ave	Create enhanced bike route through shared lane markings, wayfinding signage, and enhanced crossings and traffic calming, if necessary
B9	SW 2nd Ave	SW 10th St to S Oregon Ave	Add shared lane markings and wayfinding signage
B10	SW 12th St/Locust Way/SW 11th St	SW 12th St: SW 4th Ave to Locust Way Locust Way: SW 12th St to SW 11th St SW 11th St: Locust Way to SW 14th Ave	Create enhanced bike route through shared lane markings, wayfinding signage, and enhanced crossings and traffic calming, if necessary
B11	E Idaho Ave/SE 1st Ave	E Idaho Ave: I-84 eastbound ramps to 650 feet west of ramps SE 1st Ave: SE 2nd St to E Idaho Ave	Construct shared-use path on south side of E Idaho Avenue, connect E Idaho Avenue and SE 1st Avenue at the narrowest point between the two roads with a path across the vacant lot, and add shared lane markings and wayfinding signage on SE 1st Avenue
B12	NW 6th Ave	NW 8th Ave to Ontario Middle School	Create enhanced bike route through shared lane markings, wayfinding signage, and enhanced crossings and traffic calming, if necessary
B13	SW 8th Ave/Alameda Dr	SW 8th Ave: Alameda Dr to SW 12th St Alameda Dr: SW 8th Ave to SW 18th Ave	Add shared lane markings and wayfinding signage
Medium-Priority Projects			
B14	E Idaho Ave Area Roadways	East Ln: North End of Road to W Idaho Ave Goodfellow St: North End to South End of Road Lincoln Ave: Tapadera Ave to Goodfellow St Tapadera Ave: Lincoln Ave to Goodfellow St SE 1st Ave: Goodfellow St to SE 13th St SE 13th St: SE 1st Ave to SE 5th Ave	Add shared lane markings and wayfinding signage
B15	SW 11th Ave/Park Blvd	SW 11th Ave: SW 4th St to Park Blvd Park Blvd: SE 11th Ave to SE 18th Ave	Add shared lane markings and wayfinding signage
B16	Sunset Dr	SW 4th Ave to SW 18th Ave	Add shared lane markings and wayfinding signage or construct shared-use path
B17	NW 9th St/SW 9th St/ Park Blvd/	NW/SW 9th St: NW 8th Ave to SW 4th Ave Park Blvd: SW 4th Ave to End of Road	Construct shared-use path as outlined in the City of Ontario's Parks and Recreation Master Plan
B18	SE 9th Ave/SE Claude Road	SE 9th Ave: SE 2nd Ave to SE Claude Road SE Claude Road: SE 9th Ave to SE 13th Ave	Add shared lane markings and wayfinding signage
B19	SE 2nd St	E Idaho Ave to SE 5th Ave	Add shared lane markings and wayfinding signage
B20	NW 4th Ave	Tori Dr to N Oregon St	Create enhanced bike route through shared lane markings, wayfinding signage, and enhanced crossings and traffic calming, if necessary

ID	Roadway	Segment	Proposed Project
B21	SW/SE 5th Ave	SW 12th St to SE 5th St	Stripe bike lanes, improve rail crossing for bicyclists
B22	SW 4th Ave	SW 9th St to S Oregon St	Construct protected bike lanes - this will likely require removing one or more motor vehicle lanes
B23	Washington Ave	Highway 201 to NW 8th St	Construct buffered bike lanes
B24	Idaho Ave	SW 4th St to I-84 EB Ramps	Construct protected bike lanes – this will likely require removing one or more motor vehicle lanes
B25	Dorian Dr	NW 4th Ave to W Idaho Ave	Add shared lane markings and wayfinding signage
B26	SW 4th St	W Idaho Ave to SW 4th Ave	Stripe bike lanes
Low-Priority Projects			
B27	SE 2nd St	SE 12th Ave to SE 18th Ave	Stripe bike lanes
B28	East Ln	E Idaho Ave to south end of road	Stripe bike lanes
B29	N Oregon St	NW 1st Ave to NW 8th Ave	Construct buffered bike lanes
B30	Malheur Drive/Park Blvd	Verde Dr to NW 4th Ave	Add shared lane markings and wayfinding signage
B31	NW 8th Ave	NW 9th St to N Oregon St	Add shared lane markings and wayfinding signage
B32	SW/SE 18th Ave	SW 4th St to SE 2nd St	Construct buffered bike lanes
B33	SW 14th St	Alameda Dr to SW 4th St	Add shared lane markings and wayfinding signage
B34	Fortner St	N Oregon St to NW 4th Ave	Add shared lane markings and wayfinding signage
B35	Verde Dr	Highway 201 to NW 4th Ave	Construct buffered bike lanes
B36	SW 4th Ave	SW 33rd St to Highway 201	Construct protected bike lanes
B37	SE 5th Ave	SE 5th St to East Ln	Construct protected bike lanes
B38	NW 4th Ave	Highway 201 to Tori Dr	Construct buffered bike lanes
B39	Washington Ave/Verde Dr	Washington Ave: Verde Dr to Highway 201 Verde Dr: Washington Ave to Highway 201	Construct buffered bike lanes
B40	SW 18th Ave	Highway 201 to SW 4th St	Construct protected bike lanes
B41	N Oregon St	NW 8th St to NW 8th Ave	Construct protected bike lanes



Existing Infrastructure

- Existing Bike Lane
- Multi-Use Path (Under Construction)
- Sidewalks
- Rectangular Rapid Flashing Beacon
- Road Extension (Already Programmed)
- Bike Lanes (Under Construction)

Proposed Bike Treatment

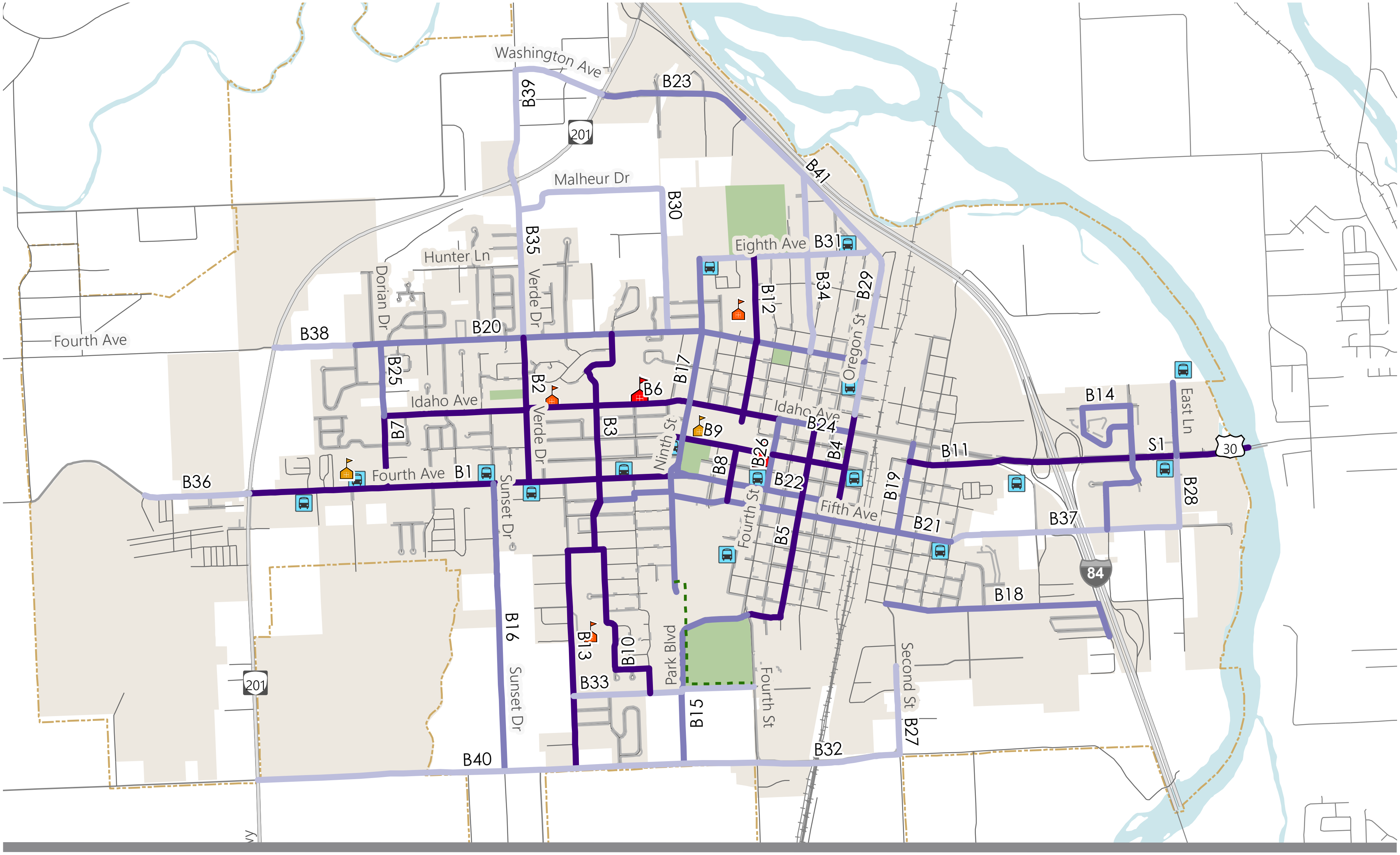
- Shared-Use Path or Protected Bike Lane
- Buffered Bike Lane
- Bike Lane
- Shared Lane Bike Route
- Potential Roadway Reconfiguration
- Enhanced Bike Route
- Proposed Shared-Use Paths (from Ontario Parks and Recreation Master Plan)

- Elementary School
- Junior/Senior High School
- Private School/Charter School

- Parks
- Urban Growth Boundary
- City Limits

KITTELSON & ASSOCIATES

Figure 4
City of Ontario Active Transportation Plan
Proposed Bike Projects



Prioritization

- High-Priority Projects
- Medium-Priority Projects
- Low-Priority Projects

- Elementary School
- Junior/Senior High School
- Private School/Charter School
- MCOACS Bus Stops

- Parks
- Multi-Use Path (Under Construction)
- Sidewalks
- Urban Growth Boundary
- City Limits

KITTELSON & ASSOCIATES

Figure 5
City of Ontario Active Transportation Plan
Bicycling Projects Prioritization

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EAST IDAHO AVENUE REFINEMENT AREA

The East Idaho Avenue area is a special focus area of the Ontario Transportation System Plan update. The East Idaho Avenue Refinement Area Plan includes walking and biking connectivity and accessibility improvements, as well as streetscape improvements. The plan includes a proposed shared-use path along the south side of the roadway, which will connect to a future riverfront path along the Snake River. Potential crossings along the side streets in the Refinement Area were evaluated at several locations using the NCHRP 562 methodology. Figure 3 shows these crossing locations, and Table 3 describes the proposed crossing improvements.

PUBLIC TRANSPORTATION ENHANCEMENTS AND CONNECTIONS

The Malheur Council on Aging and Community Services (MCOACS) operates fixed-route bus service in Ontario, connecting the E Idaho Avenue commercial area, downtown Ontario, Treasure Valley Community College, the SW 4th Avenue commercial corridor, and residential areas in the northern part of town.

MCOACS has received Statewide Transportation Improvement Program (STIP) funds from ODOT for a redesign of their fixed-route service and other enhancements. MCOACS expects that the redesigned service will increase service frequency and expand the service area. Other planned improvements include additional bus stops and new shelters at stops that do not currently have them. The specific details of the redesigned service and where the new bus stop enhancements will be installed will be determined at a future date, expected to be in about the next year, after funds are received. Expanding the service area and improving the frequency at which buses run may address many of the comments received to date for this project regarding the service and address the chief shortcomings noted in the analysis in Technical Memorandum #2.

Much of the MCOACS current fixed-route service is centered along SW 4th Avenue. As shown in Figure 2, much of the high-priority sidewalk infill network is centered around improving access from residential neighborhoods onto SW 4th Avenue. There are several intersections where planned improvements for pedestrians will help provide access to existing bus stops, both along SW 4th Avenue and at streets just west of the downtown area. In addition, the biking network on both SW 4th Avenue and on E Idaho Avenue will provide greater protection for people who are riding along these corridors and connecting to existing transit service.

2006 TSP MODIFICATION

The proposed projects described in this memorandum will result in modifications or elimination of the following projects from the 2006 TSP.

Table 5. 2006 TSP Modification for Bicycle Treatments

Roadway	Segment	2006 TSP Treatment	Updated Treatment	Justification
NW 4th Ave	Verde Dr to Oregon St	Bike lanes	Enhanced bike route	Enhanced bike route should be sufficient given the roadway classification.
NW/SW 6th St	SW 5th Ave to NW 8th Ave	Bike lanes	Enhanced bike route	Enhanced bike route should be sufficient given the roadway classification.
SW 12th St	Locust Way to SW 4th Ave	Bike lanes	Enhanced bike route	Enhanced bike route should be sufficient given the roadway classification.
Locust Way	SW 11th St to SW 12th St	Bike lanes	Enhanced bike route	Enhanced bike route should be sufficient given the roadway classification.
SW 11th St	Locust Way to SW 14th Ave	Bike lanes	Enhanced bike route	Enhanced bike route should be sufficient given the roadway classification.
SW 8th Ave	SW 12th St to Alameda Dr	Bike lanes	Shared lane	Shared lane is sufficient, road connects to an enhanced bike route.
SW 14th Ave	SW 11th St to Park Blvd	Bike lanes	Shared lane	Shared lane is sufficient, road connects to an enhanced bike route.
SW 11th Ave	Park Blvd to SW 2nd St	Bike lanes	Shared lane	Shared lane is sufficient.
SW 2nd St	SW 5th Ave to SW 11th Ave	Bike lanes	Shared lane	There is a parallel facility with bike lanes two blocks to the west on SW 4th Street.
Claude Rd	SE 9th Ave to SE 11th Ave	Bike lanes	Shared lane	This is a dead-end residential street with low traffic volumes, bike lanes are not needed.
SE 9th Ave	SE 7th St to Claude Rd	Bike lanes	Shared lane	This is a dead-end roadway network connecting to Claude Road with low traffic volumes.
SE 7th St	SE 6th Ave to SE 9th Ave	Bike lanes	Shared lane	This is a dead-end roadway network connecting to Claude Road with low traffic volumes.
SE 5th St	SE 5th Ave to SE 6th Ave	Bike lanes	Shared lane	This is a dead-end roadway network connecting to Claude Road with low traffic volumes.

NEXT STEPS

The project team will review the proposed projects with the TAC and public. Feedback received from the TAC and the community will be used refine the proposed projects. The final projects resulting from this process will be advanced into the final proposed TSP update.

ATTACHMENTS

A. Prioritization Scores
B. Project Alternatives
C. NCHRP 562 Research Report Sheets

Attachment A Prioritization Scores

Pedestrian Prioritization Scores

ID	Location	Evaluation Score	
35	SUNSET - SW 4th Ave to City Limits	169.9	
13	ALAMEDA - Alameda Dr to SW 12th St, SW 8th Ave to SW 14th Ave, Alameda Dr to Park Blvd	154.7	
17	FIFTH - SE 5th St to East Ln	150.6	
4	VERDE - NW 4th Ave to SW 4th Ave	142.9	
37	DORIAN - W Idaho Ave to SW 4th Ave	142.9	
26	SECOND SW - W Idaho Ave to SW 2nd Ave, SW 10th St to Ontario Middle School	135.2	
45	IDAHO - Oregon St to I-84 eastbound ramps	135.0	
22	PARK - SW 5th Ave to Evergreen Cemetery	132.4	High Priority Projects
19	FIFTH - SW 12th St to SE 5th St	122.8	
43	14TH - Park Blvd to SW 4th St, SW 14th Ave to SW 18th Ave, SW 14th Ave to SW 18th Ave	119.1	
24	SEARS - NW 4th Ave to NW 12th St, Sears Dr to W Idaho Ave	117.9	
44	IDAHO - I-84 southbound ramps to Snake River	110.0	
14	FOURTH - SW 3rd Ave to SW 11th Ave	108.1	
21	SIXTH - SW 2nd Ave to SW 4th Ave, SW 2nd Ave to SW 5th Ave, SW 7th St to SW 6th St	108.1	
33	FIFTH - W Idaho Ave to SW 1st Ave, SW 5th St to SW 4th St	108.1	
34	SECOND - SW 2th St to S Oregon St	108.1	
11	12TH - SW 3rd Ave to Locust Way, SW 12th St to SW 11th St, Locust Way to SW 14th Ave	107.4	
12	SECOND - SW 5th Ave to SW 11th Ave, SW 2nd St to Park Blvd, SW 11th Ave to SW 14th Ave	105.3	
6	FOURTH - N Park Blvd to N Oregon St	100.8	
18	13TH - Lincoln Ave to Clarion Inn Access, SE 1st Ave to SE 5th Ave, E Idaho Ave to End of Roadway	93.1	
15	SECOND - E Idaho Ave to SE 9th Ave	92.5	
40	18TH - SW 4th Ave to SE 2nd Ave	90.1	Medium Priority Projects
27	NINTH - NW 4th Ave to W Idaho St, NW 2nd Ave to W Idaho St, NW 9th St to NW 10th St	85.2	
20	SIXTH - NW 8th Ave to Ontario Middle School	83.1	
38	DORIAN - NW 4th Ave to W Idaho Ave	83.1	
41	18TH - Sunset Dr to SW 4th Ave	77.3	
8	NINTH - NW 4th Ave to W Idaho St, NW 2nd Ave to W Idaho St, NW 9th St to NW 10th St	75.8	
30	SECOND - SE 9th Ave to SE 18th Ave	74.9	
36	SUNSET - City Limit to SW 18th Ave	69.9	
39	ALAMEDA - SW 14th Ave to SW 18th Ave	69.1	
28	FIFTH - SE 5th Ave to SE 6th Ave, SE 5th St to SE 6th St	67.5	
29	NINTH - SE 2nd St to SE Claude Road	67.5	
16	THIRD -E Idaho Ave to SE 5th Ave	63.0	
9	THIRD - NW 4th Ave to NW 3rd Ave, NW 4th Ave to NW 3rd Av, NW 5th St to NW 4th St	60.1	
1	OREGON - NW 9th St to NW 8th Ave	55.9	
42	18TH - Sunset Dr to Highway 201	48.8	Low Priority Projects
32	HUNTER - Western End of Road to Verde Dr	48.6	
31	CLAUDE FRONTAGE - SE 5th Ave to SE 13th Ave	47.6	
25	REITER - W 4th Ave to Arata Way, Reiter Dr to Sears Dr, Arata Way to NW 12th St	47.5	
23	FOURTH - SW 33rd St to Highway 201	46.7	
5	FOURTH - Highway 201 to N Dorian Dr	41.5	
2	WASHINGTON - Verde Dr to Highway 201, Washington Ave to Highway 201	36.1	
3	MALHEUR - Verde Dr to Park Blvd, Malheur Dr to NW 4th Ave	34.2	
7	FORTNER - N Oregon St to NW 4th Ave	25.8	
10	12TH - North End of Roadway to NW 4th Ave	23.6	

Intersection Prioritization Scores

ID	Location	Evaluation Score	
201	Sunset Dr & SW 4th Ave	159.3	High Priority Projects
202	Hillcrest Dr & SW 4th Ave	159.3	
10	SW 12th St & SW 4th Ave	140.3	
2	SW 6th St & SW 4th Ave	131.3	
107	SE 5th Ave & East Ln	127.9	
106	GameStop Lot & East Ln	127.7	
108	Winco Lot & East Ln	127.7	
19	SW 9th St & SW 2nd Ave	126.5	
18	SW 6th St & W Idaho Ave	124.4	
11	Park Blvd & SW 5th Ave	120.9	
103	Alameda Dr & SW 8th Ave	118.1	Medium Priority Projects
17	SW 10th St & W Idaho Ave	114.0	
20	SW 6th St & SW 2nd Ave	111.9	
24	SW 4th St & W Idaho Ave	111.9	
6	SW 4th St & SW 11th Ave	108.4	
9	SW 12th St & SW 5th Ave	108.4	
101	SE 5th Ave & SE 13th St	107.9	
102	Staples Lot & SE 13th St	102.7	
105	SE 1st Ave & Goodfellow St	102.7	
111	Dairy Queen Lot & Goodfellow St	102.7	
4	SW 2nd St & SW 5th Ave	99.3	Low Priority Projects
3	SE 5th St & SE 5th Ave	96.5	
110	Tapadera Ave & Goodfellow St	93.1	
22	NW 6th St & NW 4th Ave	91.2	
14	NW 18th St & W Idaho Ave	82.2	
13	Dorian Dr & NW 4th Ave	80.5	
1	N Oregon St & NW 4th Ave	75.7	
109	Walmart Lot & East Ln	68.1	

Bike Prioritization Scores

ID	Location	Evaluation Score	
1	FOURTH - Highway 201 to 9th St	150.5	High Priority Projects
38	VERDE - NW 4th Ave to SW 4th Ave	145.2	
33	12TH - NW 4th Ave to NW 12th St, Sears Dr to SW 4th Ave	138.7	
9	OREGON - NW 1st Ave to SW 4th Ave	137.6	
23	SECOND - W Idaho Ave to SW 11th Ave, SW 2nd St to SW 4th St	137.6	
3	IDAHO - Dorian Way to SW 4th St	136.8	
36	DORIAN - W Idaho Ave to SW 4th Ave	136.8	
5	IDAHO - I-84 southbound ramps to Snake River	131.1	
22	SIXTH - SW 2nd Ave to SW 5th Ave	128.7	
41	SECOND - SW 10th St to S Oregon Ave	128.7	
32	12TH - SW 4th Ave to Locust Way, SW 12th St to SW 11th St, Locust Way to SW 14th Ave	125.9	
46	FIRST - I-84 Eastbound Ramps to SE 2nd St (on SE First Ave)	121.1	
21	SIXTH - NW 8th Ave to Ontario Middle School	120.8	
30	ALAMEDA - Alameda Dr to SW 12th St, SW 8th Ave to SW 18th Ave	118.0	
43	13TH - North End of Road to W Idaho Ave, North End to South End of Road, Tapadera Ave to Goodfellow St, Lincoln Ave to Goodfellow St, Goodfellow St to SE 13th St, SE 1st Ave to SE 5th Ave	117.7	Medium Priority Projects
24	11TH - SW 4th St to Park Blvd, SE 11th Ave to SE 18th Ave	115.9	
25	SUNSET - SW 4th Ave to SW 18th Ave	115.9	
42	NINTH - NW 8th Ave to SW 5th Ave	113.7	
26	NINTH - SE 2nd Ave to SE Claude Road, SE 9th Ave to SE 13th Ave	113.5	
28	SECOND - E Idaho Ave to SE 9th Ave	113.5	
18	FOURTH - Tori Dr to N Oregon St	113.4	
7	FIFTH - SW 12th St to SE 5th St	111.3	
2	FOURTH - SW 9th St to S Oregon St	106.1	
12	OREGON - Highway 201 to NW 8th St	105.9	
4	IDAHO - SW 4th St to I-84 EB Ramps	104.9	
37	DORIAN - NW 4th Ave to W Idaho Ave	103.9	
8	FOURTH - W Idaho Ave to SW 4th Ave	103.7	
27	SECOND - SE 9th Ave to SE 18th Ave	89.1	Low Priority Projects
29	EAST - E Idaho Ave to south end of road	88.7	
17	FOURTH - NW 9th St to Tori Dr	87.6	
10	OREGON - NW 1st Ave to NW 8th Ave	84.3	
15	MALHEUR - Verde Dr to NW 4th Ave	79.7	
19	EIGHTH - NW 9th St to N Oregon St	71.3	
34	18TH - SW 4th St to SE 2nd St	68.7	
31	14TH - Alameda Dr to SW 4th St	67.8	
20	FORTNER - N Oregon St to NW 4th Ave	63.4	
14	VERDE - Highway 201 to NW 4th Ave	59.2	
40	FOURTH - SW 33rd St to Highway 201	51.9	
6	FIFTH - SE 5th St to East Ln	42.9	
16	FOURTH - Highway 201 to Tori Dr	42.9	
13	WASHINGTON - Verde Dr to Highway 201, Washington Ave to Highway 201	39.4	
35	18TH - Highway 201 to SW 4th St	37.7	
11	OREGON - NW 8th St to NW 8th Ave	30.6	

Attachment B Project Alternatives

Roadway	Start	End	BLTS	Speed	AADT	Lanes per Direction	Curb-to-Curb Width	BUD Urban Context	BUD: Bicyclist Considerations	Preferred alternative	Other options
SW Fourth Ave	Court Ave	Verde Dr	4	35	14,200	2	70 feet	Commercial Corridor	High	Protected bike lane	Shared-use path Buffered bike lane (2-5 foot painted buffer)
SW Fourth Ave	Verde Dr	SW Ninth St	4	35	14,200	2	70 feet	Commercial Corridor	High	Protected bike lane	Shared-use path Buffered bike lane (2-5 foot painted buffer)
SW Fourth Ave	SW Ninth St	SW Second St	4	30	11,100	2	62 feet	Commercial Corridor	High	Protected bike lane	Shared-use path Buffered bike lane (2-5 foot painted buffer)
SW Fourth Ave	SW Second St	S Oregon St	3	20		2	52 feet	Commercial Corridor	High	Protected bike lane	Shared-use path Buffered bike lane (2-5 foot painted buffer)
SW Fifth Ave	SW 12th St	Park Blvd	1	25		1	34 feet	Residential Corridor	Medium	Shared lane (sharrows)	6-foot bike lane
SW/SE Fifth Ave	Park Blvd	SE Fifth Ave	2	25	4,100	1	46 feet	Urban Mix	High	6-foot bike lane	Shared lane with enhanced bike route
SE Fifth Ave	SE Fifth St	SE 13th St	4	35	7,200	1	24 feet	Suburban Fringe	Low	Protected bike lane	Buffered bike lane (2-5 foot painted buffer) 5-6 foot standard bike lane with 30 MPH speed limit 6-foot shoulder
SW 18th Ave	Highway 201	SW Fourth St	4	40		1	28 feet	Suburban Fringe	Low	Protected bike lane	Buffered bike lane (2-5 foot painted buffer) with 35 MPH speed limit
SW 18th Ave	SW Fourth St	SE Second St	4	35		1	36 feet	Suburban Fringe	Low	Buffered bike lane (2-5 foot painted buffer)	Protected bike lane 4-5 foot shoulder
Dorian Dr	NW Fourth Ave	W Idaho Ave	1	25		1	24 feet	Residential Corridor	Medium	Shared lane (sharrows)	6-foot bike lane
Dorian Dr	W Idaho Ave	SW Fourth Ave	3	25	2,100	1	32 feet	Residential Corridor	Medium	6-foot bike lane	Shared lane (sharrows) Buffered bike lane (2-5 foot painted buffer)
Verde Dr	Washington Ave	Highway 201	4	35		1	26 feet	Suburban Fringe	Low	Buffered bike lane (2-5 foot painted buffer)	Protected bike lane 4-5 foot shoulder
Verde Dr	Highway 201	Hunter Ln	4	35		1	36 feet	Residential Corridor	Medium	Buffered bike lane (2-5 foot painted buffer)	6-foot bike lane
Verde Dr	Hunter Ln	NW Fourth Ave	4	35		1	46 feet	Residential Corridor	Medium	Buffered bike lane (2-5 foot painted buffer)	6-foot bike lane
Verde Dr	NW Fourth Ave	SW Fourth Ave	2	25	6,700	1	42 feet	Residential Corridor	Medium	6-foot bike lane	Buffered bike lane (2-5 foot painted buffer)
NW/SW Ninth St	NW Eighth Ave	SW Second Ave	3	25	3,300	1	48 feet	Residential Corridor	Medium	6-foot bike lane	Shared lane Buffered bike lane (2-5 foot painted buffer)
SW Ninth St	SW Second Ave	SW Fifth Ave	3	25		1	48 feet	Urban Mix	High	6-foot bike lane	Shared lane Buffered bike lane (2-5 foot painted buffer)
W Idaho Ave	Dorian Dr	SW Fourth St	2	25	1,200	1	46 feet	Residential Corridor	Medium	6-foot bike lane	Shared lane Buffered bike lane (2-5 foot painted buffer)
W Idaho Ave	SW Fourth St	SW Second St	3	25	9,900	2	46 feet	Urban Mix	High	Protected bike lane	Buffered bike lane (2-4 foot painted buffer) 6-foot bicycle lane
W Idaho Ave	SW Second St	Oregon St	4	25	10,300	2	64 feet	Urban Mix	High	Protected bike lane	Buffered bike lane (2-4 foot painted buffer) 6-foot bicycle lane
E Idaho Ave	SE Fourth St	Bike Lane Begin	4	30	24,200	2	64 feet	Commercial Corridor	High	Protected bike lane	Shared-use path
E Idaho Ave	Bike Lane Begin	Snake River	3	35	23,900	2	80 feet (or more)	Commercial Corridor	High	Shared-use path	Protected bike lane
N Oregon St	NW Ninth St	A Pl	3	35		1	50 feet	Suburban Fringe	Low	Buffered bike lane (2-5 foot painted buffer)	6-foot bike lane
N Oregon St	A Pl	Manor Way	4	45		1	38 feet	Suburban Fringe	Low	Protected bike lane	Buffered bike lane (2-5 foot painted buffer) with 35 MPH speed limit
N Oregon St	Manor Way	NW Eighth Ave	4	45	2,700	1	42 feet	Suburban Fringe	Low	Protected bike lane	Buffered bike lane (2-5 foot painted buffer) with 35 MPH speed limit
N Oregon St	NW Eighth Ave	NW Fourth Ave	3	30		1	62 feet	Residential Corridor	Medium	Buffered bike lane (2-5 foot painted buffer)	Protected bike lane
N Oregon St	NW Fourth Ave	NW Second Ave	3	30		1	60 feet	Urban Mix	High	Buffered bike lane (2-4 foot painted buffer)	6-foot bike lane
N Oregon St	NW Second Ave	NW First Ave	3	20		1	56 feet	Urban Mix	High	Buffered bike lane (2-4 foot painted buffer)	6-foot bike lane
N/S Oregon St	NW First Ave	SW Fourth Ave	2	20		1	50	Traditional Downtown	High	Shared lane (sharrows)	6-foot bike lane
Washington Ave	Verde Dr	Highway 201	4	35		1	40 feet	Suburban Fringe	Low	Buffered bike lane (2-5 foot painted buffer)	Protected bike lane 4-5 foot shoulder
Washington Ave	Highway 201	Park Blvd	3	35		2	72 feet	Suburban Fringe	Low	Buffered bike lane (2-5 foot painted buffer)	Protected bike lane
Washington Ave	Park Blvd	NW Ninth St	3	35		1	50 feet	Suburban Fringe	Low	Buffered bike lane (2-5 foot painted buffer)	Protected bike lane
NW Fourth Ave	City Limit	Tori Dr	4	35		1	24 feet	Residential Corridor	Medium	Buffered bike lane (2-5 foot painted buffer)	6-foot bike lane
NW Fourth Ave	Tori Dr	NW Ninth St	2	25		1	42 feet	Residential Corridor	Medium	Shared lane with enhanced bike route	Shared lane (sharrows)
NW Fourth Ave	NW Ninth St	N Oregon St	2	25		1	34 feet	Residential Corridor	Medium	Shared lane with enhanced bike route	Shared lane (sharrows)
SW Fourth St	W Idaho Ave	SW Fourth Ave	3	25	2,700	1	46 feet	Urban Mix	High	6-foot bike lane	Shared lane Buffered bike lane (2-4 foot painted buffer)
SW Fourth St	SW Fourth Ave	SW 11th Ave	3	25	2,700	1	46 feet	Residential Corridor	Medium	6-foot bike lane (No improvement needed)	Shared lane Buffered bike lane (2-5 foot painted buffer)
SW Second St	W Idaho Ave	SW Fourth Ave	3	20		1	46 feet	Traditional Downtown	High	Shared lane (sharrows)	6-foot bike lane
SW Second St	SW Fourth Ave	SW 11th Ave	1	25		1	32 feet	Residential Corridor	Medium	Shared lane (sharrows)	Shared lane with enhanced bike route
SE Second St	E Idaho Ave	SE Ninth Ave	2	25		1	46 feet	Urban Mix	High	Shared lane (sharrows)	Shared lane with enhanced bike route
SE Second St	SE Ninth Ave	City Limit	3	25	1,600	1	28 feet	Suburban Fringe	Low	6-foot bike lane	Shared lane
SE Second St	City Limit	SE 18th Ave	3	35	1,600	1	26 feet	Suburban Fringe	Low	6-foot bike lane	Buffered bike lane (2-5 foot painted buffer)
East Ln	E Idaho Ave	SE Fifth Ave	3	25	9,200	1	42 feet	Commercial Corridor	High	6-foot bike lane	Buffered bike lane (2-5 foot painted buffer)
E Idaho Ave Area Roads	N/A	N/A	1 or 2	25		1	50 feet	Commercial Corridor	High	Shared lane (sharrows)	
Sunset Drive	SW Fourth Ave	SW 18th Ave	2	25	850	1	24 feet	Suburban Fringe	Low	Shared lane (sharrows)	
NW Eighth Ave	NW Ninth St	N Oregon St	2	25		1	34 feet	Residential Corridor	Medium	Shared lane (sharrows)	
SW Second Ave	SW 10th St	S Oregon St	1	25		1	44 feet	Traditional Downtown	High	Shared lane (sharrows)	Shared lane with enhanced bike route
SE Ninth Ave	SE Second St	SE Claude Rd	2	25		1	46 feet	Suburban Fringe	Low	Shared lane (sharrows)	
SE Claude Rd	SE Ninth Ave	SE 13th Ave	1	25		1	40 feet	Suburban Fringe	Low	Shared lane (sharrows)	
NW/SW Sixth St	NW Eighth Ave	Ontario MS	1	25		1	36 feet	Residential Corridor	Medium	Shared lane with enhanced bike route	Shared lane (sharrows)
SW Sixth St	Ontario MS	SW Fifth Ave	1	25		1	48 feet	Traditional Downtown	High	Shared lane with enhanced bike route	Shared lane (sharrows)
Fortner St	N Oregon St	NW Fourth Ave	2	25		1	36 feet	Residential Corridor	Medium	Shared lane (sharrows)	
SW 14th St	Alameda Dr	SW Fourth St	2	25		1	36 feet	Suburban Fringe	Low	Shared lane (sharrows)	
Sears Drive	NW Fourth Ave	NW 12th St	1	25		1	36 feet	Residential Corridor	Medium	Shared lane with enhanced bike route	Shared lane (sharrows)
NW/SW 12th St	Sears Drive	SW Fourth Ave	1	25		1	36 feet	Residential Corridor	Medium	Shared lane with enhanced bike route	Shared lane (sharrows)
SW 12th St	SW Fourth Ave	Locust Way	1	25		1	36 feet	Residential Corridor	Medium	Shared lane with enhanced bike route	Shared lane (sharrows)
Locust Way	SW 12th St	SW 11th St	1	25		1	36 feet	Residential Corridor	Medium	Shared lane with enhanced bike route	Shared lane (sharrows)
SW 11th St	Locust Way	SW 14th Ave	1	25		1	34 feet	Residential Corridor	Medium	Shared lane with enhanced bike route	Shared lane (sharrows)
SW Eighth Ave	SW 12th St	Alameda Dr	1	25		1	36 feet	Residential Corridor	Medium	Shared lane (sharrows)	
Alameda Dr	SW Eighth Ave	SW 18th Ave	2	25		1	40 feet	Suburban Fringe	Low	Shared lane (sharrows)	
SW 11th Ave	SW Second St	Park Blvd	1	25		1	26 feet	Suburban Fringe	Low	Shared lane (sharrows)	
Park Blvd	SW 11th Ave	SW 18th Ave	2	25		1	26 feet	Suburban Fringe	Low	Shared lane (sharrows)	
Park Blvd	SW Fifth Ave	End of Roadway	2	25		1	40 feet	Residential Corridor	Medium	Shared lane (sharrows)	

Attachment C NCHRP 562 Research Report Sheets

Potential Crossing Improvement
Existing Crosswalk
Bus Stop
Two Way Peak Hour Volume
Improvement to Existing Crossing
490
880
620
1,050
No curb ramp on W side
260
620
610
600
Recommend removing "Right turns are free" sign
700 ft

GUIDELINES FOR PEDESTRIAN CROSSING TREATMENTS

This spreadsheet combines Worksheet 1 and Worksheet 2 (Appendix A, pages 69-70) of TCRP Report 112/NCHRP Report 562 (*Improving Pedestrian Safety at Unsignalized Intersections*) into an electronic format. This spreadsheet should be used in conjunction with, and not independent of, Appendix A documentation.

This spreadsheet is still under development, please inform TTI if errors are identified.

Key

- Blue fields contain descriptive information.
- Green fields are required and must be completed.
- Tan fields are adjustments that are filled out only under certain conditions (follow instructions to the left of the cell).
- Gray fields are automatically calculated and should not be edited.

Analyst and Site Information

Analyst	KAI	Major Street	East Lane
Analysis Date	September 1, 2020	Minor Street or Location	Waremart Lot Adjacent to Bus Stop
Data Collection Date		Peak Hour	PM

Step 1: Select worksheet:

Posted or statutory speed limit (or 85th percentile speed) on the major street (mph)	*1a*	25
Is the population of the surrounding area <10,000? (enter ***YES*** or ***NO***)	*1b*	no

Step 2: Does the crossing meet minimum pedestrian volumes to be considered for a traffic control device?

Peak-hour pedestrian volume (ped/h), V_p	*2a*	10

Result: Consider raised median islands, curb extensions, traffic calming, etc. as feasible.

Step 3: Does the crossing meet the pedestrian warrant for a traffic signal?

Major road volume, total of both approaches during peak hour (veh/h), V_{maj-s}	*3a*	1050
[Calculated automatically] Preliminary (before min. threshold) peak hour pedestrian volume to meet warrant	*3b*	251
[Calculated automatically] Minimum required peak hour pedestrian volume to meet traffic signal warrant	*3c*	251
Is 15th percentile crossing speed of pedestrians less than 3.5 ft/s (1.1 m/s)? (enter ***YES*** or ***NO***)	*3d*	no
If 15th percentile crossing speed of pedestrians is less than 3.5 ft/s (1.1 m/s), then reduce *3c* by up to 50%. — % rate of reduction for *3c* (up to 50%)	*3e*	
Reduced value or *3c*	*3f*	251

Result:

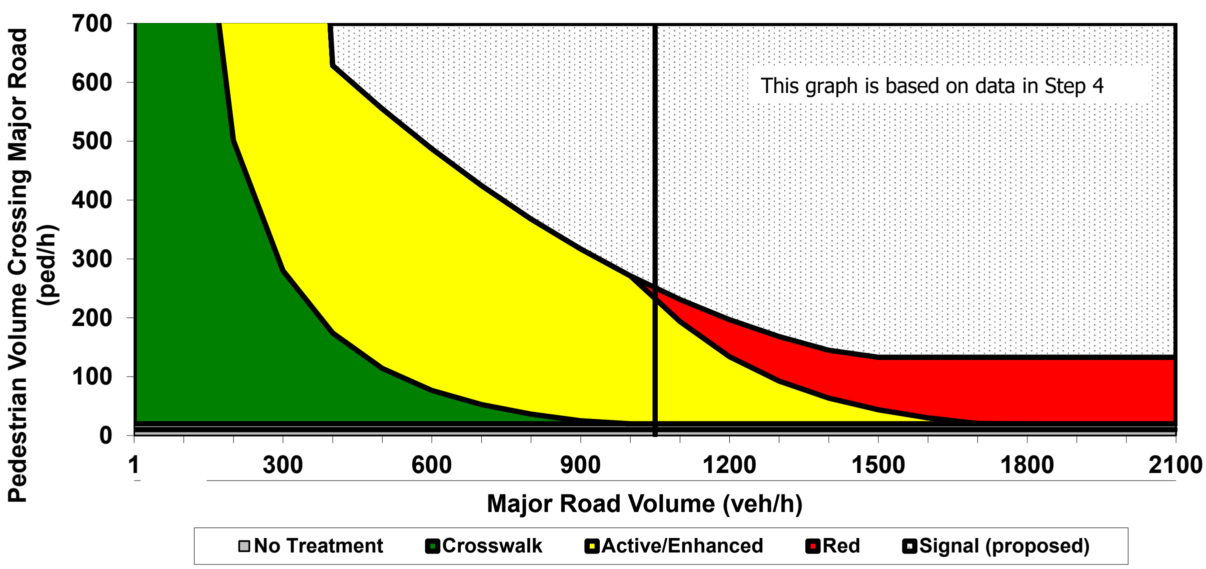
Step 4: Estimate pedestrian delay.

Pedestrian crossing distance, curb to curb (ft), L	*4a*	45
Pedestrian walking speed (ft/s), S_p (suggested speed = 3.5 ft/s)	*4b*	3.5
Pedestrian start-up time and end clearance time (s), t_s (suggested start-up time = 3 sec)	*4c*	3
[Calculated automatically] Critical gap required for crossing pedestrian (s), t_c	*4d*	16
Major road volume, total both approaches OR approach being crossed if raised median island is present, during peak hour (veh/h), V_{maj-d}	*4e*	1050
Major road flow rate (veh/s), v	*4f*	0.29
Average pedestrian delay (s/person), d_p	*4g*	323
Total pedestrian delay (h), D_p The value in 4h is the calculated estimated delay for all pedestrians crossing the major roadway without a crossing treatment (assumes 0% compliance). If the actual total pedestrian delay has been measured at the site, that value can be entered in 4i to replace the calculated value in 4h.	*4h*	0.9
	4i	

Step 5: Select treatment based up on total pedestrian delay and expected motorist compliance.

Expected motorist compliance at pedestrian crossings in region: enter ***HIGH for High Compliance*** or ***LOW for Low Compliance***	*5a*	high

Treatment Category:	**Consider raised median islands, curb extensions, traffic calming, etc. as feasible.**



This worksheet provides general recommendations on pedestrian crossing treatments to consider at unsignalized intersections; in all cases, engineering judgment should be used in selecting a specific treatment for installation. This worksheet does not apply to school crossings. In addition to the results provided by this worksheet, users should consider whether a pedestrian treatment could present an increased safety risk to pedestrians, such as where there is poor sight distance, complex geometrics, or nearby traffic signals.

GUIDELINES FOR PEDESTRIAN CROSSING TREATMENTS

This spreadsheet combines Worksheet 1 and Worksheet 2 (Appendix A, pages 69-70) of TCRP Report 112/NCHRP Report 562 (*Improving Pedestrian Safety at Unsignalized Intersections*) into an electronic format. This spreadsheet should be used in conjunction with, and not independent of, Appendix A documentation.

This spreadsheet is still under development, please inform TTI if errors are identified.

Key

- Blue fields contain descriptive information.
- Green fields are required and must be completed.
- Tan fields are adjustments that are filled out only under certain conditions (follow instructions to the left of the cell).
- Gray fields are automatically calculated and should not be edited.

Analyst and Site Information

Analyst	KAI	Major Street	East Lane
Analysis Date	September 1, 2020	Minor Street or Location	GameStop and Walmart Parking Lots
Data Collection Date		Peak Hour	PM

Step 1: Select worksheet:

Posted or statutory speed limit (or 85th percentile speed) on the major street (mph)	*1a*	25
Is the population of the surrounding area <10,000? (enter ***YES*** or ***NO***)	*1b*	no

Step 2: Does the crossing meet minimum pedestrian volumes to be considered for a traffic control device?

Peak-hour pedestrian volume (ped/h), V_p	*2a*	10

Result: Consider raised median islands, curb extensions, traffic calming, etc. as feasible.

Step 3: Does the crossing meet the pedestrian warrant for a traffic signal?

Major road volume, total of both approaches during peak hour (veh/h), V_{maj-s}	*3a*	880
[Calculated automatically] Preliminary (before min. threshold) peak hour pedestrian volume to meet warrant	*3b*	327
[Calculated automatically] Minimum required peak hour pedestrian volume to meet traffic signal warrant	*3c*	327
Is 15th percentile crossing speed of pedestrians less than 3.5 ft/s (1.1 m/s)? (enter ***YES*** or ***NO***)	*3d*	no
If 15th percentile crossing speed of pedestrians is less than 3.5 ft/s (1.1 m/s), then reduce *3c* by up to 50%. — % rate of reduction for *3c* (up to 50%)	*3e*	
Reduced value or *3c*	*3f*	327

Result:

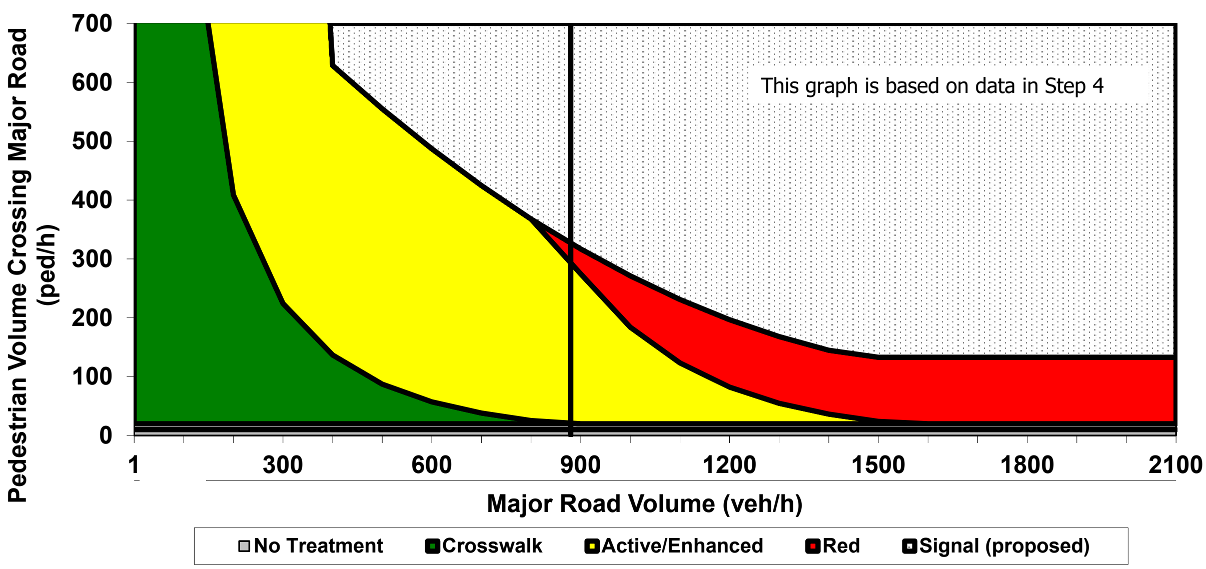
Step 4: Estimate pedestrian delay.

Pedestrian crossing distance, curb to curb (ft), L	*4a*	50
Pedestrian walking speed (ft/s), S_p (suggested speed = 3.5 ft/s)	*4b*	3.5
Pedestrian start-up time and end clearance time (s), t_s (suggested start-up time = 3 sec)	*4c*	3
[Calculated automatically] Critical gap required for crossing pedestrian (s), t_c	*4d*	17
Major road volume, total both approaches OR approach being crossed if raised median island is present, during peak hour (veh/h), V_{maj-d}	*4e*	880
Major road flow rate (veh/s), v	*4f*	0.24
Average pedestrian delay (s/person), d_p	*4g*	242
Total pedestrian delay (h), D_p The value in 4h is the calculated estimated delay for all pedestrians crossing the major roadway without a crossing treatment (assumes 0% compliance). If the actual total pedestrian delay has been measured at the site, that value can be entered in 4i to replace the calculated value in 4h.	*4h*	0.7
	4i	

Step 5: Select treatment based up on total pedestrian delay and expected motorist compliance.

Expected motorist compliance at pedestrian crossings in region: enter ***HIGH for High Compliance*** or ***LOW for Low Compliance***	*5a*	high

Treatment Category:	**Consider raised median islands, curb extensions, traffic calming, etc. as feasible.**



This worksheet provides general recommendations on pedestrian crossing treatments to consider at unsignalized intersections; in all cases, engineering judgment should be used in selecting a specific treatment for installation. This worksheet does not apply to school crossings. In addition to the results provided by this worksheet, users should consider whether a pedestrian treatment could present an increased safety risk to pedestrians, such as where there is poor sight distance, complex geometrics, or nearby traffic signals.

APPENDIX F:

East Idaho Refinement Area Land Use Assessment

MEMORANDUM

Technical Memorandum #3: East Idaho Refinement Area Land Use Assessment (Task 2.5)

Ontario Active Transportation Update and East Idaho Avenue Refinement Area Plan

DATE	June 4, 2020
TO	Project Management Team
FROM	Matt Hastie and Clinton "CJ" Doxsee, APG
CC	Nick Foster and Matt Hughart, KAI

OVERVIEW

This memorandum presents a land use summary for the East Idaho Avenue Refinement Area. The Refinement Area is defined as the East Idaho Avenue Corridor (US 30) and adjacent properties between the I-84 Interchange and the Snake River Ontario Bridge at the border between Oregon and Idaho.

The land use assessment information presented in this memorandum includes a description of existing land uses, environmental resources, applicable development regulations, active transportation opportunities, changing demographics, and protection strategies for outside areas (i.e. downtown Ontario).

The land use assessment presented in the memorandum will inform project alternatives analysis and preparation and refinement of concept plans in Tasks 4 and 5 of this project.

Some of the information in this memorandum will complement the review of natural and cultural resources in the refinement area associated with Task 2.6 and as summarized in more detail in a separate memo (Technical Memorandum #4: East Idaho Avenue Refinement Area Natural and Cultural Assessment).

LAND USE SUMMARY

Land within the City of Ontario is subject to the City's land use and development regulations. The Ontario Comprehensive Plan provides the policy basis for the City's land use regulations, which are implemented through the Ontario Zoning Ordinance (ZO). The zoning map depicts current parcel zoning.

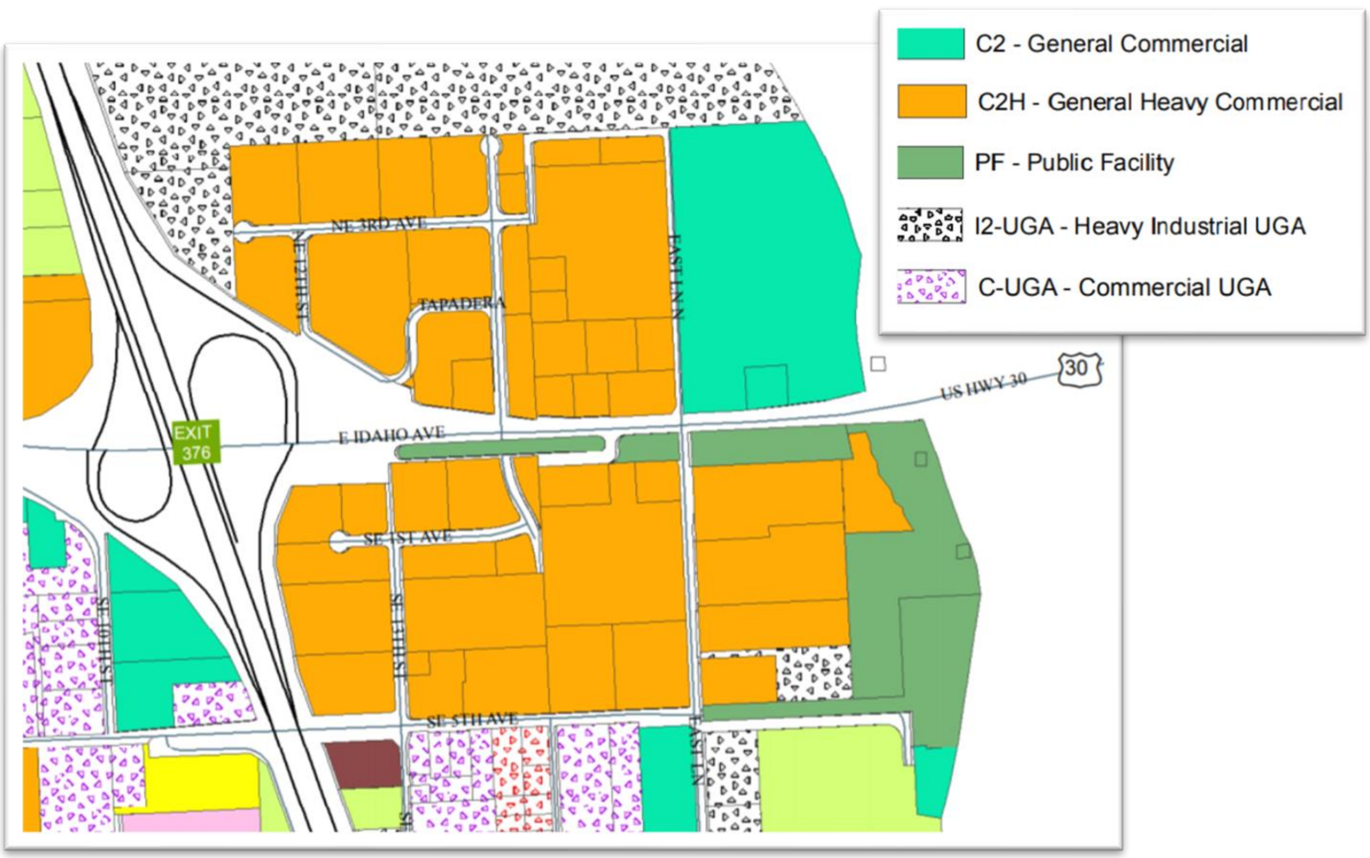
Zoning Designations

The City's ZO implements the policies established in the City's Comprehensive Plan. It regulates development through zoning and provisions that apply generally to all development and specifically to land divisions within the City. The City's zoning requirements establish allowed uses and associated development regulations, permitted uses, and lot standards. Figure 1 shows the location of zoning districts within the Refinement Area. Zones adjacent to East Idaho Avenue include the following:

- I2-UGS – Heavy Industrial UGA
- C2H – General Heavy Commercial
- PF – Public Facility
- C2 – General Commercial

This memorandum provides additional summaries of relevant development regulations associated with each zone further below.

Figure 1: Ontario Zoning Map



As shown in Figure 1, parcels adjacent to East Idaho Avenue are predominantly zoned for commercial uses (C2H and C2 zones). Portions of the commercially zoned properties are separated from the right-of-way by Public Facility zoning (PF zone) on the south side of the roadway. The areas transition to other commercial and industrial type zoning further to the north and south, including Urban Growth Area Zones.

Current Development

The area features primarily strip commercial type of development. Strip developments are typically characterized as commercial areas located outside of the downtown area and are oriented towards main thoroughfares. This type of development is generally automobile-dependent in its location, site layout, and building design.

The number of existing driveways and intersections on East Idaho Avenue are relatively limited. Most of the development within the corridor utilize shared driveways with direct access onto East Idaho Avenue. Shared business driveways are also located on streets with connections to East Idaho Avenue. Together, the driveways provide access to large, on-site parking areas that provide connections to individual businesses.

The development pattern in the Refinement Area consists mostly of medium to large buildings that are one-story in height. The buildings feature a mix of single-tenant and multi-tenant spaces. Single-tenant buildings vary in size, whereas multi-tenant buildings are generally medium sized. Buildings are typically separated from East Idaho Avenue and connecting streets by medium to large parking areas. Similarly, buildings are separated from each other by large parking areas. Parking areas generally have minimal landscaping or pedestrian pathways.

Streetscape improvements on East Idaho Avenue include continuous sidewalks and striped bicycle lanes on both sides of the street. There is also a raised median with a brick inlay separating travel lanes. Sidewalk improvements vary in width, with wider cross-sections present closer to the I-84 interchange. Most of the sidewalks are separated from the street by a planter strip. Materials in the planter strip vary from tree plantings and grass to gravel. Bicycle facilities feature a dedicated, striped bicycle lane located in the roadway. Bicycles markings are interrupted for right-hand turning lanes.

The existing businesses in the area are mostly large business chains, but older, smaller, local establishments also exist. Large business chains include a mix of restaurants chains, most of which include drive-through facilities such as McDonalds, Starbucks, or Carl’s Jr. It also includes large retail stores like Home Depot, Walmart, and WinCo. Several hotels and motels such as Best Western and Motel 6 are concentrated near the I-84 interchange. Local businesses are generally smaller and are in the multi-tenant buildings or in single-tenant buildings further away from East Idaho Avenue.

Vacant and Redevelopable Areas

The amount and location of vacant and redevelopable areas within the project area provides insight into what the transformational opportunity is for an area. Areas that are mostly vacant have a high degree of transformational potential. This is largely due to the lack of barriers associated with the built environment. For example, constructing a new road is generally easier than relocating an existing one. Conversely, areas with a lack of vacant or redevelopable areas will likely remain unchanged over the planning horizon, particularly if development has occurred recently and/or the improvement value of the development is relatively high. In situations with a lack of vacant or redevelopable areas, rising land values or some form of public intervention will contribute towards making portions of the area redevelopable in the medium to longer term.

Attachment A includes land use utilization maps depicting vacant and redevelopable properties by zoning designation in the corridor. Vacant properties are generally defined as parcels that do not have existing buildings and on-site improvements are minimal or not present. For the purposes of this assessment, redevelopable properties have been defined as parcels that have an existing, older building that is currently not being used for business. Buildings on these parcels would need to be removed and replaced with new or undergo tenant improvements to comply with building standards before new development can occurs.

Most of the East Idaho Avenue Refinement Area is developed and consists almost entirely of commercial uses. Approximately three-quarters (~68 acres) of the area shown on the utilization map in Attachment A is identified as developed. The areas adjacent to East Idaho Avenue are all currently developed.[1] Developed areas further beyond East Idaho Avenue are mixed with vacant areas that are described below.

Only a few vacant or redevelopable parcels exist and are located beyond East Idaho Avenue on 3rd and 5th Streets to the north and south respectively. These properties comprise approximately one-quarter (~24 acres) of the area shown on the utilization map. Almost all of the vacant or redevelopable parcels in the Refinement Area are zoned for C2H – General Heavy Commercial. There are also a limited number of C2 – General Commercial and I2 – Heavy Industrial zoned parcels south of 5th Street.

These vacant and redevelopable areas in the Refinement Area represent the greatest potential for new development to occur in the area. The type and intensity of the uses allowed are determined by the use and development standards as provided in the City's Zoning Ordinance, which is described in the following section.

[1] Note, the developed areas adjacent to East Idaho Avenue to the south are separated from the street by undeveloped Public Facility zones. Although the Public Facility zones do not have any development currently on them, they are not counted as vacant because they are intended to serve as a buffer between the commercial area and the street.

REGULATORY ENVIRONMENT

As discussed earlier in this memorandum, land in the Refinement Area is subject to land use regulations of the City of Ontario, found in the Zoning Ordinance (ZO). Because future development and redevelopment in the Refinement Area will be subject to ZO provisions, knowing the zoning, permitted uses, and lot standards in the area provides information about the type and intensity of uses that can be expected.

Use and Development Standards

The purpose of the C2 – General Commercial zone is intended to provide business locations for retail and service uses that serve region-wide clientele. The zone is characterized by good accessibility, including areas that are exposed to heavy automobile traffic. The zone permits multi-family dwellings, retail stores, churches, schools, business offices, hotels/motels, and other similar commercial uses that provide common commercial goods or services.

The purpose of the C2H – General Heavy Commercial zone is to accommodate a wider range of retail, service, and wholesale uses, short of industrial uses relative to the C2 zone. Permitted uses in the zone are the same as the C2 zone, but exclude residential dwellings. The zone also permits wholesale trade uses, auto repair, farm equipment dealers, truck stops, mini-warehouses, and other similar intensive commercial uses.

Development standards for the C2 and C2H zones are the same. The minimum lot size is 3,000 square feet, although most sites will typically exceed that requirement. There are no minimum or maximum front yard setback requirements. Sites are required to provide a minimum of 6% of the site area to landscaping. They are also limited to a maximum building coverage of 90% of the site area.

Design standards for all commercial zones are the same. Buildings are required to be oriented to the street or public space facing the street, and are required to provide a direct sidewalk connection between the entrance and the street sidewalk. The ZO also prescribes building design requirements that address window glazing, detailing and materials, and roof forms.

The purpose of the PF – Public Facility zone is to provide areas that are designated for government, public, or public utility facilities. The zone is intended to be held or developed by public and utility agencies and seeks to ensure that the development occurs in a manner compatible with surrounding uses. Development standards for the PF zone are the same as the RM-28 zone according to the ZO.[2]

[2] The ZO does not define an RM-28 Zone. The closest correlation may possibly be the RM-10 High Density Multi-Family Residence Zone or R-MH Manufactured Home Residence. It's possible that the RM-28 has been removed and the reference is incorrect.

Parking Requirements and Streetscape Improvements

All uses and buildings are required to have parking spaces and loading areas in conformance with Section 10A-57-60 of the ZO. The ZO requires minimum parking spaces and loading spaces for each use based on a scaling use characteristic that estimates the parking demand. For example, restaurants require a minimum of one space for each four seats, or retail stores require one space for each 300 square feet of gross floor area.

The ZO does not place restrictions on where commercial parking areas can be located. In other words, parking areas can be placed between the building and the street. Similarly, the ZO does not require parking areas to include interior parking area landscaping, pedestrian pathways, or lighting.

Streetscape improvements are required in C-1, C-2, and C-3 zones concurrently with development under specified conditions. Streetscape is defined as the space between buildings. If not present already, the ZO requires street trees, trash receptacles, seating, and bicycle parking as part of the streetscape improvements.

RESOURCE MANAGEMENT AND ENVIRONMENTAL CONTEXT

Anderson Perry conducted a cursory review of environmental resources within the Management Area and the East Idaho Avenue Refinement Area as documented in Technical Memorandum #4, *City of Ontario, Oregon – Active Transportation Update and East Idaho Avenue Refinement Area Plan – Cursury Environmental Memo*. The technical memorandum reviewed the following environmental resources: Goal 5 resources, FEMA floodplains, wetlands, threatened and endangered species, hazardous materials, cultural and historic properties, topographic constraints, demographic considerations,[3] and 4(f) and 6(f) resources.

Of the environmental resources that were reviewed, the technical memorandum identified the following environmental resources within the refinement area.

- Areas adjacent to the Snake River are subject to 100-year and 500-year flooding.
- Several hazardous materials sites were identified in the refinement area, including underground storage tanks, leaking underground storage tanks, hazardous waste generators, environmental cleanup sites, underground injections sites, and an air emission site.

No other environmental resources were identified within the refinement area.

Development in areas subject to 100-year flooding are regulated by the City through the Flood Hazard Overlay Zone (FHO) provisions. The FHO regulations apply development standards, restrictions, and review procedures intended to promote public health, safety, and general welfare, and to minimize public and private losses due to flooding. Development in the FHO zone will be restricted in what uses are allowed and will be required to minimize/mitigate impacts that would contribute to additional flooding or the alteration of waterways.

The City does not have provisions that explicitly regulate development on sites with hazardous materials. However, development in areas with known or potential environmental resources or constraints will likely be subject to additional state or federal regulations and permitting.

DEMOGRAPHICS[4]

Statistical information covering various populations provides insight into the current conditions within the Refinement Area. Demographic data for identified populations was gathered using 2017 5-Year American Community Survey (ACS) data sources. Note that ACS data geography is associated with census block groups and does not fit precisely to the Refinement Area boundary. In other

[3] Information on demographic and socioeconomic factors were coordinated between APG and Anderson Perry.

[4] Information on demographic and socioeconomic factors were coordinated between APG and Anderson Perry.

words, demographic data summarized here should be considered carefully as population locations may vary.

Table 1 provides a summary of the Refinement Area population and selected demographics. The selected demographic populations are a special focus in transportation planning and project development. These population groups are considered for transportation impact susceptibility, representing those who may rely more heavily on public infrastructure or transit for access to day-to-day needs and jobs. They include minority groups, populations 65 years of age and older, and low-income households.

Table 1: East Idaho Avenue Refinement Area Demographic Summary

Population	Count	Percent
Total Population	645	
Age 65 and Older	24	4%
Below Poverty	331	51%
Minority Population[5]	413	64%

As summarized in the table, the census block group has a relatively low overall population. Of that population, there is a significantly higher percentage of minorities (64%) and people below the federal poverty threshold (51%). Conversely, there is a significantly lower percentage of elderly, defined as persons age 65 or older (4%). Given the context of the current development adjacent to East Idaho Avenue and coupled with the zoning restrictions for residential development, it’s likely that the identified populations are located outside of the Refinement Area but in close proximity to it. Figure 2 illustrates the extent of the Census Block Group where the refinement area is located.

[5] For the purposes of showing minority population, minority groups are considered a combination of the following individual classifications: Hispanic or Latino; Black or African American alone; American Indian and Alaska Native alone; Asian alone; Native Hawaiian and Other Pacific Islander alone; Some Other Race alone; and Two or More Races.

Figure 2: Population Summary

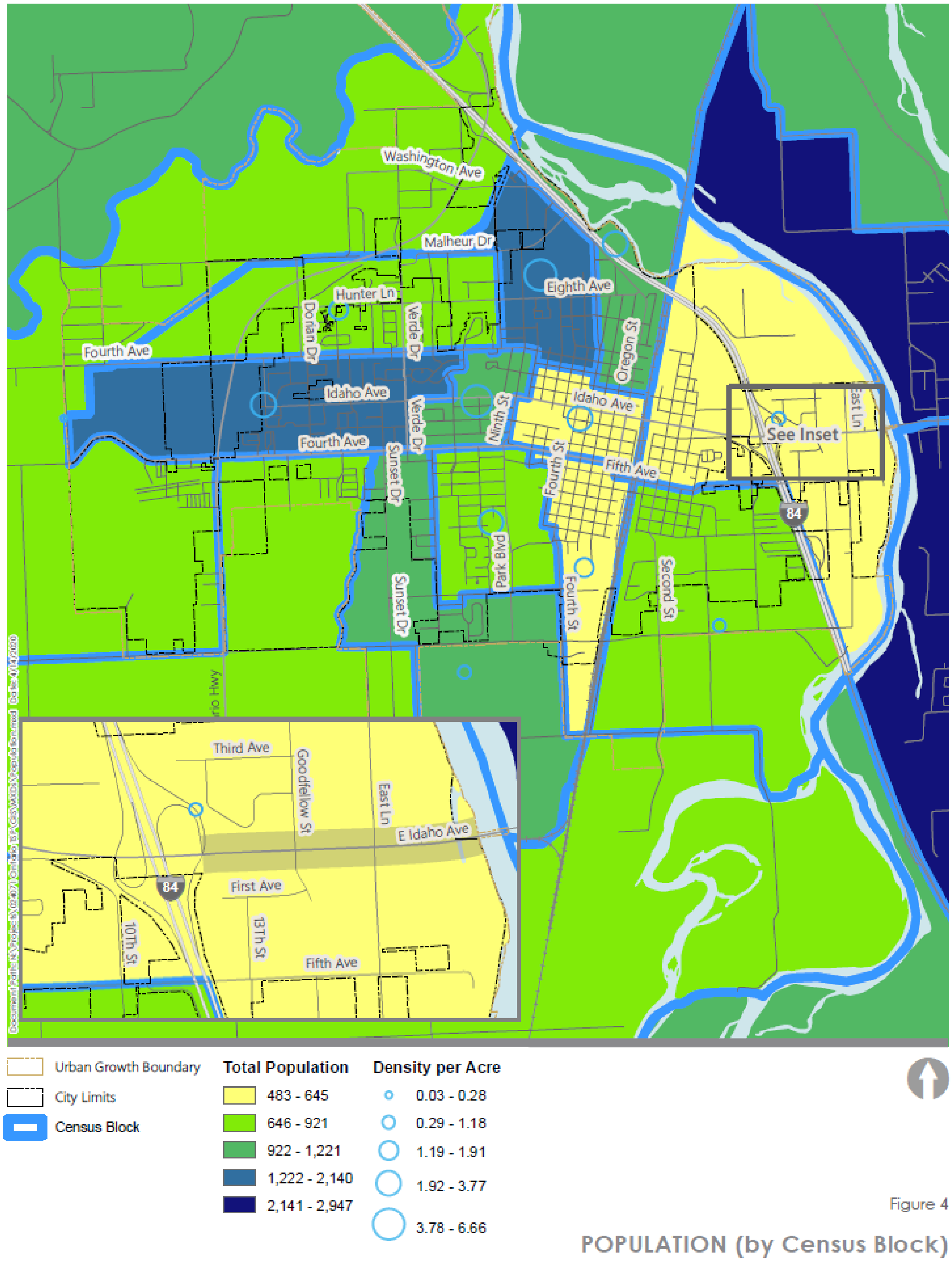


Figure 4

POPULATION (by Census Block)

OPPORTUNITIES

The design of facilities is especially important for people walking and bicycling on high volume roadways or crossing busy intersections. Proper designs can improve safety for all people who use the roadway facility and make the overall transportation network work better. Specific designs can be used in various combinations to balance automobile mobility and accessibility with bicycle and pedestrian safety and comfort in the area. The following design elements can be considered for the East Idaho Avenue Refinement Area.[6]

These opportunities can be implemented through a combination of modifying existing zoning regulations, applying an overlay zone to the area, and/or updating the standards in the Comprehensive Plan or Transportation System Plan.

Roadway and Sidewalk Area

The following design features can be implemented within the roadway and sidewalk areas to improve bicycle and pedestrian safety and comfort.

- **Bikeways.** Where right-of-way is adequate, and where speeds are above 25 mph or traffic volumes are high, buffered bike lanes, separated bicycle lanes, raised bike lanes, or separated paths should be considered. While the striped bicycle lanes in the area provide an important option for people bicycling, only the most confident bicyclists are likely to use them, given the speed and volume of traffic on East Idaho Ave (see Level of Traffic Stress Analysis in Technical Memorandum #2). A broader cross-section of community members would be more likely to use separated pathways or even shared roadways on parallel streets with fewer cars and slower vehicle speeds.
- **Slip Lane Islands.** Slip lanes are typically provided on intersections where right-turn movements are very high. Where the volume of turning vehicles at an intersection justifies the need for a slip lane, a pedestrian island can be provided to break up the crossing distances.
- **Crosswalks.** Legal crosswalks exist in all legs of all intersections in Oregon. Crosswalks may be marked or unmarked or have signs or control devices to manage movement. Two parallel painted lines are generally not enough of a distinguishing marking for crosswalks. At a minimum, a ladder pattern type of striping or painting inside the crosswalk area is recommended to improve visibility.
- **Improved Connections to Adjacent Areas.** Where possible, secondary or parallel streets along major roads can help address community-wide transportation needs. Where connections are not possible, the ZO can require development of bicycles and pedestrian

[6] Note, some design elements – such as slip lane islands – currently exist in some capacity within the Refinement Area. These design elements are still included in part because they are best practices for improving safety and the existing designs may not implemented consistently or could potentially be improved further to meet design goals.

connections and internal private shopping streets that mimic public streets and meet desired block standard parameters.

Adjacent Land Use

The following on-site design elements can be implemented to support walking and bicycling. The design elements focus on supporting and encouraging pedestrian activity, including providing pedestrians with linkages between different land uses.

- **Parking Location Requirements.** ZO provisions can require parking to be located on the side or rear of buildings. Parking and vehicle drives should not be located between building entrances and streets with pedestrian activity. Surface parking areas should be oriented behind or to the side of a building, with access from shared driveways. This provides pedestrians with a safe, unobstructed path from a sidewalk to a building entrance.
- **Enhanced Landscape Standards.** Enhanced landscaping standards, including for parking areas can be applied to new development or redevelopment. Landscaping should be provided between parking areas and adjacent pathways and streets to provide separation. Minimum landscape requirements should be applied to the interior portion of large parking areas. Interior landscaping improves the appearance of parking lots, provides much needed shade (particularly important in Eastern Oregon's warm climate), and creates options and/or incentives for low impact development approach (LIDA) stormwater facilities.
- **More Efficient Use of Parking.** The amount of parking required for development, either as required by the ZO or by market demands, is the biggest determining factor for a building's footprint on the site and has a significant impact on the cost of development. Reducing the minimum parking requirements allows commercial developers the opportunity to use less space for parking and/or to construct other buildings for other uses or businesses. It also helps reduce the overall cost of construction. Implementing parking maximums with the flexibility to grant modifications to the standards would discourage builders from over-parking their sites and would encourage a closer study of parking supply and demand.
- **Mixed-use Areas.** Multi-family housing in commercial areas can be permitted to allow residents to reduce car travel for all daily activities, as well as prime location for senior housing. Permitting multi-family buildings in commercial areas allows developers to respond to several market conditions simultaneously.
- **Enhanced Pedestrian Connections.** Poor bicycle and pedestrian connectivity often force people to drive. Poor or non-existent connections between adjacent buildings in commercial areas discourages people from walking or bicycling between businesses. Provisions should require pedestrian walkways through sites, connecting building entrances, and the public sidewalk, with safe crossings of streets, drives, and parking areas.

DOWNTOWN STRATEGIES

Downtown areas serve as the symbolic center for a city. It is important to recognize that improvements to other areas of the city may serve to compliment or detract from the downtown area. Though challenging for medium and small cities, preservation and revitalization of the downtown are critical in supporting business and property owners, preserving historic structures, making efficient use of existing buildings and infrastructures, and enhancing opportunities to create a comprehensive active transportation network.

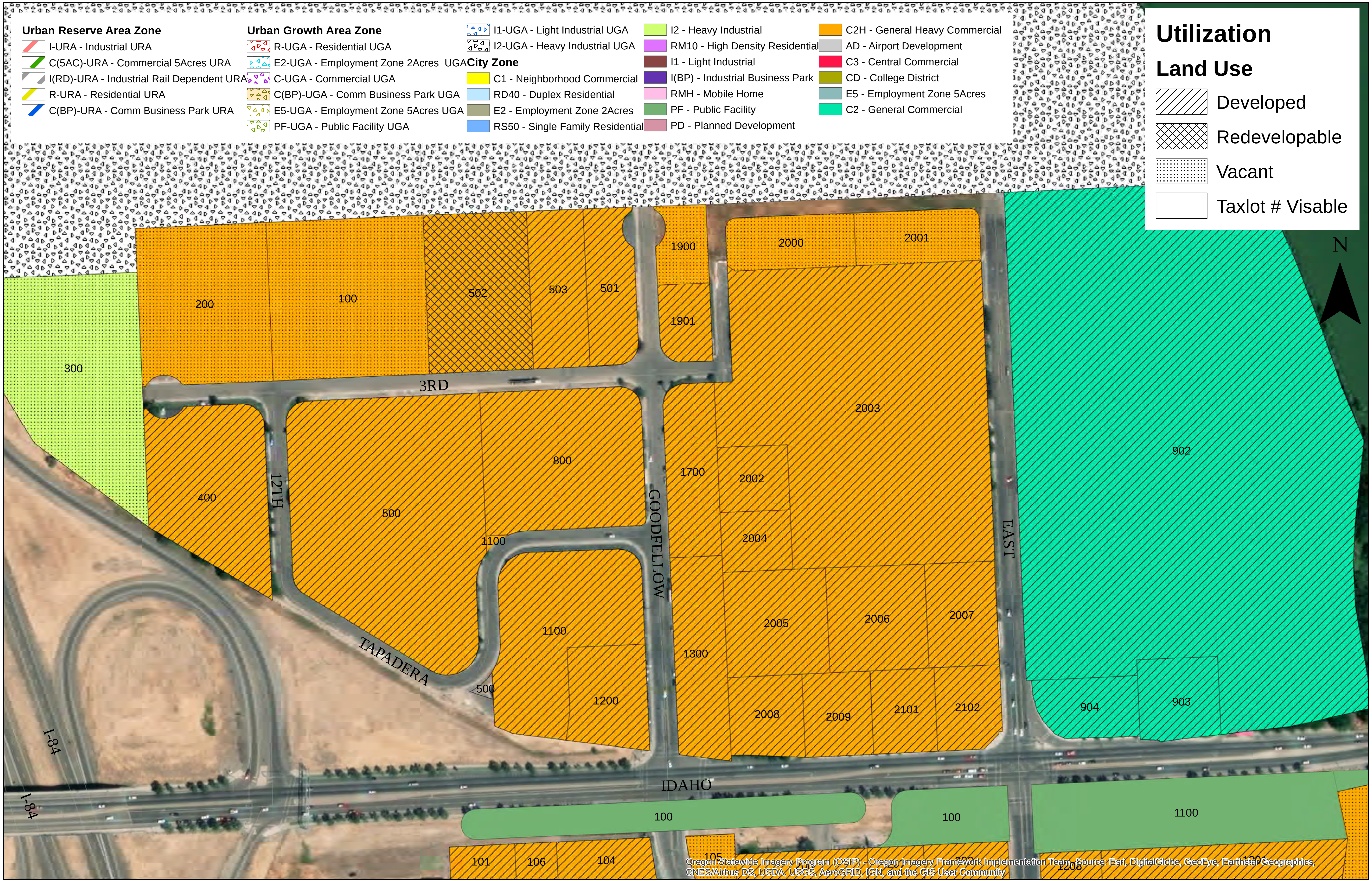
Improvements to the East Idaho Avenue Corridor Refinement Area should be considered in relation to its potential impacts, both negative and positive, from a competitive commercial perspective. As with the Idaho Avenue Refinement Area, many of the identified opportunities, if not already existing, can be implemented in the downtown area as well. Although the built environment varies significantly between the areas, the opportunities can be scaled to suit the downtown area.

Implementing these opportunities relative to each location can contribute toward leveling the playing field from a commercially competitive perspective. The allowed uses and development standards for each area can be tailored to support their respective intents and further distinguish the areas from each other.

In addition to the development regulations described above, other strategies can also be applied to enhance and support the downtown area. Some of these already exist in Ontario, and generally include:

- **Economic Incentive Programs.** Cities can provide economic incentive programs to businesses to decrease the cost of business location, to help decrease investment risks, and to incentivize business location in the downtown. Such incentives include tax increment financing (TIF), façade grant programs, the formation of business improvements districts, fee waivers, and rent assistance programs.
- **Professional and Business Development Programs.** Cities can complement the economic incentive programs with business and managerial enhancement programs for downtown business owners. The most prevalent strategies being mentorship and business training programs.

ATTACHMENT A: EAST IDAHO COMMERCIAL LAND UTILIZATION MAPS


Urban Reserve Area Zone
I-URA - Industrial URA
C(5AC)-URA - Commercial 5Acres URA
I(RD)-URA - Industrial Rail Dependent URA
R-URA - Residential URA
C(BP)-URA - Comm Business Park URA
Urban Growth Area Zone
R-UGA - Residential UGA
E2-UGA - Employment Zone 2Acres UGA
C-UGA - Commercial UGA
C(BP)-UGA - Comm Business Park UGA
E5-UGA - Employment Zone 5Acres UGA
PF-UGA - Public Facility UGA
I1-UGA - Light Industrial UGA
I2-UGA - Heavy Industrial UGA
City Zone
C1 - Neighborhood Commercial
RD40 - Duplex Residential
E2 - Employment Zone 2Acres
RS50 - Single Family Residential
I2 - Heavy Industrial
RM10 - High Density Residential
I1 - Light Industrial
I(BP) - Industrial Business Park
RMH - Mobile Home
PF - Public Facility
PD - Planned Development
C2H - General Heavy Commercial
AD - Airport Development
C3 - Central Commercial
CD - College District
E5 - Employment Zone 5Acres
C2 - General Commercial
Utilization
Land Use
Developed
Redevelopable
Vacant
Taxlot # Visable
N
3RD
12TH
GOODFELLOW
EAST
TAPADERA
IDAHO
I-84
I-84
300
200
100
502
503
501
1900
1901
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2101
2102
904
903
100
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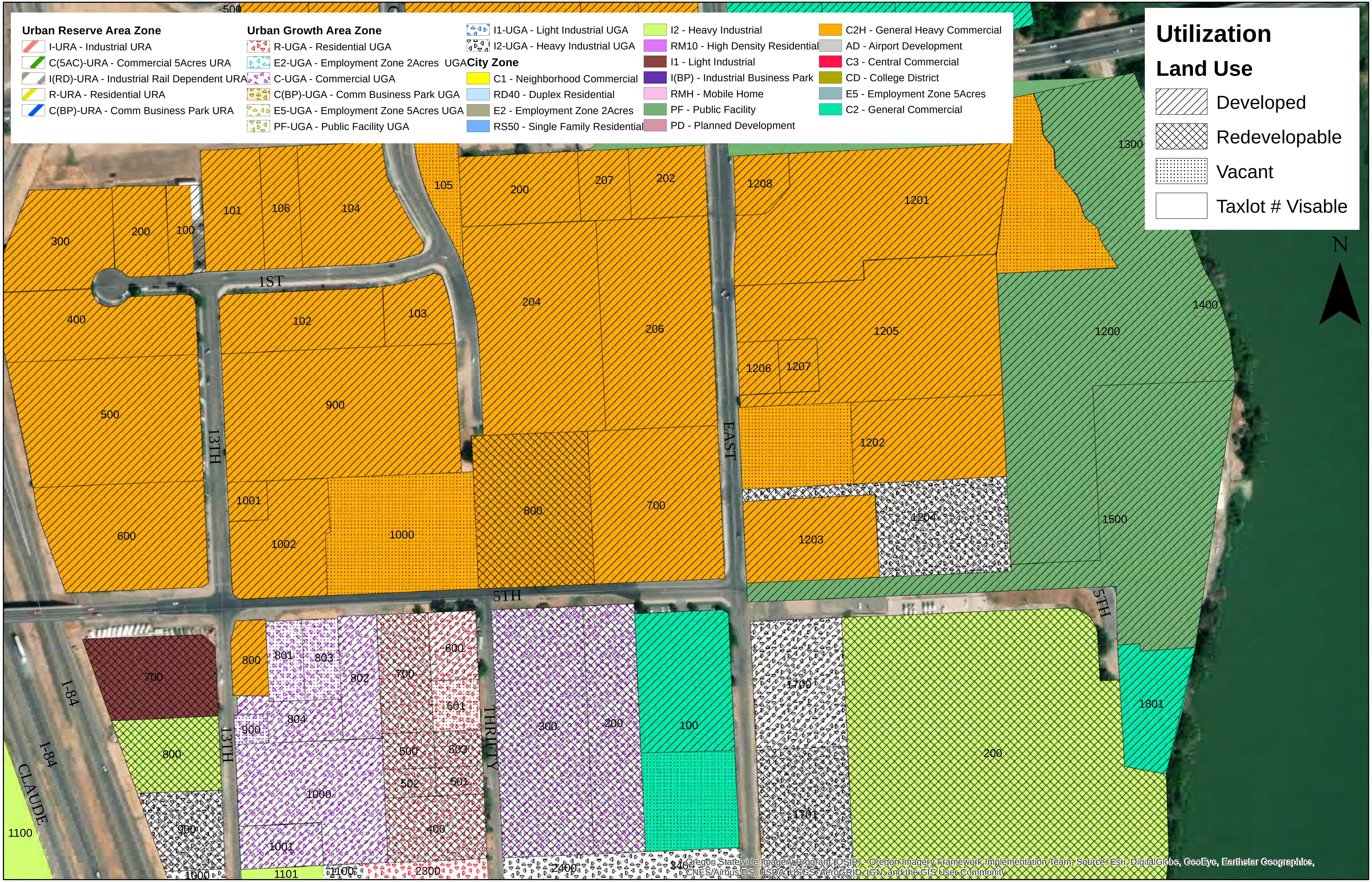
1100
101
106
104
Oregon Statewide Imagery Program (OSIP) - Oregon Imagery Framework Implementation Team, Source: Esri, DigitalGlobe, GeoEye, Earthstar Geographics, CNES/Airbus DS, USDA, USGS, AeroGRID, IGN, and the GIS User Community


Urban Reserve Area Zone
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C3 - Central Commercial
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C2 - General Commercial
Utilization
Land Use
Developed
Redevelopable
Vacant
Taxlot # Visable
N
1ST
13TH
5TH
EAST
THRIFTY
I-84
CLAUDE
Oregon Statewide Imagery Program (OSIP) - Oregon Imagery Framework Implementation Team, Source: Esri, DigitalGlobe, GeoEye, Earthstar Geographics, CNES/Airbus DS, USDA, USGS, AeroGRID, IGN, and the GIS User Community

APPENDIX G:

Draft Design Concepts

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DRAFT MEMORANDUM

Date:	July 22, 2020	Project #: 23858
To:	Project Management Team	
From:	Mark Heisinger, EIT, Russ Doubleday, Nick Foster, AICP, RSP, and Matt Hughart, AICP; Kittelson & Associates Andrew Holder, Margot Halpin, Chris Weaver, and Mike Faha; Greenworks CJ Doxsee and Matt Hastie, AICP; Angelo Planning Group	
Project:	City of Ontario, Active Transportation Update and East Idaho Avenue Refinement Area Plan	
Subject:	Technical Memo #6: Draft Design Concepts	

This memorandum is part of the City of Ontario's update to its 2006 Transportation System Plan (TSP). This memorandum presents the draft design concept and proposed land use metrics for the East Idaho Avenue Refinement Area, proposed revisions and guidance for City street standards, and potential improvement areas to walking and biking routes to Ontario schools.

EAST IDAHO AVENUE REFINEMENT AREA

This section presents the draft design concept for the East Idaho Avenue Refinement Area, which includes East Idaho Avenue from the I-84 westbound ramp terminal intersection to the Snake River, and the adjacent commercial areas.

Existing Conditions

Technical Memorandum #2: Baseline Transportation Assessment (Reference 1) includes existing traffic operations and crash history analyses along the East Idaho Avenue corridor. Key findings from that analysis include:

- All study intersections meet ODOT and City mobility targets.
  - The most congested intersections in the study area are the East Idaho Avenue/East Lane and East Idaho Avenue/Goodfellow Street intersections, with volume-to-capacity (v/c) ratios of 0.80 and 0.83, respectively, during the PM peak hour.
- The East Idaho Avenue/Goodfellow Street and East Idaho Avenue/East Lane intersections both have crash rates higher than the 90th percentile crash rate for similar intersections in Oregon.
  - Crash activity at the East Idaho Avenue/Goodfellow Street was primarily in center of intersection (angle/turning) and on east/west approaches (rear-ends).

  - The East Idaho Avenue/East Lane intersection experienced the highest number of crashes in the study area; the highest number of rear-end crashes are on the eastbound approach and the majority of injury crashes are rear-end crashes.
- East Idaho Avenue has sidewalks and bike lanes within the Refinement Area, but it still has high pedestrian and bicycle levels of traffic stress due to high motor vehicle volumes and speeds.

Planned Intersection Projects

ODOT has developed concepts at the East Idaho Avenue/Goodfellow Street and East Idaho Avenue/East Lane intersections to improve intersection capacity and queue management. The concept at the East Idaho Avenue/East Lane intersection includes dual westbound left-turn lanes, dual receiving lanes on the south leg of the intersection, and extended eastbound left-turn lane storage back to the Goodfellow Street intersection. The concept at the East Idaho Avenue/Goodfellow Street intersection includes extended westbound left-turn lane storage back to the East Lane intersection. Figure 1 illustrates the concepts.

There is no timeline for when the concepts might be constructed. A sensitivity test of future traffic operations shows that both intersections are expected to reach ODOT mobility targets between year 2025 and year 2030. The sensitivity test assumed that traffic volumes would grow at an annual average growth rate of 3.3 percent. This growth rate was developed from historical automatic traffic recorder data on I-84, just south of East Idaho Avenue.

Not shown on the concept are potential low-cost strategies to reduce crashes at the intersections. Some potential strategies to consider include:

- Coordinating the signals (*our understanding is ODOT is currently considering this*)
- Converting the left-turn signals onto Goodfellow Lane to protected-only phasing
- Adding high visibility backplates to the signals on East Idaho Avenue

Draft Design Concept

The planned intersection improvements on East Idaho Avenue and the availability of ODOT right-of-way south of the roadway, present an opportunity to implement upgrades outside the roadway that would benefit people walking and biking and enhance the identity of Ontario. Figure 1 shows the draft design concept for the East Idaho Avenue Refinement Area. The concept includes a shared-use path south of the road, gateway treatments, future connections to the planned trail along the Snake River, and an overlook of the river. Enlargements of the Goodfellow Lane and East Lane intersections and the Snake River overlook area are included in Attachment "A."

LEGEND

TYPE 1 LANDSCAPE: ENHANCED IRRIGATED PLANTING

TYPE 2 LANDSCAPE: BASIC IRRIGATED - STREET TREES & PLANTS OR GRAVEL MULCH

TYPE 3 LANDSCAPE: NON-IRRIGATED FIELD GRASS

TYPE 4 LANDSCAPE: STORMWATER TREATMENT AREA PLANTING

- PROPOSED STREET TREE
- EXISTING STREET TREE
- PRIMARY GATEWAY ELEMENT
- SECONDARY GATEWAY ELEMENT
- PROPOSED SHARED-USE PATH
- FUTURE RIVERFRONT TRAIL

N

0 75 150 300

SCALE: 1" = 150'

Figure 1

OVERALL PLAN

EAST IDAHO AVENUE REFINEMENT AREA PLAN

Oregon Department of Transportation

ONTARIO Where Oregon Begins

KITTELSON & ASSOCIATES, INC. TRANSPORTATION ENGINEERING/PLANNING

GREENWORKS

07.22.2020

Shared-Use Path

The primary upgrade proposed is to remove the eastbound bike lane from East Idaho Avenue and replace it with a shared-use path running through the publicly owned tracts on the south side of the road. Since East Idaho Avenue has high traffic volumes and traffic speeds, this off-street path will be more comfortable to a wider range of people biking than the existing on-street bike lane. It will also be more attractive to people walking since it is further from the busy road.

The shared-use path will create a key connection to a future riverfront trail along the Snake River, adding to the riverfront trail's planned connectivity to parks, natural areas, and other future trails around Ontario. The junction of the shared-use path with the riverfront trail will create a node that is a natural gathering and rest spot, and being on a higher terrace next to the river, it is an opportunity to create a scenic overlook.

To make the new shared-use path most effective, it should extend across both the I-84 overpass and the Highway 30 bridge across the Snake River. This will increase connectivity between the East Idaho Avenue Refinement Area and the rest of Ontario and Fruitland. It will also set the stage for similar improvements in the future beyond this corridor. Currently both bridges have on-street eastbound bike lanes plus sidewalks separated from the road by concrete barriers. Based on the information available, it appears that by moving the barriers toward the centerline (leaving 2 feet shy distance to the vehicular lanes) there will be room for a 12 feet wide shared-use path on the I-84 overpass, and a 10 feet wide shared-use path on the Snake River bridge, both separated from traffic by the barriers.

Gateway

East Idaho Avenue is the route many take to enter and leave Ontario and the State of Oregon, and I-84 crosses under East Idaho Avenue shortly after it enters Oregon. As such, the East Idaho Avenue Refinement Area is a highly visible opportunity to create a gateway that welcomes visitors (and returning residents) to the City and the State, as well as to create a strong visual identity for Ontario.

Gateways can take many forms, such as arches, columns, walls, banners, signage, special planting, sculpture, or combinations of these elements. A gateway may occupy a single spot or may consist of repeated elements along a route. Gateways are an opportunity to display public art, to highlight the unique local character, and to express civic pride.

Because of the major entry moments at either end of the East Idaho Avenue Refinement Area, we propose creating a series of gateway features that span the whole corridor. Primary gateway features would be prominently displayed near the toe of the Snake River bridge and at the east end of the I-84 overpass. The feature at the I-84 overpass would be visible both from East Idaho Avenue and from I-84 westbound. Between the primary gateway features, there would be several secondary gateway features along the south side of E. Idaho Ave. These secondary features would be smaller and simpler, but of the same theme and materials as the primary gateway features. Taken together, the series of gateway elements can create a visual identity that ties the East Idaho Avenue Refinement Area together and expresses Ontario's character on a large scale.

Potential locations for gateway elements are shown in Figure 1 and in the draft design enlargements in Attachment "A." Descriptions and examples of gateway precedents are shown in Attachment "B."

Land Use

The project team has evaluated potential land-use strategies and metrics for the study area. A full memorandum summarizing this work is included as Attachment "C." This section summarizes the findings from the memorandum and how they support the draft design concept for the East Idaho Avenue Refinement Area.

Land use designations can influence how transportation facilities are designed and how they interact with the rest of the built environment. Land use metrics can be used as tools to assess the connection between land use and transportation facilities. The memorandum recommends land use metrics for the East Idaho Avenue Refinement Area that gradually increase the urbanization of the area to current conditions by increasing the efficiency of land use and transportation resources. The recommended land use metrics are as follows:

- **Setbacks**: Reduce the average distance between the primary business or building entrance(s) and the nearest sidewalk of bicycle facility.
- **Building Orientation**: Increase the percent of buildings with a direct pedestrian or bicycle connection to the nearest street or associated bicycle or pedestrian facility.
- **Land Use Mix**: Increase the mix of land uses within and among structures in neighborhood-oriented centers and community commercial centers.
- **Building, Pathway, & Parking Coverage:** Reduce the relative percentage of on-site parking areas and/or increase the relative percentage of on-site building coverage.
- **Parking Location**: Reduce the amount of parking located between the building and the street.
- **Block Size**: Reduce the overall block size and secondary or parallel street connections. Where reductions in block sizes are not feasible, increase internal connections through private shopping streets that contribute to smaller block sizes.

The memorandum also provides recommendations for potential code amendments. The amendments aim to increase the connection between land use and transportation by incorporating pedestrian-oriented development designs. The recommended code amendments are as follows:

- **Parking Location Requirements.** Zoning ordinance provisions can require parking to be located on the side or rear of buildings. Removing parking from the front of a store provides pedestrians with a safe, unobstructed path from a sidewalk to a building entrance.
- **Enhanced Landscape Standards.** Enhanced landscaping standards, including for parking areas can be applied to new development or redevelopment. Landscaping should be provided between parking areas and adjacent pathways and streets to provide separation.

Minimum landscape requirements should be applied to the interior portion of large parking areas. Interior landscaping improves the appearance of parking lots, provides much needed shade (particularly important in Eastern Oregon's warm climate), and creates options and/or incentives for low impact development approach (LIDA) stormwater facilities.

- **More Efficient Use of Parking.** Reducing the minimum parking requirements allows commercial developers the opportunity to use less space for parking and/or to construct other buildings for other uses or businesses. It also helps reduce the overall cost of construction. Implementing parking maximums with the flexibility to grant modifications to the standards would discourage builders from over-parking their sites and would encourage a closer study of parking supply and demand.
- **Mixed-use Areas.** Multi-family housing in commercial areas can be permitted to allow residents to reduce car travel for all daily activities, as well as prime location for senior housing. The C2H zone can be amended to allow high density residential and mixed commercial/residential uses as a conditional use.
- **Enhanced Pedestrian Connections.** Provisions could require pedestrian walkways through sites, connecting building entrances, and the public sidewalk, with safe crossings of streets, drives, and parking areas. The zoning ordinance can be amended to require development of internal bicycle and pedestrian connections and/or the creation of internal private streets that mimic public streets to increase overall connections.

STREET STANDARDS REVISIONS

The City's 2006 Transportation System Plan defines cross-sectional street standards for different roadway functional classifications. They are shown in Attachment "D." The street standards relate the design of the roadway to its desired function. This section contains proposed updates to the street standards to incorporate best practices for active transportation accommodation. The proposed updates are based on the recommendations and guidance of the following resources:

- ODOT's *Bicycle and Pedestrian Design Guide* (Reference 2)
- National Association of City Transportation Official's (NACTO) *Urban Bikeway Design Guide* (Reference 3)
- Oregon Transportation and Growth Management (TGM) Program's *Transit in Small Cities Primer* (Reference 4)
- ODOT's *Blueprint for Urban Design* (Reference 5)

The proposed revisions also include guidance for green street treatments, as described in this section.

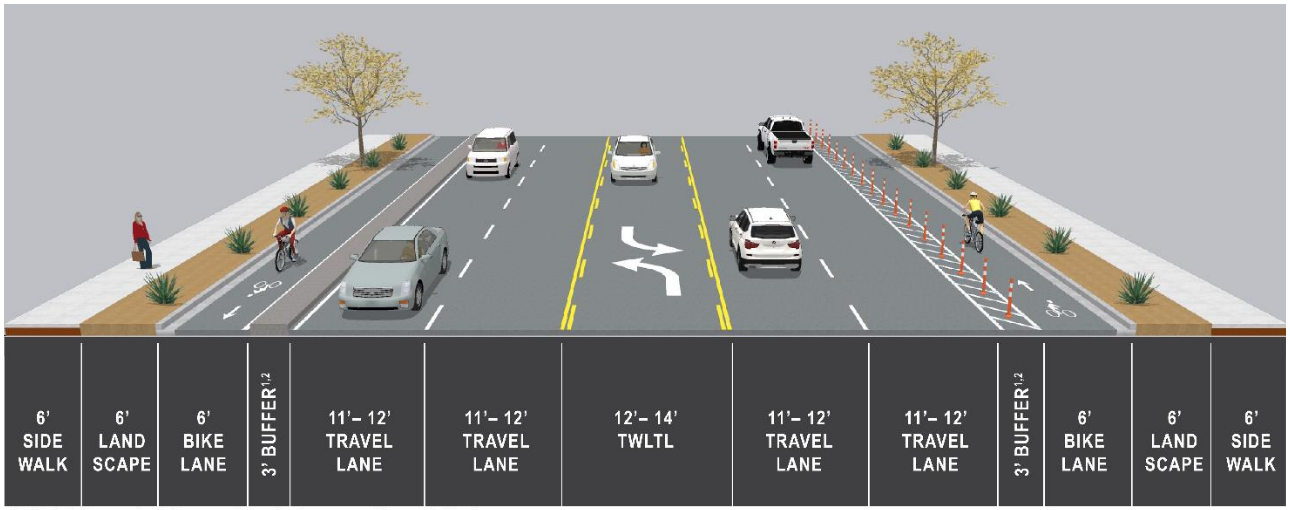
Proposed Updates

The proposed updates to the City's cross-sectional street standards are focused on active transportation facilities, but they also incorporate other recommended changes as per the reference documents listed previously. Figures 2-10 show the proposed cross-section standards. Table 1 lists the proposed updates by roadway functional classification. These cross-sections would be used to inform the design of new or reconstructed roadways in the city, especially in regard to active transportation facilities.

Table 1 Proposed Street Standard Updates

Roadway Functional Classification	Proposed Updates
Principal Arterial and Five-Lane Minor Arterial	• Replace conventional bike lane with a separated bike lane or shared use path. • Change travel lane width from 12 feet to a range of 11 feet to 12 feet. • Change two-way-left-turn-lane (TWLTL) width from 14 feet to range of 12 feet to 14 feet.
Three-Lane Minor Arterial	• Increase bike lane width from 5 feet to 6 feet • Add 3-foot wide painted buffer between bike lane and outside travel lane • Change travel lane width from 12 feet to a range of 11 feet to 12 feet. • Change two-way-left-turn-lane (TWLTL) width from 14 feet to range of 12 feet to 14 feet.
Collector with Bike Lanes	• Same as Three-Lane Minor Arterial, but painted buffer shown as optional
Neighborhood Collector	• Keep as is - add additional cross-section for "Neighborhood Collector with Bike Lanes"
Local Streets Skinny Local Streets	• Keep as is – add additional cross-section for local streets that are designated bikeways

The proposed updates shown in Table 1 aim to create a more safe and comfortable environment for people walking and biking on all roadway types. Raised or painted buffers benefit people biking on roadways with high traffic volumes and/or speeds by separating them from the traffic. Reducing the required cross-sectional width of vehicle travel lanes can help re-allocate roadway space to active transportation facilities and streetscape improvements. Further discussion of the proposed treatments is provided following the cross-section figures.



[1]Buffer includes a vertical element, such as raised concrete or flexposts/bollards.
[2]If the bike lane is grade separated (i.e., a raised bike lane) the buffer can be reduced to the curb separating the bike lane from the motor vehicle lane.

Figure 2 Principal Arterial and Five-Lane Minor Arterial Proposed Cross-Section

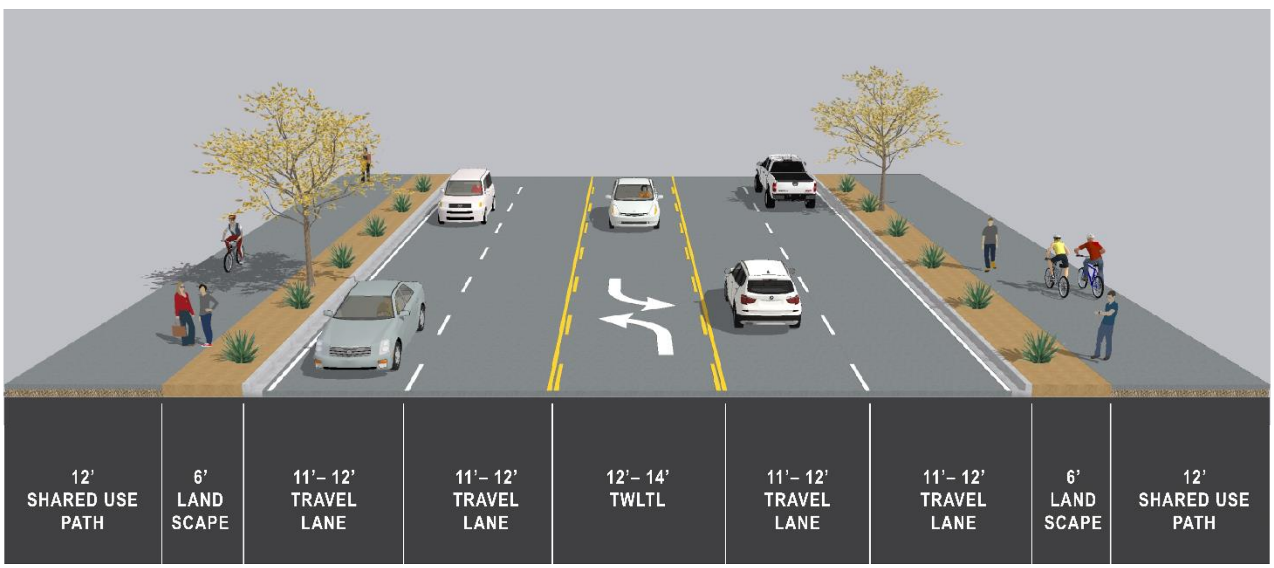


Figure 3 Principal Arterial and Five-Lane Minor Arterial Proposed Cross-Section – Shared-Use Path Option

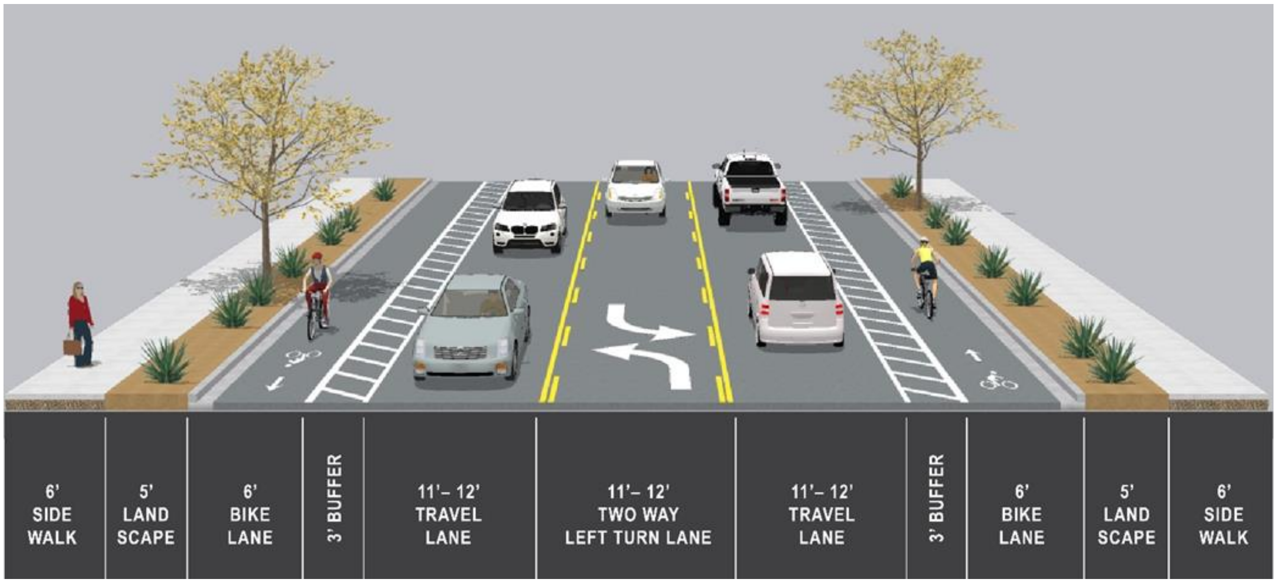
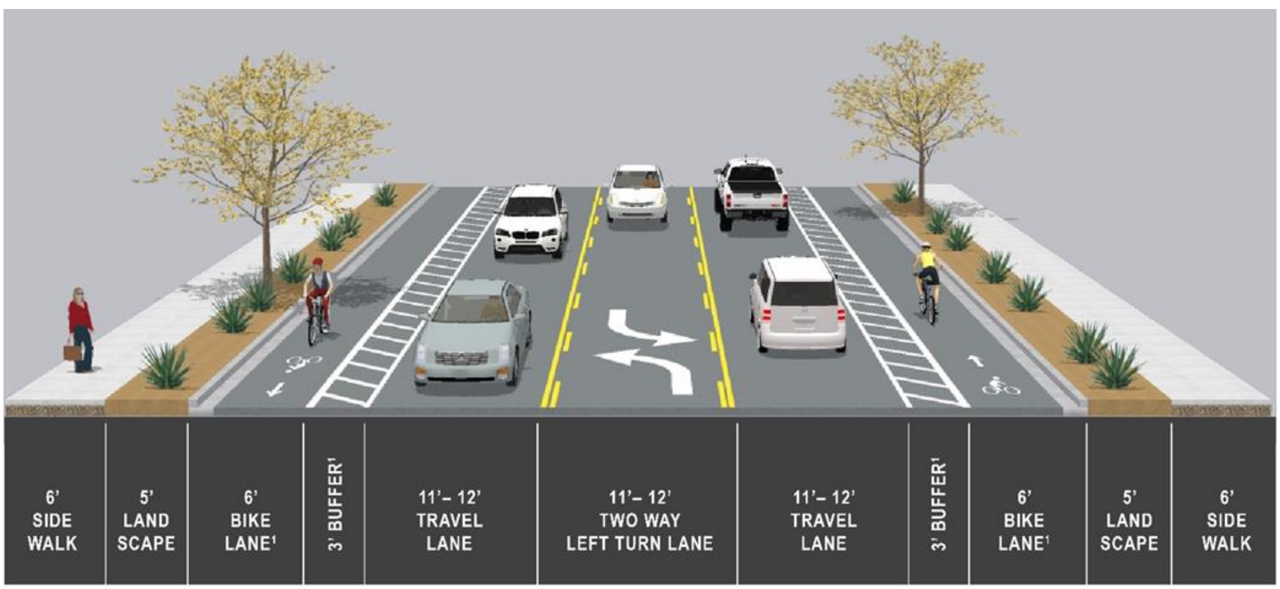
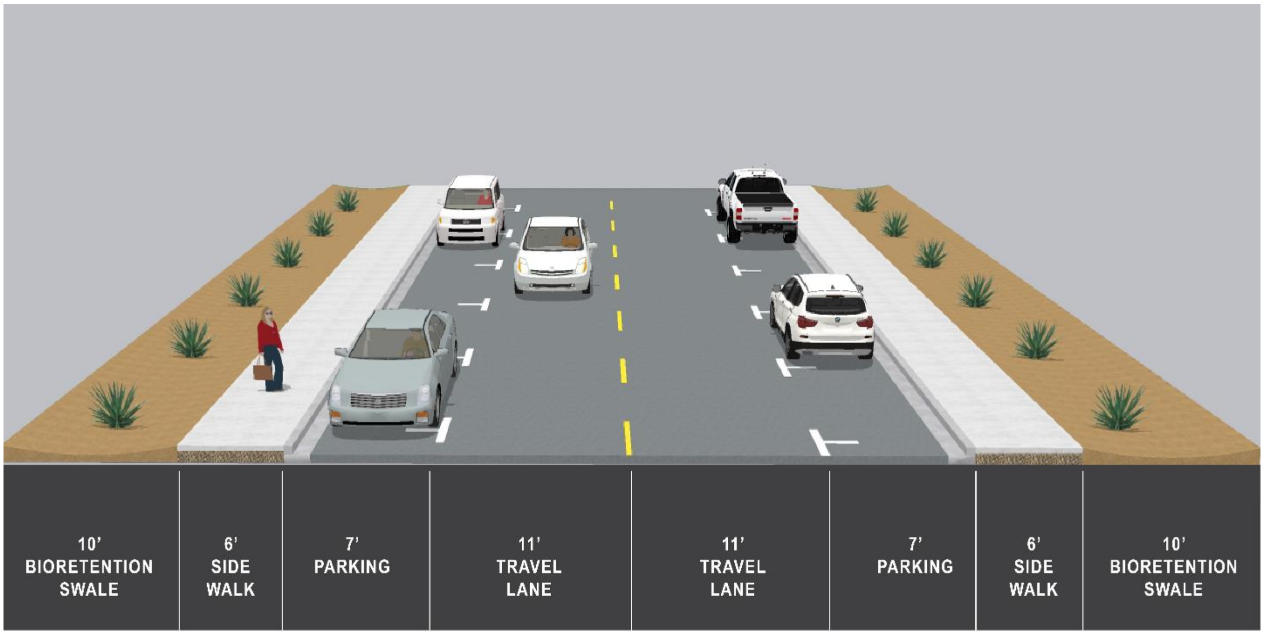


Figure 4 Three-Lane Minor Arterial Cross-Section



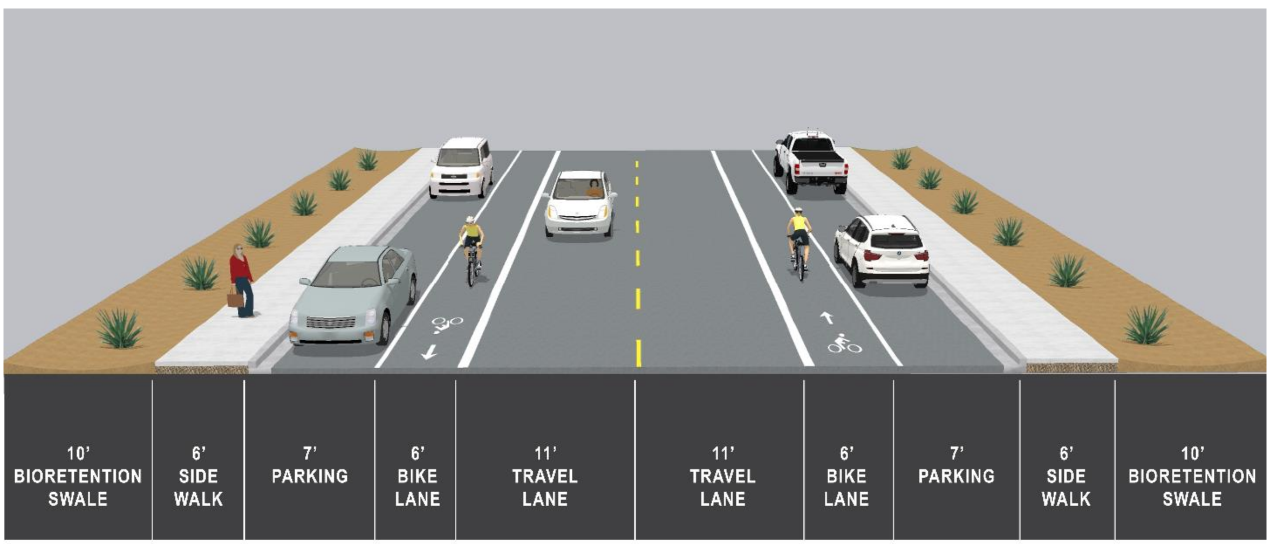
[1]Buffer recommended when roadway width is available

Figure 5 Three-Lane Collector Proposed Cross-Section



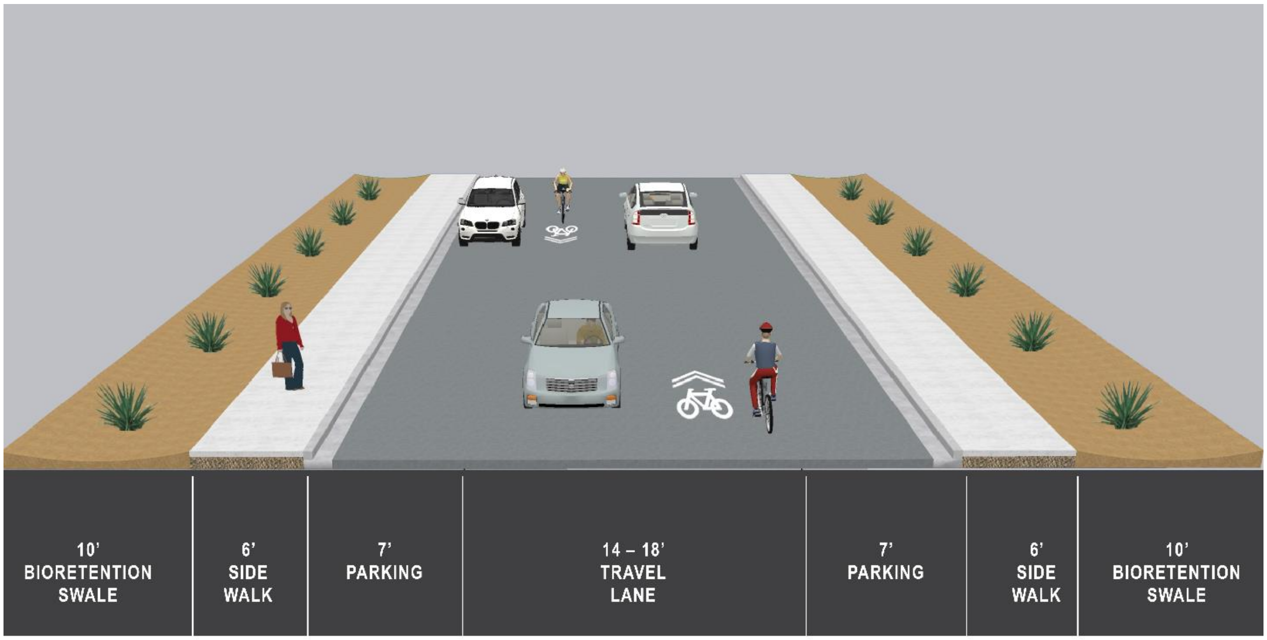
Note: Bioretention swales are not required on streets with grades greater than 2%

Figure 6 Neighborhood Collector Proposed Cross-Section



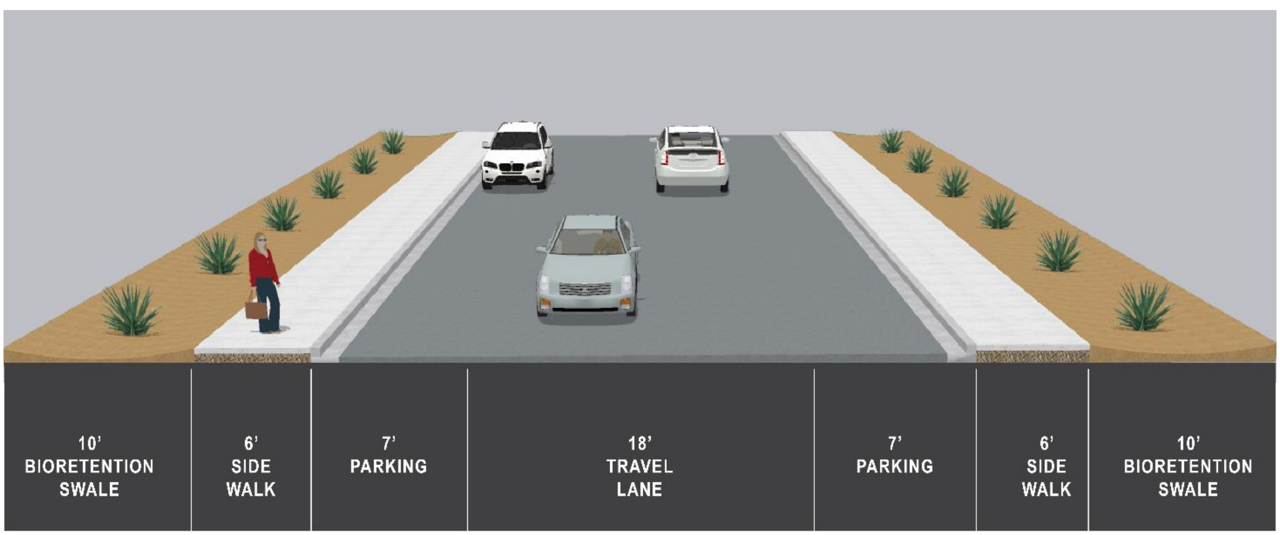
Note: Bioretention swales are not required on streets with grades greater than 2%

Figure 7 Neighborhood Collector with Bike Lanes Proposed Cross-Section



Note: Bioretention swales are not required on streets with grades greater than 2%

Figure 8 Local Street Designated as a Bikeway Proposed Cross-Section



Note: Bioretention swales are not required on streets with grades greater than 2%

Figure 9 Local Street Proposed Cross-Section

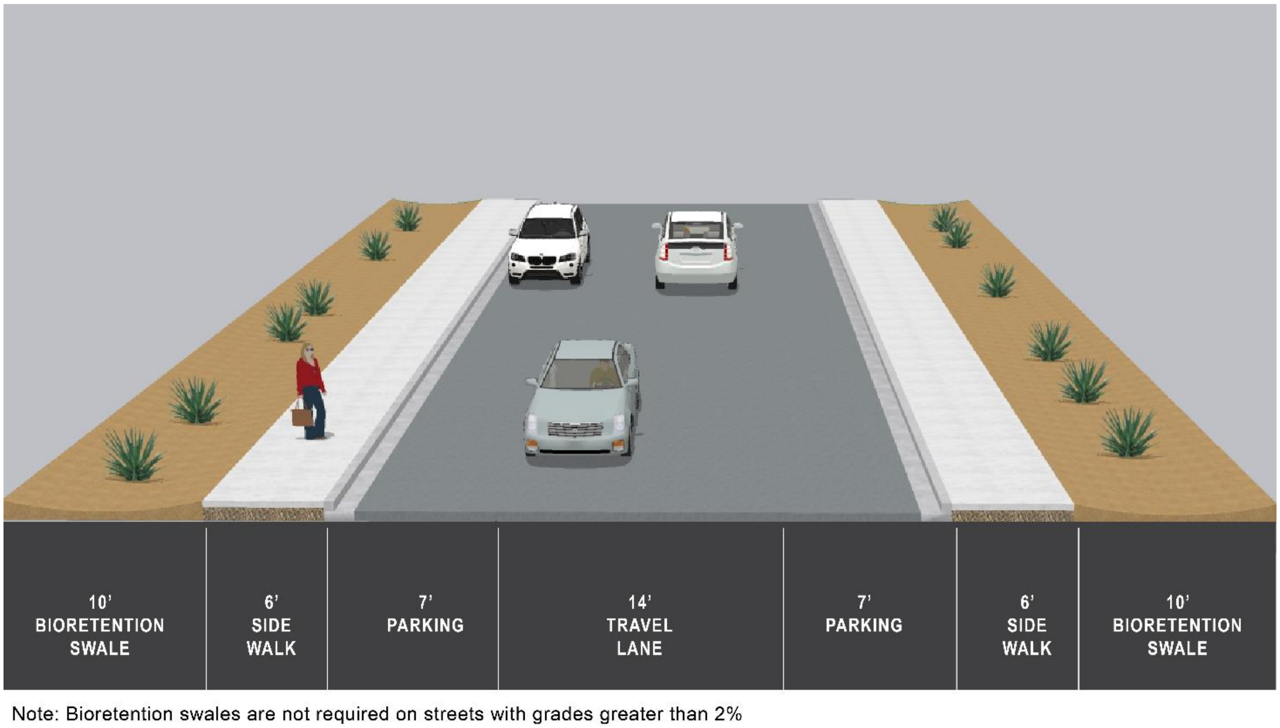


Figure 10 Skinny Local Street Proposed Cross-Section

Additional Guidance on Proposed Bicycle Facilities

These cross-sections introduce two new active transportation facility types: separated bike lanes and buffered bike lanes. More information on these two facility types is provided in this section. When selecting an appropriate bicycle facility for a given street, in addition to consulting these street standards, the latest design guidance and bikeway selection guidance provided by ODOT, NACTO, Federal Highway Administration (FHWA), American Association of State Highway and Transportation Officials (AASHTO), or similar organizations should be consulted. In some cases, the expected motor vehicle volume or speeds on a street may warrant considering a higher-level bike facility than what is shown in the cross-sections. Physical constraints may also necessitate modifying the widths in the cross-sections and these guiding documents can provide insights on acceptable minimum widths in these circumstances.

Separated Bike Lanes

One of the most significant proposed changes to the street sections is the inclusion of separated bike lanes, or shared-use paths, on Principal Arterials and Five-lane Minor Arterials. ODOT's *Blueprint for*

Urban Design includes bikeway selection guidance (see Figure 3-7 in the document), based on a recent FHWA report, indicating that separated bikeways should be considered on streets with motor vehicle volumes above 6,5000 vehicles per day or speeds greater than 35 miles-per-hour (MPH). Both conditions are likely to exist on roadways with these functional classifications.


Separated Bike Lane in Boise, ID

Separated bike lanes are denoted by the presence of vertical separation between the bike lane and the motor vehicle travel lane. The vertical element can include a variety of treatments, including a raised concrete median or plastic flexposts. A raised sidewalk-level bike lane would also be considered a separated bike lane, as would a shared-use path.

One key consideration with separated bike lanes is how they will be maintained. Existing street sweeping equipment may not fit between the vertical buffer and the curb. In this case, specialized equipment (e.g., a narrower sweeper, such as those used on pathways), may be used or a raised bike lane or shared-use path may be preferable.

Further design guidance for separated bike lanes can be found in the following resources:

- ODOT's *Bicycle and Pedestrian Design Guide*
- NACTO *Urban Bikeway Design Guide*
- FHWA *Separated Bike Lane Planning and Design Guide*

Buffered Bike Lanes

Buffered bike 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. These are included in the Three-lane Minor Arterial cross-section, and recommended, but not required, in the Three-lane Collector cross-section.

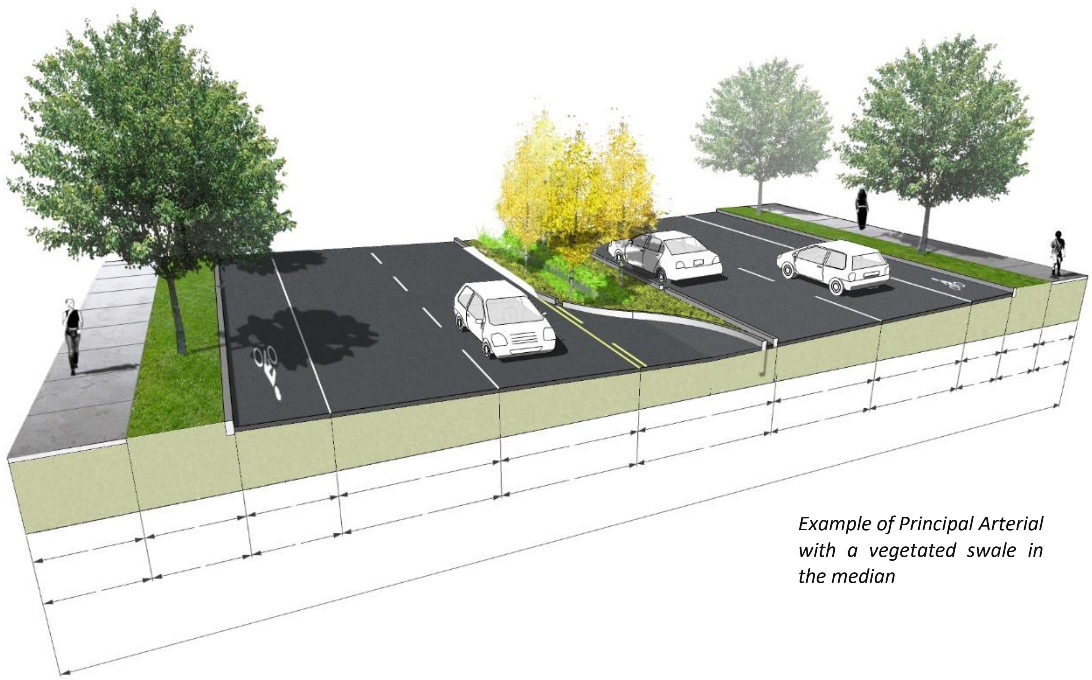

Buffered Bike Lane in Bend

Green Streets Applications

Most street sections contain some green street elements, such as bioswales and landscaping between the sidewalk and street. Options to further enhance these sections to include green street elements include:

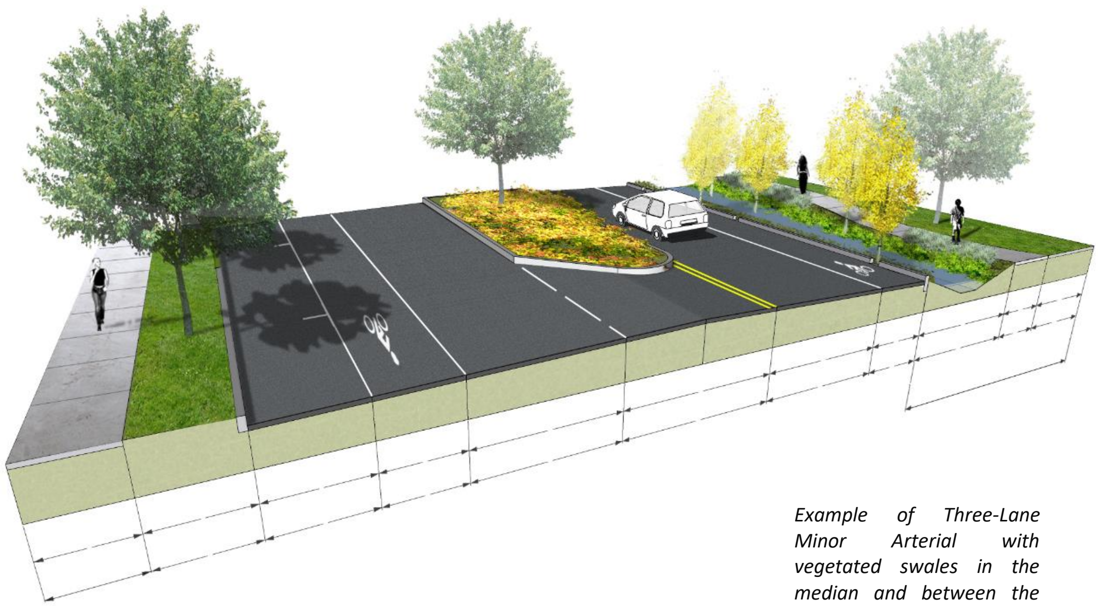
- *Principal Arterials*

- Replace the landscaping between the sidewalk and the street with a vegetated swale with native plants and trees – *this will likely require more width than the 6 feet shown for landscaping in the cross-section standard. Site-specific analyses may be required to determine the necessary width*.
- Replace the center-turn lane with a vegetated swale with native plants and trees.
- Infiltration basins with pedestrian seating and/or signage in areas with extra space.



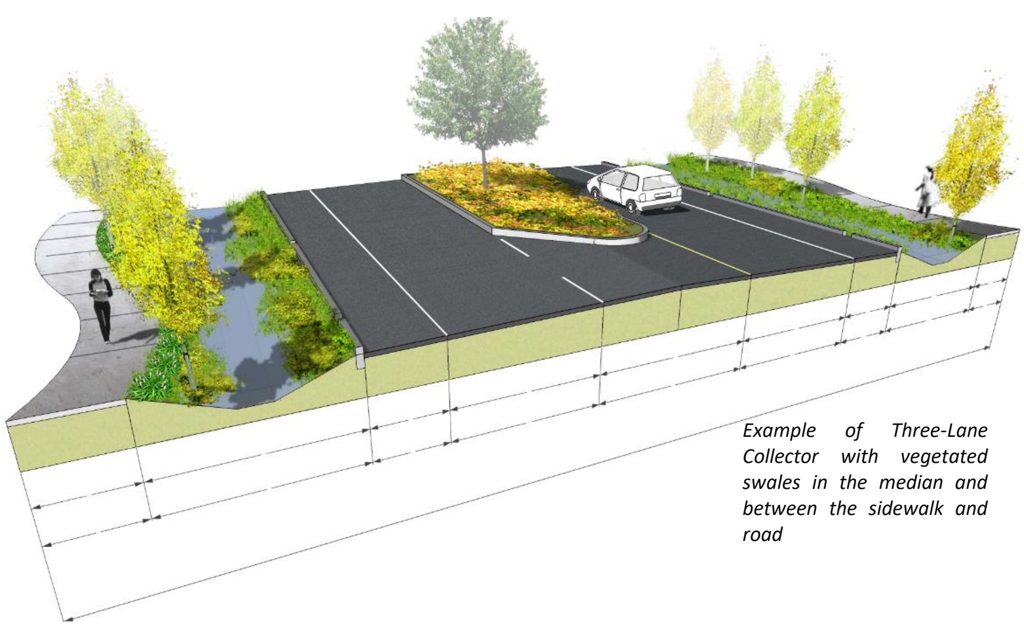
Example of Principal Arterial with a vegetated swale in the median

- *Three and Five-Lane Minor Arterials*
  - Replace the landscaping between the sidewalk and the street with a vegetated swale with native plants and trees – *this may require more width than the 6 feet shown for landscaping in the cross-section standard. Site-specific analyses may be required to determine the necessary width*.
  - Replace the center-turn lane with a vegetated swale with native plants and trees.



Example of Three-Lane Minor Arterial with vegetated swales in the median and between the sidewalk and road

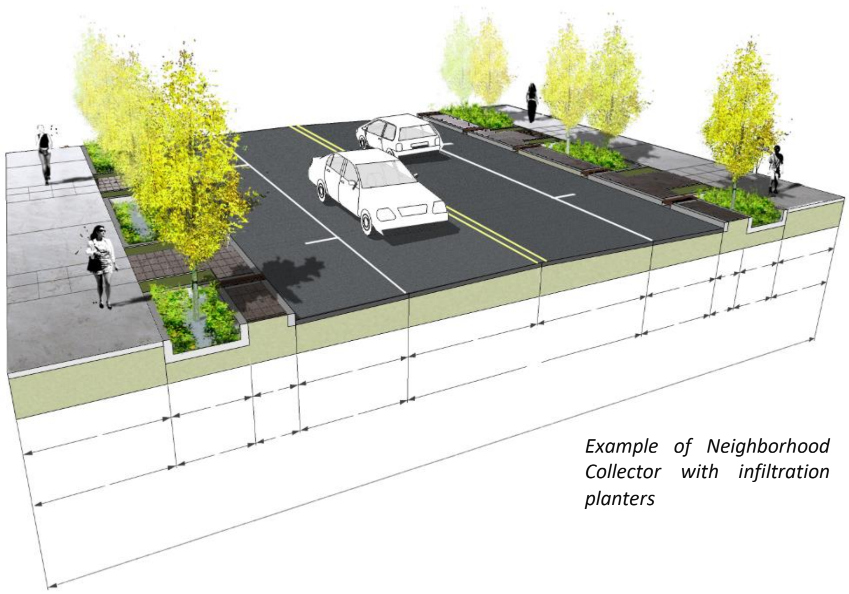
- *Three-Lane Collectors*
    - Replace the landscaping between the sidewalk and the street with a vegetated swale or infiltration planter with native plants and trees.
    - Replace the center-turn lane with a vegetated swale with native plants and trees.



Example of Three-Lane Collector with vegetated swales in the median and between the sidewalk and road

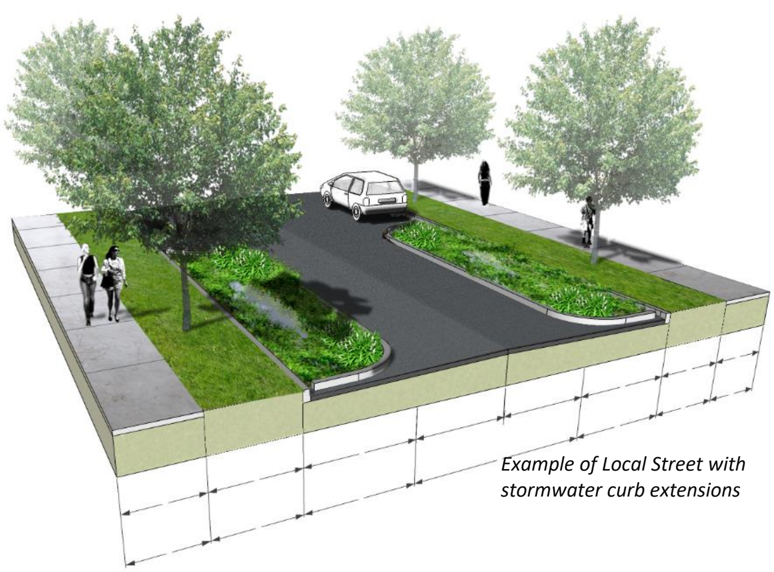
- *Neighborhood Collector*

- Replace the bioretention swale with a vegetated swale or infiltration planter with native plants and trees between the sidewalk and the street.



Example of Neighborhood Collector with infiltration planters

- *Local Streets*
  - Stormwater curb extensions.
  - Replace the bioretention swale with a vegetated swale or infiltration planter with native plants and trees between the sidewalk and the street.



Example of Local Street with stormwater curb extensions

A key consideration in Ontario is providing streetscape elements that minimize irrigation requirements. Using native plants and trees can help meet this goal. Attachment "E" provides more information on potential green street treatments and two case studies of green street projects in Bend and Sisters that may provide useful examples of these treatments and the use of native plantings.

Off-Street Paths and Trails

ODOT's *Bicycle and Pedestrian Design Guide* and AASHTO's *Guide for the Development of Bicycle Facilities* provide guidance for off-street shared-use paths and should be referenced in the planning and design of these facilities. Key design highlights from these manuals includes:

- **Path width** – 12 feet or wider in urban or suburban areas or rural areas with high activity; 10 feet in rural areas.
  - Eight feet can be an acceptable minimum at pinch points or where volumes are expected to be minimal.
- **Lateral Clearance** – Three feet is the recommended distance between the edge of the path and obstructions or slopes.
  - Fences or other barriers should be placed at least two feet from the edge of the path.
- **Grades** – Americans with Disabilities Act (ADA) requirements must be met for any path intended for use as a transportation corridor.

An example design toolbox for off-street paths is shown in Attachment "F."

Other Resources

This section discusses resources for active transportation planning and design and how these resources can provide guidance to the City.

Blueprint for Urban Design: ODOT's Approach for Design in Oregon Communities (ODOT)

ODOT adopted the *Blueprint for Urban Design* in 2020. It documents urban design practices and guidance. The document focuses on how facilities should be designed to fit the unique context of the urban environment and community needs by highlighting flexibility in ODOT design criteria. ODOT intends to incorporate the principles in this document into the next update to the Highway Design Manual. It should be referenced for any projects on ODOT highways.

Examples of activities that would be addressed by the Blueprint of Urban Design are as follows:

- Defining the urban context of a roadway to determine its needs and context-based design criteria
- Identifying opportunities for flexibility in existing design criteria
- Evaluating the trade-offs of design elements based on the needs of different roadway users
- Selecting active transportation facilities based on roadway type

Bicycle and Pedestrian Design Guide (ODOT)

The *Bicycle and Pedestrian Design Guide* is included as Appendix L of ODOT's *Highway Design Manual*. The document provides design criteria and design guidance for a variety of active transportation facilities, including on-road bike facilities, sidewalks, pathways, transit stop connections, enhanced crossings, and intersection treatments for people walking and biking. The document also provides guidance on best practices for project selection and implementation.

Urban Bikeway Design Guide (NACTO)

The *Urban Bikeway Design Guide* provides a toolbox of design-guidance and tactics to create complete streets that are safe and enjoyable for bicyclists. The guide provides recommended design criteria and treatments for bikeway. It includes guidance on bike lanes, intersection treatments, bicycle signals, and bicycle boulevards. The guide also includes an inventory of case studies of the design and implementation of urban bikeway facilities in the US.

Transit in Small Cities: A Primer for Planning, Siting, and Designing Transit Facilities in Oregon (Oregon TGM)

The Transit in Small Cities primer provides guidance on planning, designing, and locating transit facilities for small-city transit providers in Oregon. The document focuses on transit facilities that support multimodal transit facilities. It references successful Oregon examples to provide relevant advice and illustrate best practices.

SAFE ROUTES TO SCHOOL

The City of Ontario has established a desirable Safe Routes to School (SRTS) network that provides access to the city's three public elementary schools, middle school, and high school, as well as a K-8 Catholic school and a K-12 charter school. Figure 11 shows the city's current desired Safe Routes to School network.

The project team reviewed this network against existing walking and biking infrastructure to identify locations that may benefit from improvements (e.g., sidewalk gaps, crossing enhancements). Several roads on the SRTS network lack sidewalks on one or both sides of the road. Figure 12 shows which roads on the network have complete sidewalks (i.e., they span the entire block) on both sides of the street, complete sidewalks on one side of the street, or no complete sidewalks on either side of the street. As shown, there are a lack of complete sidewalks around Alameda Elementary School in the south part of Ontario and around May Roberts Elementary School in the north part of Ontario. Additionally, stakeholder outreach identified additional sidewalk gaps around Alameda Elementary School.

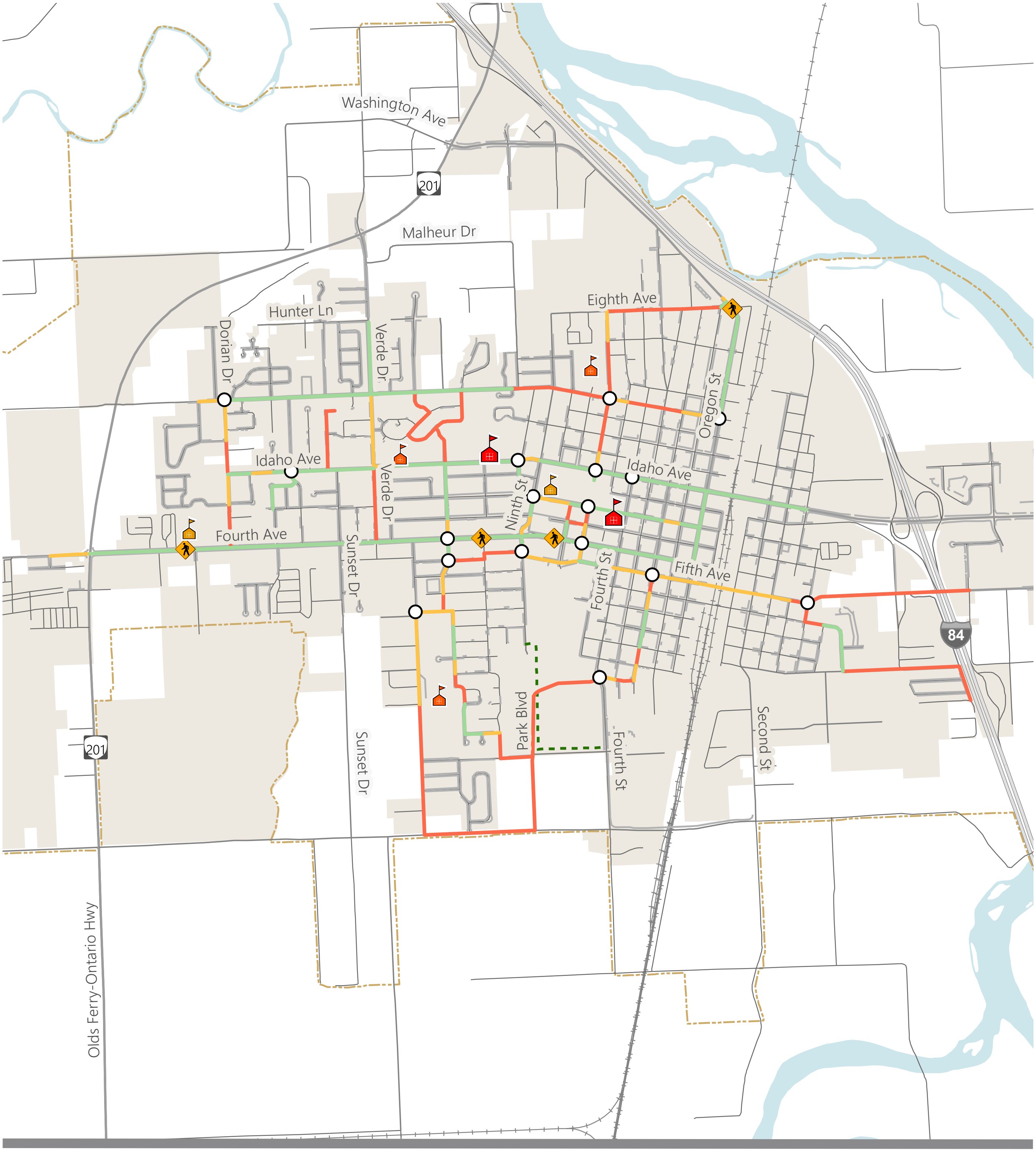
In addition, Figure 12 shows intersections along this network that may benefit from crossing improvements. These improvements could include installing ADA curb ramps, adding crosswalk

Document Path: H:\23\23858 - Ontario TSP Update\graphics\gis\MXD\SRTS_Basemap.mxd Date: 7/21/2020

Figure 11

Safe Routes to School

KITTELSON & ASSOCIATES



Crossing Improvement Candidate
Rectangular Rapid Flashing Beacon
Sidewalks on Both Sides
Sidewalks on One Side
No Sidewalks
Elementary School
Junior/Senior High School
Private School/Charter School
Multi-Use Path (Under Construction)
Sidewalks
Urban Growth Boundary
City Limits

Figure 12

Safe Routes to School Sidewalks and Curb Ramps

KITTELSON & ASSOCIATES

Document Path: H:\23\23858 - Ontario TSP Update\gis\MXD\SRTS.mxd Date: 7/21/2020 striping, increasing crosswalk visibility through markings and/or signage, intersection control changes (such as STOP signs), and rectangular rapid flashing or other beacons. Potential treatments for these locations will be identified in a later task in this project.

NEXT STEPS

The findings of the memorandum will be presented at TAC Meeting #2 and at an online community open house. Feedback received from the TAC and the community will be used refine the draft design concept of East Idaho Avenue and the other elements contained in this memorandum.

REFERENCES

1. Kittelson and Associates. *City of Ontario, Active Transportation Update and East Idaho Avenue Refinement Area Plan Technical Memorandum #2: Baseline Transportation Assessment*. 2020.
2. Oregon Department of Transportation. *Bicycle and Pedestrian Design Guide (Appendix L to the Highway Design Manual)*. 2011.
3. National Association of City Transportation Officials. *Urban Bikeway Design Guide*. 2012.
4. Oregon Transportation and Growth Management Program. *Transit in Small Cities*. 2013.
5. Oregon Department of Transportation. *Blueprint for Urban Design*. 2020.

ATTACHMENTS

A. East Idaho Avenue Refinement Area Draft Design Concept
B. East Idaho Avenue Refinement Area Gateway Precedents
C. East Idaho Avenue Refinement Area Land Use Metrics Memorandum
D. Street Standard Cross Sections from 2006 Transportation System Plan
E. Green Street Project Case Studies and Toolbox
F. Off-Street Path Toolbox

Attachment A East Idaho Avenue Refinement Area Draft Design Concept

LEGEND

TYPE 1 LANDSCAPE: ENHANCED IRRIGATED PLANTING

TYPE 2 LANDSCAPE: BASIC IRRIGATED - STREET TREES & PLANTS OR GRAVEL MULCH

TYPE 3 LANDSCAPE: NON-IRRIGATED FIELD GRASS

TYPE 4 LANDSCAPE: STORMWATER TREATMENT AREA PLANTING

PROPOSED STREET TREE

EXISTING STREET TREE

PRIMARY GATEWAY ELEMENT

SECONDARY GATEWAY ELEMENT

PROPOSED SHARED-USE PATH

FUTURE RIVERFRONT TRAIL

N

0 75 150 300

SCALE: 1" = 150'

Figure 1

OVERALL PLAN

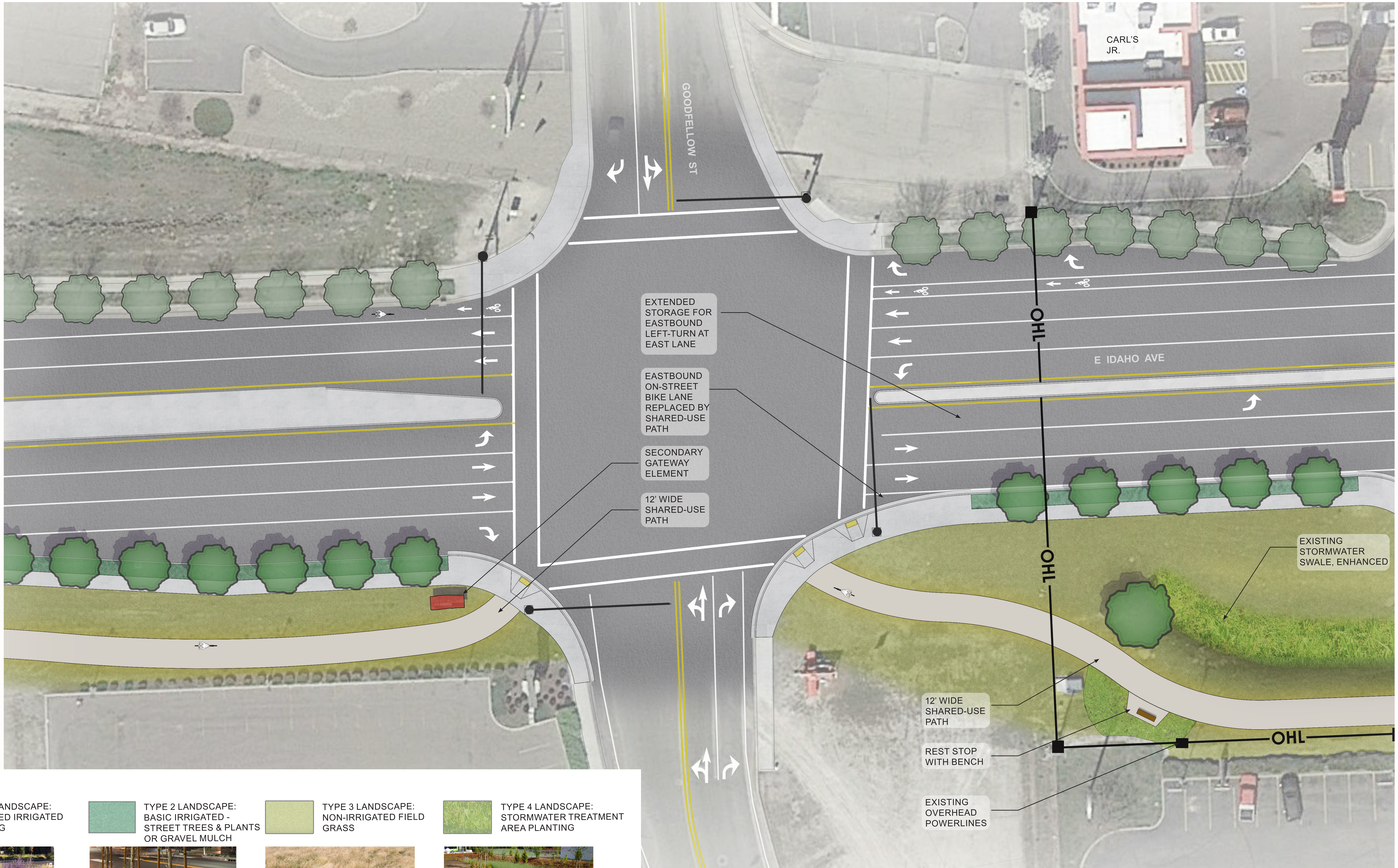
EAST IDAHO AVENUE REFINEMENT AREA PLAN

Oregon Department of Transportation

KITTELSON & ASSOCIATES, INC. TRANSPORTATION ENGINEERING/PLANNING

GREENWORKS

07.22.2020



LEGEND

TYPE 1 LANDSCAPE: ENHANCED IRRIGATED PLANTING	TYPE 2 LANDSCAPE: BASIC IRRIGATED - STREET TREES & PLANTS OR GRAVEL MULCH	TYPE 3 LANDSCAPE: NON-IRRIGATED FIELD GRASS	TYPE 4 LANDSCAPE: STORMWATER TREATMENT AREA PLANTING
			

GOODFELLOW ST. INTERSECTION ENLARGEMENT PLAN

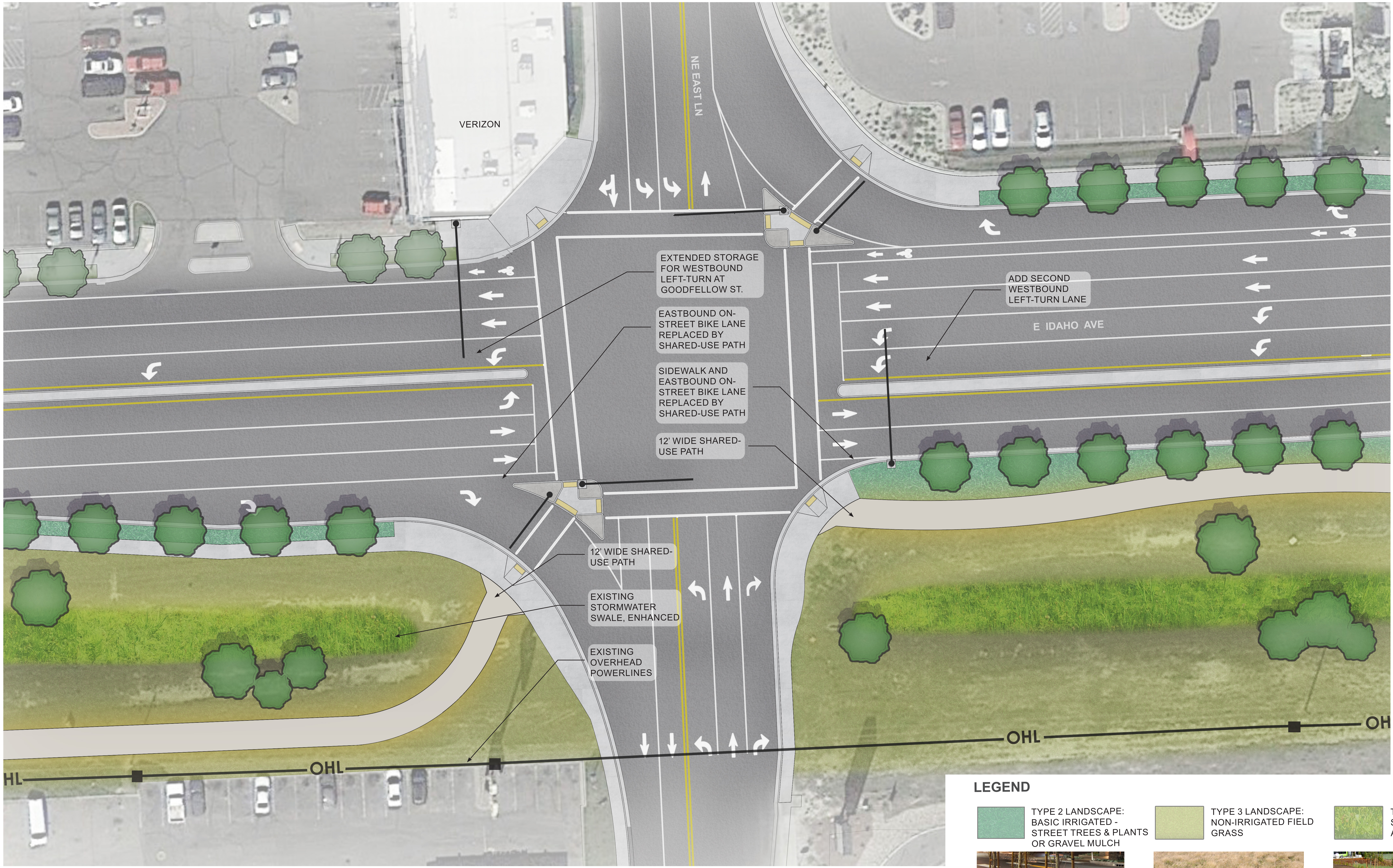
EAST IDAHO AVENUE REFINEMENT AREA PLAN

Oregon Department of Transportation

Kittelson & Associates, Inc. Transportation Engineering/Planning

GREENWORKS

07.22.2020



LEGEND

TYPE 2 LANDSCAPE: BASIC IRRIGATED - STREET TREES & PLANTS OR GRAVEL MULCH	TYPE 3 LANDSCAPE: NON-IRRIGATED FIELD GRASS	TYPE 4 LANDSCAPE: STORMWATER TREATMENT AREA PLANTING



N

0 10 20 40

SCALE: 1" = 20'

EAST LN. INTERSECTION ENLARGMENT PLAN

EAST IDAHO AVENUE REFINEMENT AREA PLAN

Oregon Department of Transportation

Kittelson & Associates, Inc. TRANSPORTATION ENGINEERING/PLANNING

GREENWORKS

07.22.2020

TRAIL JUNCTION AND OVERLOOK ENLARGEMENT

EAST IDAHO AVENUE REFINEMENT AREA PLAN

N

0 10 20 40

SCALE: 1" = 20'

Oregon Department of Transportation

ONTARIO Where Oregon Begins

KITTELSON & ASSOCIATES, INC.
TRANSPORTATION ENGINEERING/PLANNING

GREENWORKS

07.22.2020

Attachment B East Idaho Avenue Refinement Area Gateway Precedents

Gateway Precedents

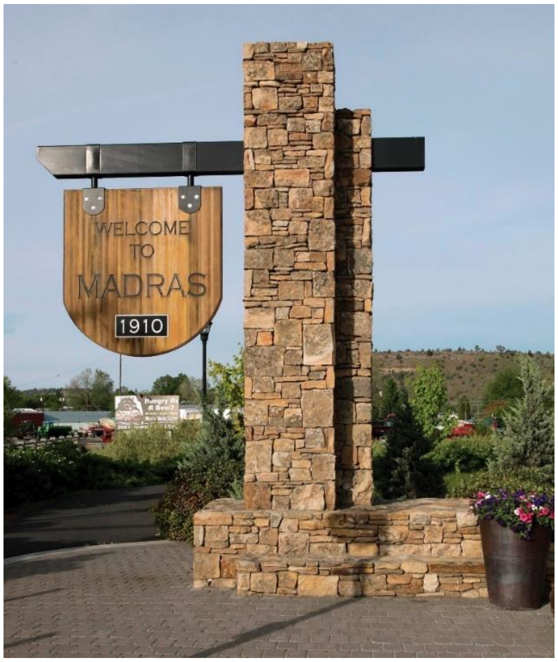
Gateway: *"[A]n entrance corridor that heralds the approach of a new landscape and defines the arrival point as a destination. The goal of gateway planning is to arrange this landscape so that it rewards the viewer with a sense of arrival and a positive image of the place."* From Michael Barrette, "Planning Basics for Gateway Design," Zoning News (December 1994).

<u>Gateway Intention:</u>

- Highly visible opportunity to welcome visitors & locals to the town or neighborhood
    - Represents an arrival point as a destination
    - Rewards viewer with a sense of arrival and positive image / identity of the place
- Express civic identity in visual form
- Common examples of gateways:
    - Sculpture / public art (see Joseph & Portland precedents below)
        - Highlight the unique local character & express civic pride
    - Series of columns
        - Material representative of the area / local geology
    - Banners
    - Township "welcome" sign (See Madras precedent below)
        - Subtle still feels welcoming, see Lyle precedent below
    - Landscaping
        - Trees, minimum planting in dry climate
        - Can also include ornamental stone design and patterns in landscape beds, especially in low-water environments
    - Literal gateway or archway (see Troutdale precedent below)
    - Decorative walls & architectural elements
- Can be a single or repeated element

Precedent Examples & Images:

- Madras, Oregon
  - Sculptural element, flag pole, town name at north and south entrances of town
  - Family of repeated elements (north & south entrances)



(source: google maps)

(source: google maps)

- Joseph, Oregon
    - Welcome Sign at entrance of downtown strip
    - Statues along main street (as a repeating element)
        - Creates continuity, signals to viewer that you are still in the designated area
        - Serves as placemaking tool as well as historical education opportunity
    - Native, upkept landscaped area & curb extensions
        - Traffic calming design
        - Encourages pedestrian usage, less car dominant

(source: City of Joseph)

- Troutdale, Oregon
    - Welcome Sign with town phrase
    - Archway / Gateway across road

(source: Google Earth)

- Portland, Oregon
    - Sculpture marks beginning of the Hawthorne bridge (image 1)
    - Traditional stone arch marks entrance of historic neighborhood (image 2)
    - Perforated weathered steel, metal lettering, landscaping & pedestrian oriented plaza marks entrance of main boulevard (images 3 and 4)

(source: 2.ink Studio / Landezine)

- Public art can be used as an icon, create an identity
    - Claus Oldenberg's Spoon Bridge & Cherry in Minneapolis Sculpture Garden

    - Gateway Island in Ashland, Oregon, titled "Threshold" by Seattle-based artist Susan Zoccola

Attachment C East Idaho Avenue Refinement Area Land Use Metrics Memorandum

MEMORANDUM

Land Use Metrics for Ontario Design Concepts (Task 4.1)

Ontario Active Transportation Update and East Idaho Avenue Refinement Area Plan

DATE	July 10, 2020
TO	Project Management Team
FROM	Matt Hastie and Clinton "CJ" Doxsee, APG
CC	Nick Foster and Matt Hughart, KAI

OVERVIEW

This memorandum presents land use metrics that are intended to assess improved connections between land use and transportation facilities and planning. This memorandum also presents potential future amendments to the City's development code that are intended to improve accessibility for pedestrians, bicyclists, and transit users in Ontario.

The land use metrics presented in this memorandum will inform the development of design concepts in *Technical Memorandum #6: Design Concepts*.

Every trip begins and ends with a pedestrian trip. Pedestrian accessibility provides the ease and convenience to reach a destination by walking, bicycling, or transit. Safety means that exposure to vehicle accidents and other hazards is minimized, giving people a sense of comfort to choose to walk. This requires attention to how the built environment for land uses and transportation facilities are designed.

LAND USE CONTEXT

The land use context is an important factor for determining appropriate transportation planning and design. Land uses tend to follow a development pattern that transitions from urban to suburban to rural. The mix and density of specific types of land uses can be expected within each transitional area.[1]

[1] Several associations and organizations provide planning and design guidance for contextualizing land use and transportation. Project team members should consider and review recent publications from the following sources for more

Characteristics that help define an area's development pattern include building setbacks, orientation, and coverage; the degree to which uses are mixed; the amount and location of parking; and size of blocks. For example, urban areas typically include higher density housing and mixed-use buildings that are oriented to and located near the street with minimal on-site parking. Rural areas on the other hand typically feature low-density, single-use housing that may not necessarily be oriented to or close to the street and may have prominent areas in front for parking.

The City of Ontario is primarily suburban in context, but also includes urban and rural elements. The characteristics that define most of Ontario as suburban include medium to large setbacks, intermittent building orientations towards the street, medium or low on-site building coverage, and medium to large amounts of parking. Block sizes in Ontario generally have more urban characteristics, featuring a gridded network of small blocks throughout most of the central parts of the City, including areas that otherwise have suburban characteristics. The part of Ontario that features primarily urban characteristics is generally located in the old downtown area around S Oregon Street. Conversely, the rural areas in Ontario are generally located outside of City limits, but within the City's Urban Growth Boundary (UGB).

The East Idaho Avenue Refinement Area also exhibits suburban land use context. The Refinement Area has a smaller range of characteristics. They include large setbacks; building coverage is relatively low and buildings are not generally oriented to the street; large amounts of parking are located between the building and the street; the area does not feature a mix of residential and commercial uses; and block sizes are large.

Table 1 below provides a summary of the characteristics that help define the land use context for the Study Area and East Idaho Avenue Refinement Area.

Table 1: Ontario Study Area and East Idaho Avenue Refinement Area Land Use Context Summary

LAND USE CONTEXT	CHARACTERISTIC
Setbacks	Study Area Setbacks are medium to large for commercial areas and shallow to medium for residential uses. Commercial uses are generally not situated near the street lot line. Residential uses are generally setback consistent with development standards. Refinement Area Setbacks are medium to large for commercial areas. Very few of the commercial uses are situated near the street lot line.

in-depth guidance: Oregon Department of Transportation (ODOT); American Association of State Highway Transportation Officials (AASHTO); National Cooperative Highway Research Program (NCHRP); Federal Highway Administration (FHWA); Institute of Transportation Engineers (ITE); National Association of City Transportation Officials (NACTO)

LAND USE CONTEXT	CHARACTERISTIC
Building Orientation	Study Area Buildings with front doors that can be accessed from the sidewalk or along a pedestrian path are intermittent for commercial and residential uses. Refinement Area Most of the buildings in the refinement area do not have a front door that can be accessed from the street via a pedestrian path
Land Use Mix	Study Area Mixed-use residential and commercial uses are minimal to none. Residential and commercial uses are generally separated and not mixed. Refinement Area There are no mixed-use residential and commercial areas. The predominant use in the area is commercial, with a minor amount of light industrial uses. The heavy commercial zone that covers most of the area does not allow for residential or mixed residential/commercial uses.
Building Coverage	Study Area The percent of the overall site, and specifically the area adjacent to the street that is developed with buildings is low for commercial uses and medium for residential uses. Refinement Area Like the overall Study Area, the percent of the overall site that is developed with commercial buildings is low.
Parking	Study Area Parking areas typically are located between the building and the street for most commercial and residential uses. Parking areas are medium to large for commercial uses. The availability of on-street parking varies for commercial uses and is typically available for residential uses. Refinement Area Conditions are similar to the overall Study Area, except that on-street parking is not available in the Refinement Area.
Block Size	Study Area The average size of blocks adjacent to residential uses are medium to small for residential uses and large to medium for commercial uses. Some blocks are not well defined for commercial uses. Refinement Area The average size of blocks in the Refinement Area are typically large. Most blocks are not well defined.

The adjacent land use realm is typically outside of the public right-of-way but includes elements that directly interact with street uses and form the character of the place. Street and trail designs should help achieve desired land use goals, while site planning and building design of adjacent land uses can help support walking, bicycling, and transit.

There is a wide variety of land uses in small cities that create a variety of land use realms. The land use realms range from having buildings immediately adjacent to the sidewalk to having buildings separated from the street by large surface parking areas.

LAND USE METRICS

Land use metrics are intended to assess improved connections between land use and transportation facilities. For the purposes of applying land use metrics to transportation design concepts, this memorandum focuses on metrics that gradually increase the urbanization of an existing area relative to the current conditions. The intent is to increase the efficiency of land use and transportation resources. Typically, this means that new development or redevelopment is more compact and uses only as much land as is necessary. It also seeks to fully utilize the existing capacity of transportation facilities where available, recognizing that most people in Ontario will continue to travel to and from the area in cars.

The land use metrics focus on the characteristics that help define the land use context. They will provide guidance in assessing whether proposed improvements increase safety and accessibility in comparison to the existing development pattern. The metrics are not intended to be used as standards with quantifiable threshold requirements.

Setbacks

> *Reduce the average distance between the primary business or building entrance(s) and the nearest sidewalk of bicycle facility*

Most of the uses in Ontario exhibit suburban characteristics with medium to large setbacks. Building setbacks determine the scale of the streetscape. Buildings with minimal or no setbacks help reduce vehicle speeds and provide direct access to destinations. Buildings that are set back further from the street, with parking between the building and the street, create conditions that can promote higher vehicle speeds and reduce driver vigilance. Reducing the average distances that buildings are set back from the street will help foster a more welcoming and safer environment for pedestrians and bicyclists using the streets.

Building Orientation

> *Increase the percent of buildings with a direct pedestrian or bicycle connection to the nearest street or associated bicycle or pedestrian facility.*

There is a mix of buildings in Ontario that are oriented to the street. The availability of a pedestrian connection between the building and the street is also mixed. Where a building cannot be located adjacent to the street, pedestrian connections between the buildings and sidewalk or bicycle facility should be included, and to the extent feasible should provide a direct link between the two. Providing pedestrian connections between the building and the street reduces people's exposure to hazards, including having to cross drive aisles in parking areas or travel across vegetated or undeveloped stretches of land.

Land Use Mix

> *Increase the mix of land uses within and among structures in neighborhood-oriented centers and community commercial centers.*

Most of Ontario does not have mixed-use areas currently except for some areas in the downtown core. Mixed-use development brings compatible land uses closer together. Increasing the mix of commercial and residential land uses can help create more compact development that accommodates shorter trips between destinations. This in turn creates the options for people walk or ride bicycles to reach typical destinations.

Building, Pathway, & Parking Coverage

> *Reduce the relative percentage of on-site parking areas and/or increase the relative percentage of on-site building coverage.*

The overall percentage of on-site building coverage in Ontario medium for residential uses and low for commercial uses. Conversely, the overall percentage of on-site parking area coverage medium for residential uses and high for commercial uses. Building coverage and the size of parking areas are related in that they typically do not occupy the same space on a property. In other words, increasing the amount of one will require a reduction in the other after a certain point. Surface parking areas often cover more ground than the buildings they serve, causing buildings to be separated from each other. Reducing the amount of parking to what is necessary for typical use allows buildings to be located closer together and/or to occupy a greater portion of the site. Doing so increases the vibrancy of the area, supports the possibility of mixed uses and decreases the cost of development, thereby making it more financially feasible.

Parking Location

> *Reduce the amount of parking located between the building and the street.*

Parking areas for commercial uses are typically located between the building and the street in most of Ontario, contributing to larger building setbacks. Parking areas can be located on the side or behind the building, allowing for the buildings to be set back closer to the street and providing the benefits described above. Locating parking on the side or behind the building also provides pedestrians and bicyclists with a safe, unobstructed path between the sidewalk and building entrance.

Block Size

> *Reduce the overall block size and secondary or parallel street connections. Where reductions in block sizes are not feasible, increase internal connections through private shopping streets that contribute to smaller block sizes*

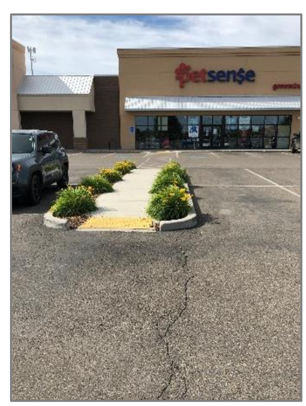
Most of Ontario has a relatively well-connected network of gridded streets. However, some areas, notably the East Idaho Avenue Refinement Area, have large blocks and a disconnected street system. Disconnected streets isolate land uses and force all trips, regardless of mode, onto higher classification streets without regard for their ultimate destination, contributing to unnecessary roadway congestion or exposure to hazardous areas. An interconnected street system provides linkages to local shopping, services, housing, and amenities.

CODE AMENDMENT RECOMMENDATIONS

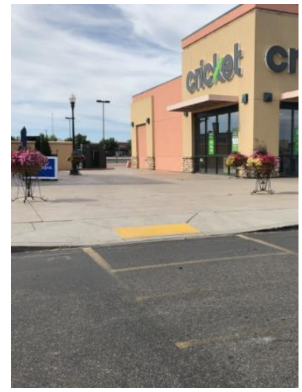
This memo includes general recommendations for potential future code amendments. These recommendations were described in *Technical Memorandum #3: East Idaho Refinement Area Land Use Assessment*. Technical Memorandum #3 was focused on the East Idaho Refinement Area; however, the recommendations also have applicability to the overall Study Area.

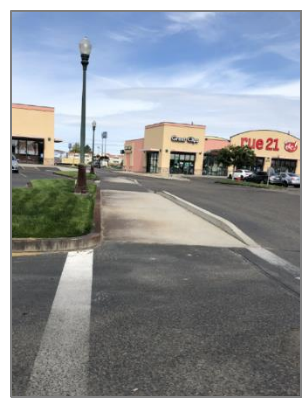
Increasing the connection between land use and transportation requires an approach to site planning that incorporates pedestrian-oriented development designs. For example, standards that require large setbacks, vast areas of landscaping, and walls between parking lots and streets result in barriers to pedestrian and bicycle accessibility because the create unsafe, inconvenient, or unpleasant conditions. The code recommendations seek to orient building entrances to sidewalks, break up large areas of surface parking with pathways and landscaping, and provide direct, safe, and comfortable access to buildings.

Inflexible, one-size-fits-all standards discourage mixed-use development. Typically, development codes limit the types of uses that can be mixed, provide design standards, and depending on location, limit or boost allowable density. Allowing high-density residential and mixed commercial/residential uses increases the ease for people to walk or ride their bicycle. It should be noted that a number of the following strategies have been implemented for developments within the Refinement Area, but development code provisions could be strengthened to ensure more consistent application of them.



- **Parking Location Requirements.** ZO provisions can require parking to be located on the side or rear of buildings. Parking and vehicle drives should not be located between building entrances and streets with pedestrian activity. Surface parking areas should be oriented behind or to the side of a building, with access from shared driveways. This provides pedestrians with a safe, unobstructed path from a sidewalk to a building entrance.
- **Enhanced Landscape Standards.** Enhanced landscaping standards, including for parking areas can be applied to new development or





redevelopment. Landscaping should be provided between parking areas and adjacent pathways and streets to provide separation. Minimum landscape requirements should be applied to the interior portion of large parking areas. Interior landscaping improves the appearance of parking lots, provides much needed shade (particularly important in Eastern Oregon's warm climate), and creates options and/or incentives for low impact development approach (LIDA) stormwater facilities.

- **More Efficient Use of Parking.** The amount of parking required for development, either as required by the ZO or by market demands, is the biggest determining factor for a building's footprint on the site and has a significant impact on the cost of development. Reducing the minimum parking requirements allows commercial developers the opportunity to use less space for parking and/or to construct other buildings for other uses or businesses. It also helps reduce the overall cost of construction. Implementing parking maximums with the flexibility to grant modifications to the standards would discourage builders from over-parking their sites and would encourage a closer study of parking supply and demand.
- **Mixed-use Areas.** Multi-family housing in commercial areas can be permitted to allow residents to reduce car travel for all daily activities, as well as prime location for senior housing. Permitting multi-family buildings in commercial areas allows developers to respond to several market conditions simultaneously. The C2H zone can be amended to allow high density residential and mixed commercial/residential uses as a conditional use.
- **Enhanced Pedestrian Connections.** Poor bicycle and pedestrian connectivity often force people to drive. Poor or non-existent connections between adjacent buildings in commercial areas discourages people from walking or bicycling between businesses. Provisions should require pedestrian walkways through sites, connecting building entrances, and the public sidewalk, with safe crossings of streets, drives, and parking areas. The ZO can be amended to require development of internal bicycle and pedestrian connections and/or the creation of internal private streets that mimic public streets to increase overall connections.

Attachment D Street Standard Cross Sections from 2006 Transportation System Plan

7.1.3. Road Design Standards

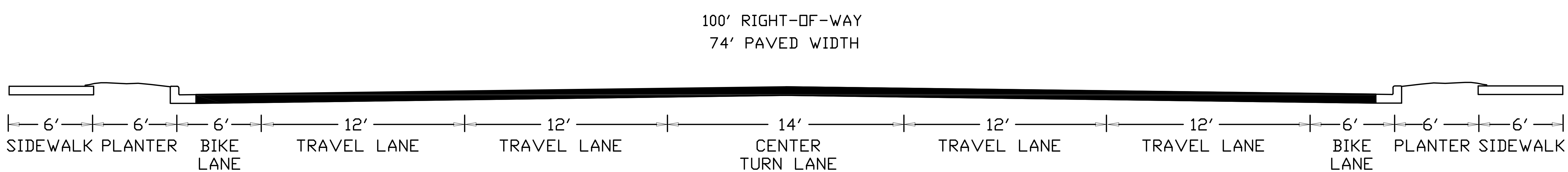
Road classification standards relate the design of a roadway to its function. The function is determined by operational characteristics such as traffic volume, operating speed, safety, and capacity. Road standards are necessary to provide a community with roadways which are relatively safe, aesthetic, and easy to administer when new roadways are planned or constructed. They are based on experience, and policies and publications of the profession.

The typical road cross sections by roadway classification are summarized in Table 7-1 and shown in Figures 7-2, 7-3, 7-4, 7-5a, 7-5b, 7-6a, 7-6b, 7-7a, 7-7b and 7-8.

The road and access management design standards for ODOT facilities can be referenced in the 1999 Oregon Highway Plan and Highway Design Manual. Appendix D contains the ODOT access management design standards that can be found in the 1999 Oregon Highway Plan.

Table 7-1. Street Standards

Type of Street	Minimum Right of Way Width (feet)	Pavement Width (feet)
Principal Arterial	100’	74’+
Minor Arterial	70’-100’	48’-74’+
Collector	60’-70’	38’-48’
Neighborhood Collector	60’	36
Local Street	50’	32’
Skinny Local Street	50’	28’
Radius For Turn Around at End of Cul-de-Sac	50’	40’

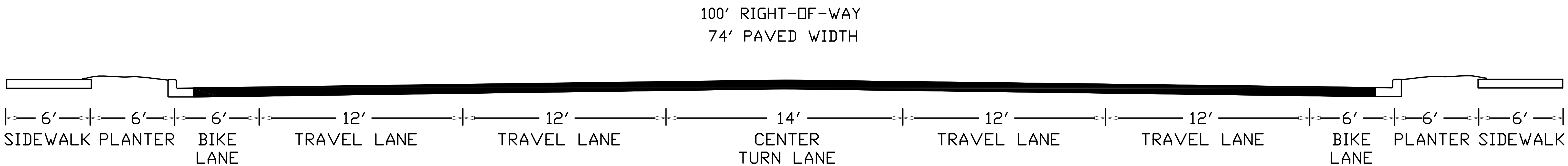


PRINCIPAL ARTERIAL WITH BIKE LANES

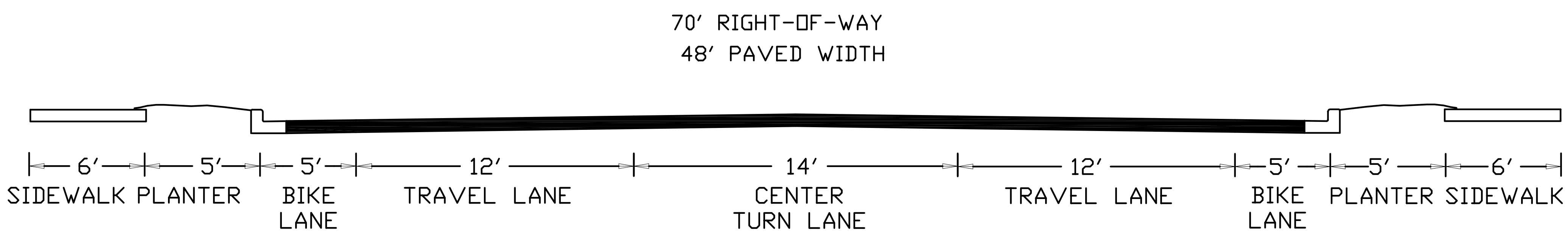
NOT TO SCALE

City of Ontario Transportation System Plan

Figure 7-2
Typical Roadway Cross Section Standards
Principal Arterial



FIVE LANE MINOR ARTERIAL WITH BIKE LANES

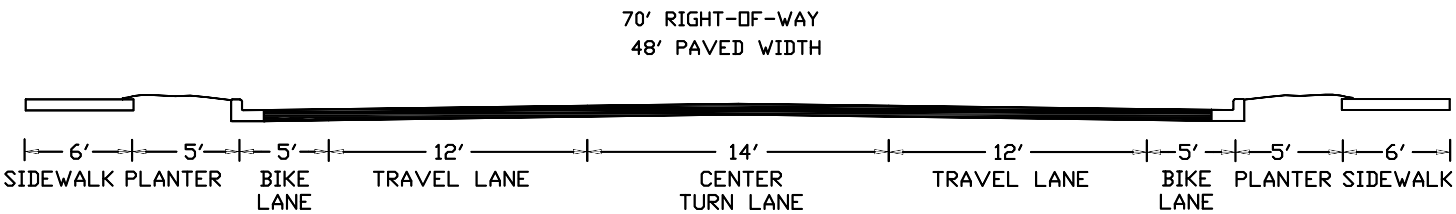


THREE LANE MINOR ARTERIAL WITH BIKE LANES

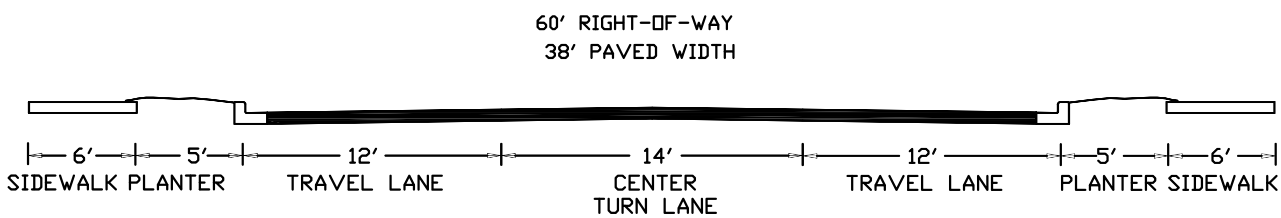
City of Ontario Transportation System Plan

NOT TO SCALE

Figure 7-3
Typical Roadway Cross Section Standards
Minor Arterial



COLLECTOR WITH BIKE LANES

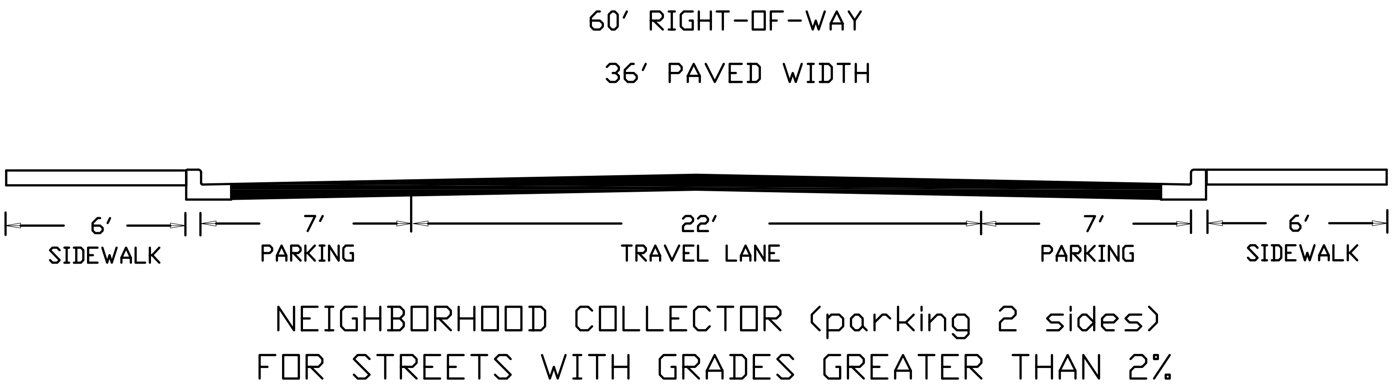


COLLECTOR WITHOUT BIKE LANES

City of Ontario Transportation System Plan

NOT TO SCALE

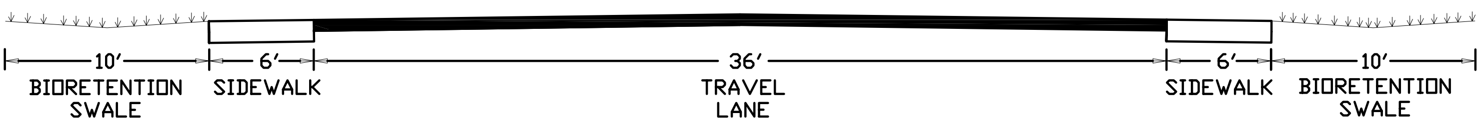
Figure 7-4
Typical Roadway Cross Section Standards
Collector



City of Ontario Transportation System Plan

NOT TO SCALE

Figure 7-5a
Typical Roadway Cross Section Standards
Neighborhood Collector Greater Than 2%

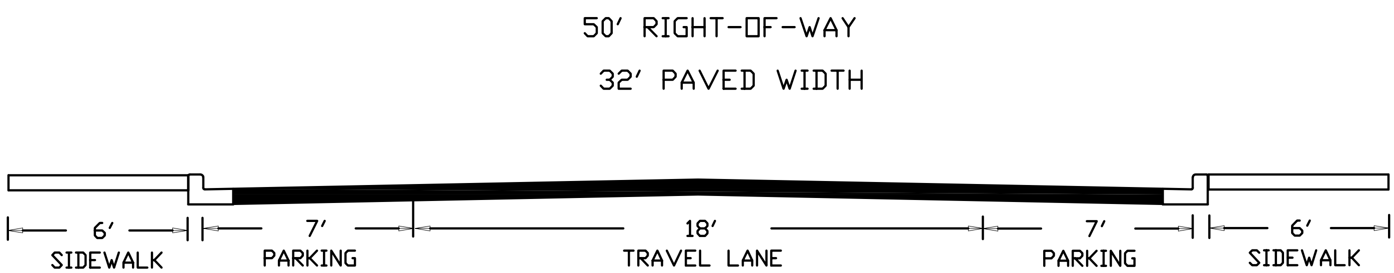


NEIGHBORHOOD COLLECTORS WITH GRADES EQUAL TO OR LESS THAN 2%

City of Ontario Transportation System Plan

NOT TO SCALE

Figure 7-5b
Typical Roadway Cross Section Standards
Neighborhood Collector Equal to or Less Than 2%

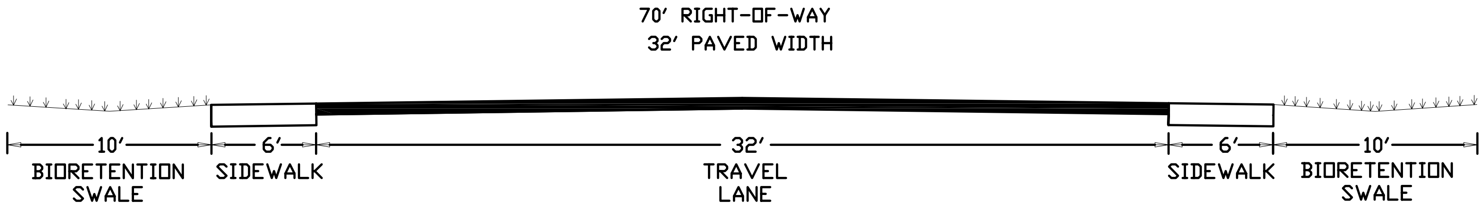


LOCAL STREET (parking 2 sides)
FOR STREETS WITH GRADES GREATER THAN 2%

City of Ontario Transportation System Plan

NOT TO SCALE

Figure 7-6a
Typical Roadway Cross Section Standards
Local Street Greater Than 2%



LOCAL STREETS WITH GRADES EQUAL TO OR LESS THAN 2%

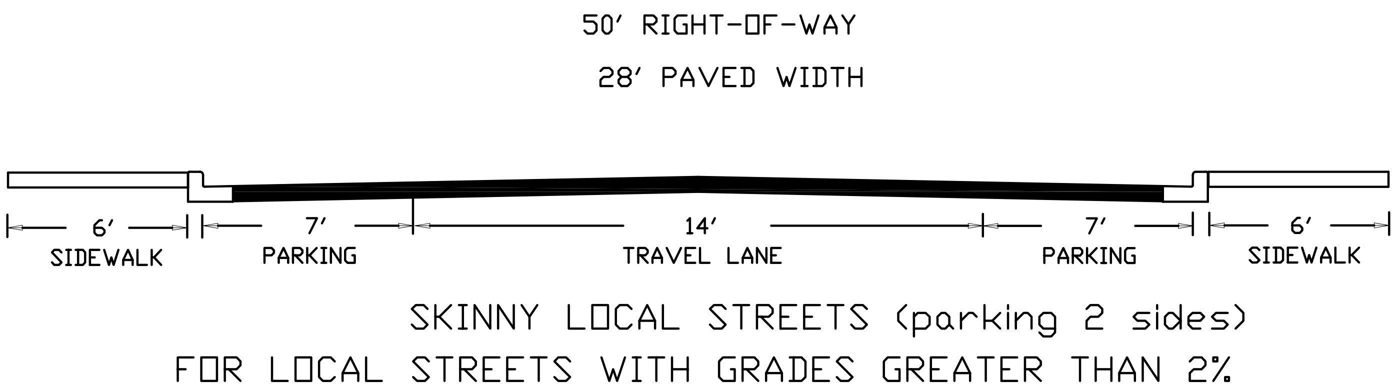
City of Ontario Transportation System Plan

NOT TO SCALE

Figure 7-6b

Typical Roadway Cross Section Standards

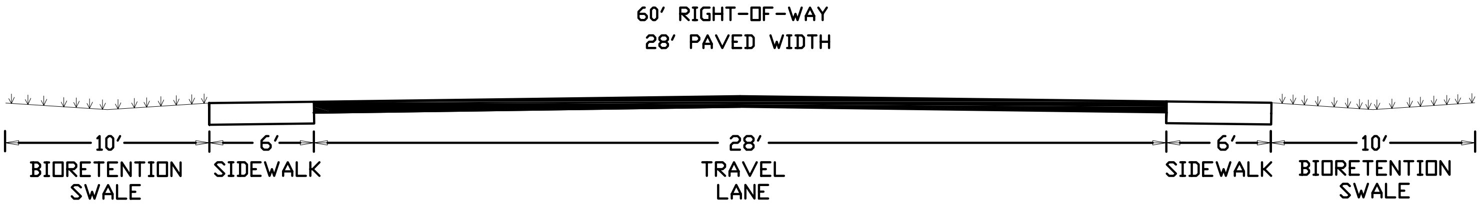
Local Street Equal to or Less Than 2%



City of Ontario Transportation System Plan

NOT TO SCALE

Figure 7-7a
Typical Roadway Cross Section Standards
Skinny Local Street Greater Than 2%

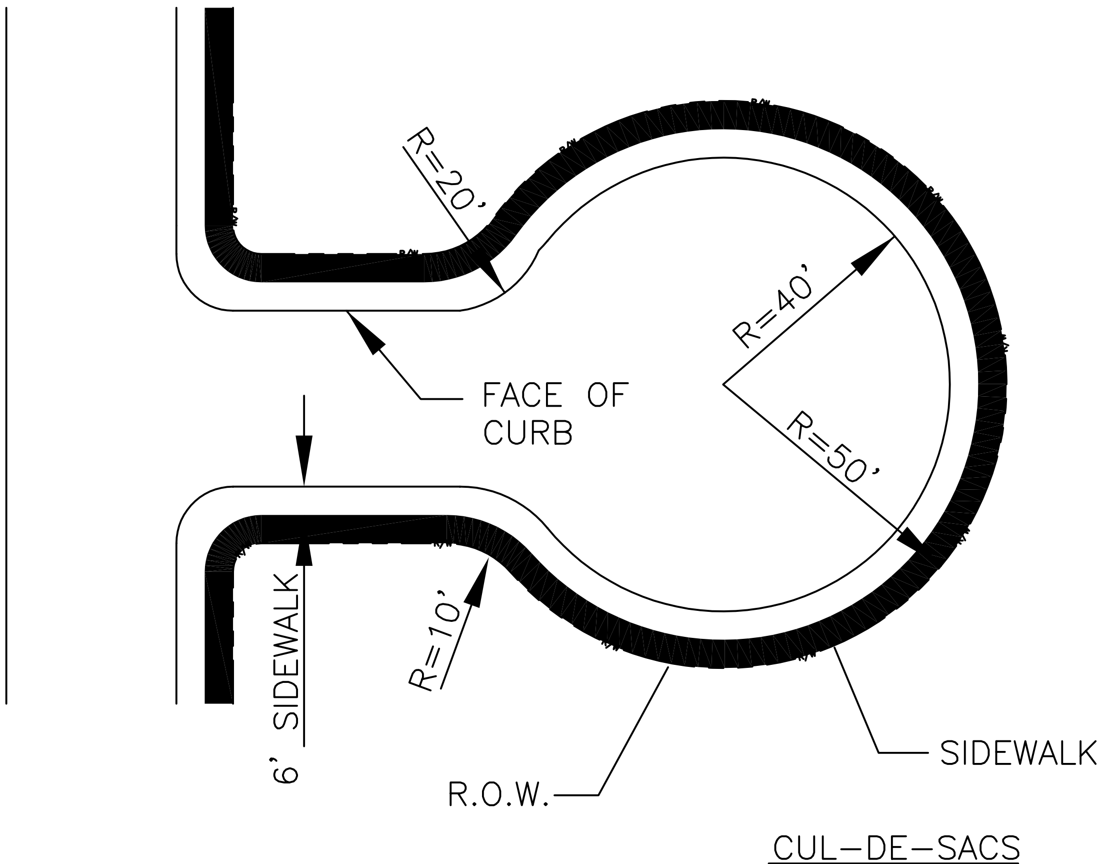


SKINNY LOCAL STREETS WITH GRADES EQUAL TO OR LESS THAN 2%

City of Ontario Transportation System Plan

NOT TO SCALE

Figure 7-7b
Typical Roadway Cross Section Standards
Skinny Local Street Equal to or Less Than 2%



City of Ontario Transportation System Plan

NOT TO SCALE

Figure 7-8
Typical Roadway Cross Section Standards
Cul de Sac Turn Around

Attachment E Green Street Project Case Studies and Toolbox

Green Street Examples

Example: Sisters Cascade Ave. Streetscape

- Stormwater Swale with dry eastern Oregon plant palette

Curb cut at curb extension stormwater infiltration planter

Curb cut at curb extension stormwater infiltration planter

Bench at stormwater infiltration planter

Native plants in stormwater infiltration planter

Sisters Cascade Ave. Streetscape Plant List:

- Copied from Greenworks Sisters Streetscape project.
- See Supplemental Info folder for more information

Master Plant Legend and Notes

BOTANICAL NAME	COMMON NAME	PLANT TYPE, SPACING
Trees		
Existing Deciduous Tree to Remain		
Existing Conifer Tree to Remain		
Populus tremula 'Erecta'	Swedish Columnar Aspen	2.5" Caliper, B&B, Branched @ 6'
Acer rubrum 'Armstrong'	Armstrong Maple	2.5" Caliper, B&B, Branched @ 6'
Acer grandidentatum 'Rocky Mountain Glow'	Rocky Mountain Glow Maple	2.5" Caliper, B&B, Branched @ 6'
Shrubs/Grasses/Groundcover		
Arctostaphylos patula	Greenleaf Manzanita	1 Gal. Cont., Space as shown
Artemisia arbuscula	Dwarf Sagebrush	1 Gal. Cont., Space as shown
Calamagrostis brachytrycha	Korean Feather Reed Grass	2 Gal. Cont., Space as shown
Calamagrostis x acutiflora 'Stricta'	Feather Reed Grass	2 Gal. Cont., Space as shown
Caryopteris x clandonensis 'Dark Knight'	Bluebeard	1 Gal. Cont., Space as shown
Cornus alba 'Bailhalo'	Ivory Halo Dogwood	5 Gal. Cont., Space as shown
Chrysothamnus viscidiflorus	Green Rabbitbrush	2 Gal. Cont., Space as shown
Perovskia atriplicifolia 'Little Spire'	Little Spire Russian Sage	1 Gal. Cont., Space as shown
Pinus mugo 'Slowmound'	Mugo Pine	5 Gal. Cont., Space as shown
Purshia tridentata	Bitterbrush	2 Gal. Cont., Space as shown
Rudbeckia fulgida 'Early Bird Gold'	Black-eyed Susan	1 Gal. Cont., Space as shown
Salvia dorrii	Purple Sage	1 Gal. Cont., Space as shown
Achillea 'Moonshine'	Yarrow	1 Gal. Cont., Space at 12" O.C. triangular spacing
Aubrieta deltoidea	Rock Cress	1 Gal. Cont., Space at 12" O.C. triangular spacing
Deschampsia caespitosa 'Northern Lights'	Autumn Moor Grass	1 Gal. Cont., Space at 12" O.C. triangular spacing
Festuca glauca 'Boulder Blue'	Boulder Blue Fescue	1 Gal. Cont., Space at 12" O.C. triangular spacing
Festuca idahoensis 'Siskiyou Blue'	Idaho Blue Fescue	1 Gal. Cont., Space at 12" O.C. triangular spacing
Pennisetum alopecuroides 'Hameln'	Fountain Grass	1 Gal. Cont., Space at 12" O.C. triangular spacing
Sesleria autumnalis	Autumn Moor Grass	1 Gal. Cont., Space at 12" O.C. triangular spacing

CITY OF BEND

(UPDATED) TIPS FOR SELECTING SUITABLE PLANTS FOR RAIN GARDENS IN CENTRAL OREGON

MAY 2013

Why?

Protection of our water resources is important for our river, and associated economy; and for protection of our drinking water aquifers. Low impact development measures that help to retain stormwater and infiltrate it through the soil can be a useful for protecting water quality.

Thank You

The City of Bend appreciates the ongoing work and advice of the Stormwater Quality Public Advisory Group (PAG) for assisting staff to create products to protect stormwater quality. Special thanks goes to Chris Hart-Henderson of Heart-Springs Landscape Design, LLC and Rick Martinson (WinterCreek Restoration) for the valuable tips herein.

Disclaimer

The plants included here are only suggestions. The City of Bend accepts no liability should they fail or be problematic in a specific area. The lists are not meant to be intensive, but are partial lists of locally-available plants. Please contact a landscape professional for additional guidance and specific site recommendations.

Finding attractive, low maintenance plants that can withstand inundation periods of 24-72 hours during and after storm events, long dry periods, our cold winters, and that are typically available locally can be a challenge here in Central Oregon. Here are a few tips for your consideration.

Native Plants for Dry and Sunny Infiltration Areas

Common Name	Botanical Name	Shade	Partial Shade	Sun	Ongoing Irrigation Needed[1]	No Irrigation Likely Needed Once Established	Xeriscape Guide[2] Page
Currant, Golden	*Ribes aureum*		✓	✓		✓	16
Desert Spray	*Holodiscus dumosus*			✓		✓	
Fescue, Idaho	*Festuca idahoensis*		✓	✓		✓	
Flax, Lewis (aka Blue)	*Linum lewisii*		✓	✓		✓	
Gilia, Scarlet	*Ipomopsis aggregata*		✓	✓		✓	
Globemallow, Native	*Sphaeralcea munroana*		✓	✓		✓	
Indian Blanket Flower	*Gaillardia aristata*		✓	✓		✓	27
Oregon Sunshine[3]	*Eriophyllum lanatum*			✓		✓	
Penstemons[4]	*Penstemon spp.*		✓	✓		✓	25
Phlox, Native Creeping	*Phlox diffusa, Phlox douglasii or Phlox hoodii*		✓	✓		✓	
Pussytoes	*Antennaria microphylla*		✓	✓		✓	25
Spiraea, Douglas	*Spiraea douglasii*			✓		✓	
Great Basin Wild Rye	*Leymus cinereus*			✓		✓	

Not finding what you want? For dry and sunny areas, also ask your nursery specialist about appropriate varieties of Carex sp. (sedges), Juncus sp. (rushes), and Salix sp. (willow, such as coyote willow or lemons willow).

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[1] Irrigation needed after first dry season. Most plants will require some irrigation to become established.

Native Plants for Dry and Shady Areas

Common Name	Botanical Name	Shade	Partial Shade	Sun	Ongoing Irrigation Needed[1]	No Irrigation Likely Needed Once Established	Xeriscape Guide Page Reference
Alumroot, Tall	*Heuchera cylindrica*	✓	✓		✓		
Bleeding Heart, Pacific	*Dicentra Formosa*	✓	✓		✓		
Chokecherry	*Prunus virginiana*	✓	✓	✓	✓		
Columbine, Western	*Aquilegia Formosa*	✓	✓		✓		28
Elderberry, Blue	*Sambucus carulea*	✓	✓	✓	✓		
Geranium, Native Wild	*Geranium maculatum*	✓	✓		✓		
Grape, Creeping Oregon	*Mahonia repens*	✓	✓			✓	14
Grass, Native Blue-eyed	*Sisyrinchium idahoense*	✓	✓	✓	✓		
Hairgrass, Tufted	*Deschampsia caespitosa*		✓	✓	✓	✓(if in shade)	
Rose, Woods	*Rosa woodsi*	✓	✓	✓	✓		19
Serviceberry	*Amelanchier alnifolia, Amelanchier* spp.	✓	✓			✓	21
Snowberry	*Symphoricarpus albus*	✓	✓				
Spirea, Birch Leaf	*Spirea betulifolia*	✓	✓		✓		
Spirea, Subalpine	*Spirea densiflorus*	✓	✓		✓		18
Strawberry, Native Woods	*Fragaria vesca*	✓	✓		✓		

Drought-Tolerant Non-Native Perennials and Grasses

Common Name	Botanical Name	Shade	Partial Shade	Sun	Ongoing Irrigation Needed[1]	No Irrigation Likely Needed Once Established	Xeriscape Guide Page Reference
Alyssum Mt. Gold	*Alyssum montanum Mt. Gold*		✓	✓	✓		
Artemesia or Wormwood	*Artemesia* species		✓	✓	Varies	Varies	21, 27
Fall Aster	*Aster novi-belgii*		✓	✓	✓		
Basket of Gold	*Aurinia saxatile*		✓	✓	✓		27
Bishops Weed[5]	*Aegopodium podagraria*	✓			✓		
Black-eyed Susan	*Rudbeckia fulgida 'Goldstrum'*		✓	✓	✓		27
Bugleweed	*Ajuga reptans*	✓	✓	✓	✓		
Catmint	*Nepeta X faasenii*	✓	✓		✓		
Columbine	*Aquilegia* species	✓	✓		✓		28
Coneflower	*Echinacea purpurea*		✓	✓	✓		
Coreopsis--Tickseed	*Coreopsis* species		✓	✓	✓		28
Indigo, False	*Baptisia australis*		✓	✓	✓		
Fescue, Blue	*Festuca ovina glauca*	✓	✓		✓		23

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[2] *An Introduction to Xeriscaping in the High Desert and Pictorial Plant Guide for Central & Eastern Oregon* (2005).
[3] Plant higher in rain garden as this species may drown out.
[4] (Showy, Lowly, Blue Mt., Richardson's Cutleaf.etc) . Consult your nursery specialist for more specificity on species for varieties that will tolerate seasonal inundation, as many varieties will not.
[5] Use only in controlled setting. Tendency to become invasive.

Drought-Tolerant Non-Native Perennials and Grasses (continued)

Common Name	Botanical Name	Shade	Partial Shade	Sun	Ongoing Irrigation Needed[1]	No Irrigation Likely Needed Once Established	Xeriscape Guide Page Reference
Germander	*Teucrium chaemydrs*		✓	✓	✓		
Grass, Blue Oat	*Helictotrichon sempervirens*	✓	✓	✓	✓		22
Grass, Karl Foerster	*Calamagrostis acutiflora*	✓	✓	✓	✓		22
Hairgrass, Tufted	*Deschampsia caespitosa*		✓	✓	✓	✓ (if in shade)	
Hens and Chicks	*Sempervivum* species		✓	✓		Varies	24
Hyssop, Sunset	*Agastache rupestris*		✓	✓	✓		29
Iceplant	*Delosperma nubigenum*		✓	✓		Varies	24
Indian Blanket Flower	*Gaillardia aristata*		✓	✓		Varies	27
Lavender, English	*Lavender angustifolia*		✓	✓	✓		
Mexican Hat	*Ratbida columnifera*		✓	✓	✓		31
Pasque flower	*Pulsatilla* species	✓	✓		✓		30
Penstemon-Beardtongue	*Penstemon* species		✓	✓	✓		30
Pincushion Flower	*Scabiosa* species		✓	✓	✓		
Poppies, Oriental	*Papaaver orientale*		✓	✓	✓		31
Red Hot Poker	*Kniphofia uvaria*		✓	✓		Varies	31
Sage, Russian	*Perovskia atriplicifolia*		✓	✓	✓		17
Salvia or Sage	*Salvia nemerosa* or species		✓	✓	✓		31
Snow-in-Summer	*Cerstium tomentosum*		✓	✓	✓		26
Speedwell	*Veronica* species		✓	✓	✓		26
Stonecrop	*Sedum* species	✓	✓	✓		Varies	26
Thyme	*Thymus* species		✓	✓	✓		26
Yarrow	*Achillea millefolium* varieties		✓	✓		Varies	31

Drought-Tolerant Non-Native Shrubs and Trees

Common Name	Botanical Name	Shade	Partial Shade	Sun	Ongoing Irrigation Needed[1]	No Irrigation Likely Needed Once Established	Xeriscape Guide Page Reference
Barberry	*Berberis* species	✓	✓	✓	✓		18
Bluebeard	*Caryopteris x cladonensis*		✓	✓	✓		17
Chokecherry, Canada Red	*Prunus virginiana 'Schubert'*		✓	✓	✓		9
Crabapple	*Malus* hybrids		✓	✓	✓		9
Grape, Oregon	*Mahonia aquifolium or repens*	✓	✓	✓	✓		14
Hawthorn	*Crataegus* species		✓	✓	✓		9-10
Honeylocust	*Gleditsia triacanthos*		✓	✓	✓		11
Honeysuckle Bush	*Lonicera tatarica 'Arnold Red'*	✓	✓	✓	✓		20
Juniper	*Juniperus scopulorum*		✓	✓	✓		12

Drought-Tolerant Non-Native Shrubs and Trees (continued)

Common Name	Botanical Name	Shade	Partial Shade	Sun	Ongoing Irrigation Needed[1]	No Irrigation Likely Needed Once Established	Xeriscape Guide Page Reference
Lilac	*Syringa* species		✓	✓	✓		21
Maple, Amur	*Acer ginnala*	✓	✓	✓	✓		10
Nannyberry	*Viburnum lentago*	✓	✓	✓	✓		22
Ninebark	*Physocarpus*	✓	✓	✓	✓		21
Pea Shrub, Siberian	*Caragana arborescens*		✓	✓	✓		21
Pear, Chanticleer	*Pyrus calleryana Chanticleer* or equal		✓	✓	✓		10
Pine, Austrian	*Pinus nigra*		✓	✓	✓		12
Pine, Bosnian	*Pinus leucodermis*		✓	✓	✓		
Pine, Bristlecone	*Pinus aristata*		✓	✓	✓		12
Pine, Mugo	*Pinus mugo mugo*		✓	✓	✓		13
Pine, Vanderwolf or Limber	*Pinus flexilis*		✓	✓	✓		13
Potentilla	*Potentilla fruticosus*		✓	✓	✓		17
Serviceberry Tree	*Amelanchier x grandiflora*	✓	✓	✓	✓		10
Spirea	*Spirea* species	✓	✓	✓	✓		
Spruce, Dwarf	*Picea pumila*	✓	✓	✓	✓		
Sumac, Fragrant	*Rhus aromatica*		✓	✓	✓		18
Willow, Dwarf Arctic	*Salix purpurea*	✓	✓	✓	✓		
Willow, Hakuro Nishiki	*Salix integra 'Hakuro Nishiki'*	✓	✓	✓	✓		

Of Note

These plant lists are intended for use in rain garden and other bioretention facilities, detention ponds, vegetated swales or other surface infiltration facilities. This plant list assumes the facility is well drained and briefly holds rainwater. This list assumes the facility is designed to be fully drained within 24 – 72 hours after the peak rain event.

Other Resources

- As noted in the tables, more information on several of these plants can be found in the *An Introduction to Xeriscaping in the High Desert and Pictorial Plant Guide for Central & Eastern Oregon* guide. Want a copy? Call: 541-317-3002 (when prompted, select "3").
- Want to make a rain garden? Consider using the plants mentioned above together with the guidance in the Oregon Rain Garden Guide, available online at: http://www.oeconline.org/our-work/rivers/stormwater/low-impact-development/rain-garden-guide
- Want more in depth stormwater design information? Download a copy of the Central Oregon Stormwater Manual (2010), available online at: http://www.coic.org/cd/stormwater/index.htm

CITY OF BEND PUBLIC WORKS DEPARTMENT

575 NE 15th Street.
BEND, OREGON, 97701
541-317-3000
FAX: 541-693-2196
Wendy Edde, *Stormwater Program Manager*

Accomodation Information for People with Disabilities
To obtain this information in an alternate format such as Braille, large print, electronic formats and audio cassette tape please contact the City of Bend Accessibility Manager at 541-693-2141, Accessibility@ci.bend.or.us, and/or fax 541-385-6676.

Additional Resources

For comparison, Ontario gets 11” of rain per year, and is USDA zone 6a (lower number is lower winter temperature)

Bend, OR (12” rain, zone 6b)
Landscape code including approved and prohibited street trees:
https://www.bendoregon.gov/home/showdocument?id=32366
Xeriscaping guide with many types of plants:
https://www.redmondoregon.gov/home/showdocument?id=3998

Boise and Nampa, ID (11”-13” rain, zone 6-7)
Street tree list and guide:
https://www.cityofboise.org/departments/parks-and-recreation/community-forestry/forestry-programs-and-education/tree-selection-guide/

Baker City, OR (15” rain, zone 5b)
Street tree list and guide:
https://bakercity.com/DocumentCenter/View/403/Tree-Guide-Final-PDF

Tri-Cities, WA (8” rain, zone 7)
Includes trees and many types of plants (plant lists start on page 5 of the pdf):
https://www.ci.richland.wa.us/home/showdocument?id=126
County tree list:
https://www.bentonpud.org/media/trees/Tree-List-Final-Draft-with-logos.pdf

Attachment F Off-Street Path Toolbox

Off-street Path Design Toolbox

<u>Types of paths:</u>

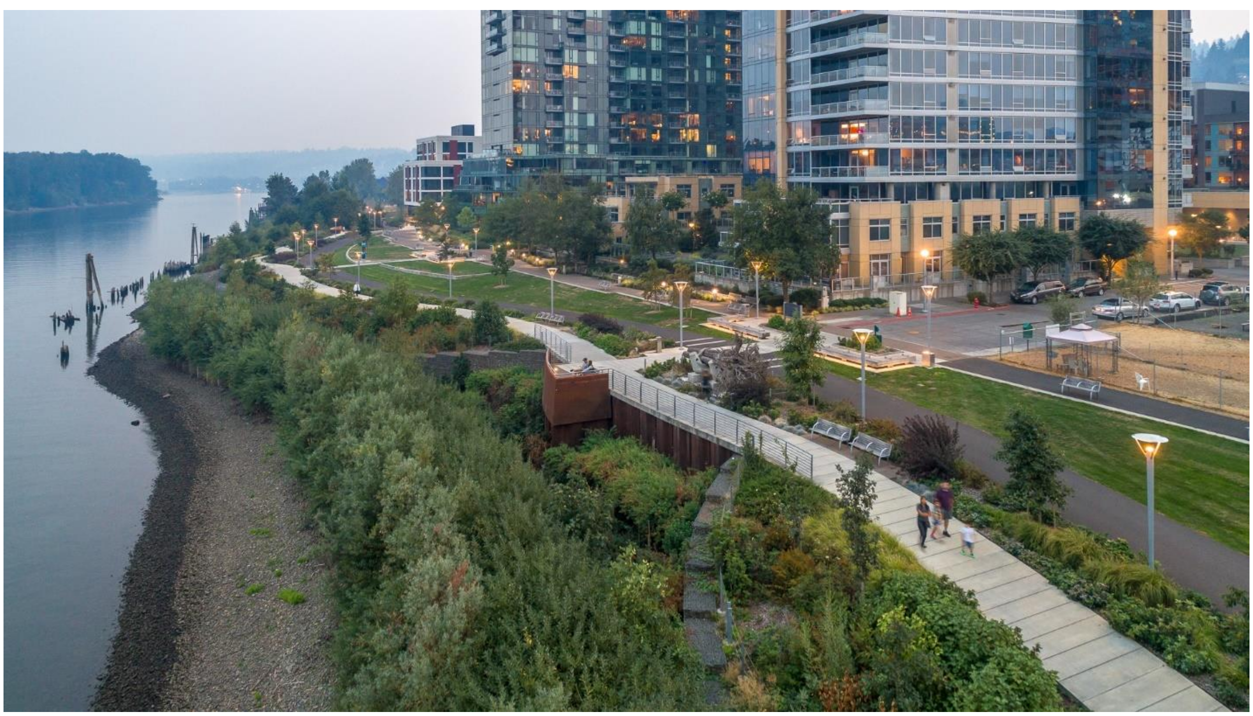
- **Shared-use path** (also known as Mixed-use Path)
  - Physically separated from motor vehicle traffic and used by bicyclists, pedestrians, and other non-motorized users
  - Typically located in an independent alignment, such as a greenbelt, abandoned railroad, or other green space.
  - Intended uses:
    - Serves as a piece of a network of on-road and off-road bike facilities to connect users bough within and through a township.
    - Connects parks and other green spaces safely off-road
    - Residential connection and/or school access
    - Common commuting routes from residential areas to business centers
  - An off-street path is intended to supplement a larger network of on-road bike facilities (does not act as a substitute)
  - Intended user groups:
    - Bicyclists
    - Wheelchair users (motorized & non-motorized)
    - Walkers, people with baby strollers, people walking dogs
    - Inline Skaters, Rollerbladers
    - Runners
    - Equestrian
      - Can be accommodated with an adjacent bridle trail (soft surface trail)
      - See soft surface trails section below
  - Design criteria:
    - The recommended paved width for two-directional shared-use path is 12’ – 14’, with a minimum width of 10’. In some limited cases, a reduced width of 8’ is allowable to get through pinch-points, utility boxes, road barriers, etc. but should not be sustained at that smaller width for long distances.
      - 2’ graded area on either side is recommended with a maximum 1:10 slope
      - Serves as a safe place for bikers or other pedestrians to swerve as well as to drain stormwater
      - Total paved width = 10’ – 14’
      - Total graded width= 14’ – 18’
    - Recommended minimum paved width for a one-directional shared use path is 6’ – 8’.
      - Keep in mind, one-way paths often will be used as two-way facilities unless effective measures are taken to assure one-way operation
      - A minimum 2’ wide graded area (both sides) with a maximum 1:10 slope
    - A minimum of 3’ is preferred for clearance to trees, poles, walls, fences, guardrails, or other vertical obstructions

        - However, if clearance (from edge of pave to obstruction) is less than 5’, a barrier or safety rail should be used
    - Maximum lean angle: 20 degrees; minimum curve: 60’ at 18 mph
    - Slopes:
        - Between 0.5%-5% grade; no steeper than adjacent roadway
        - Maximum cross-slope 2% (1% recommendation)
- Examples:

(source: Greenworks PC)

(source: Greenworks PC)

- Example of parallel but separated pedestrian and bike paths



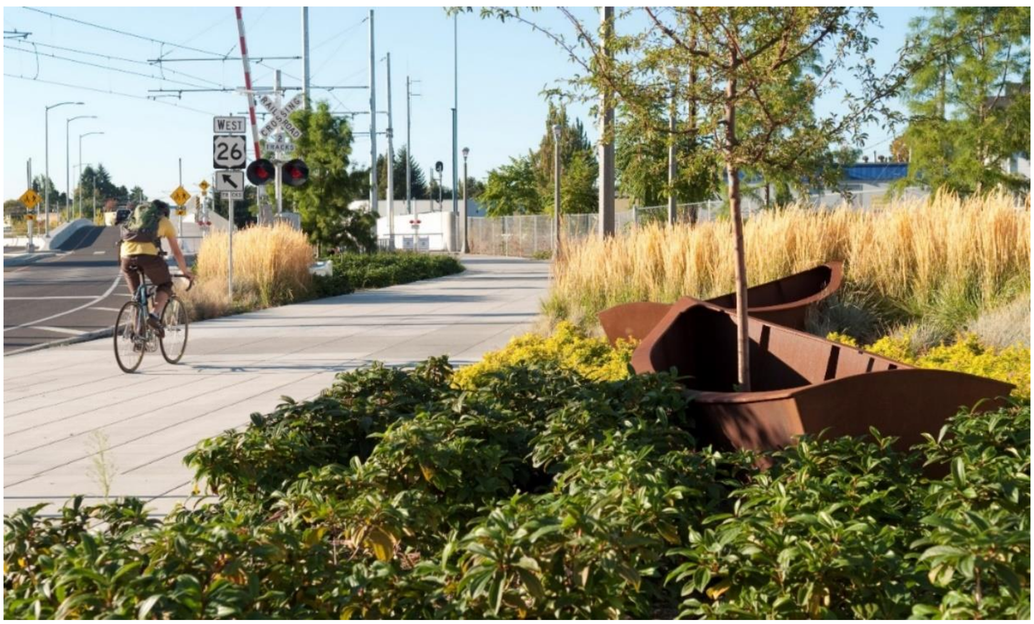
(source: SWA/Balsley)

(source: Greenworks PC)

- **Sidepaths** *(recommended for E Idaho Ave)*
    - Constructed within the right-of-way of a road and roughly parallel to that road.
    - Cyclists and pedestrians along a side-path will have increased interactions with motor vehicles at driveways and intersections compared to a shared-use path in an independent alignment.
        - However, they will have far less interaction than a shared lane or an on-road separated bike lane
        - Can offer safer, more accessible experience for users of all ages and abilities as compared to on-road facilities in heavy traffic environments
    - Maintains small town community character
        - Path can oscillate within the right-of-way and does not necessarily need to remain perfectly aligned to road
        - Opportunity here to insert “pause spaces” and pedestrian amenities such as trees for shade, wayfinding signs, seating, bike racks, etc.
    - Ideal for Collector Roads & Highways
        - For use on arterial links on the regional or local biking / walking network
    - Design criteria:
        - Similar to a two-directional multi-use path, the minimum recommended paved width of the path is 10’, however a reduced width of 8’ is allowable to get through pinch-points, road barriers, etc. but should not be sustained at that width for long distances.

- A minimum 5’ wide separation between the path and road is desirable to demonstrate to both the cyclist and motorist that the path functions as an independent facility
    - In instances where this separation is not possible, a physical barrier is recommended
- Landscaping:
    - Trees and landscaping can be used in buffer to provide shade for users and help absorb stormwater runoff as well as act as a physical barrier
    - Provide 3’ horizontal clearance between trees and pathway to minimize cracking & heaving of the paved surface

o Examples:

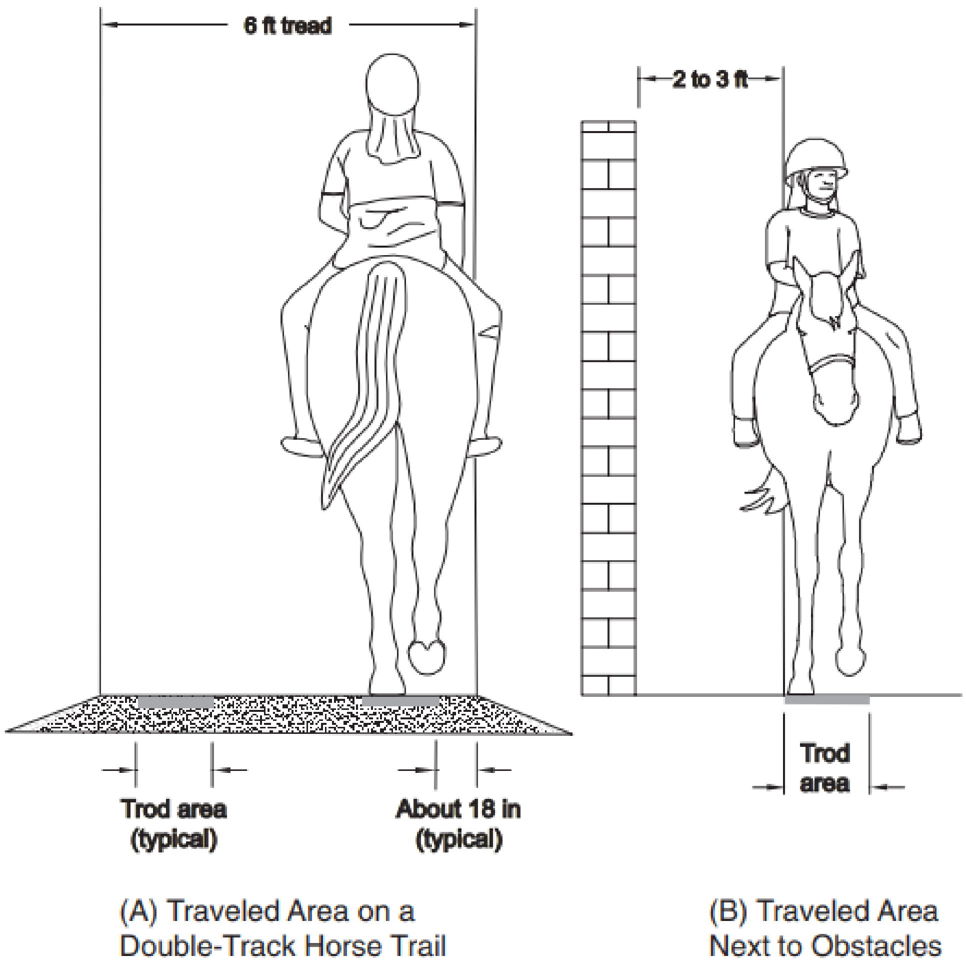


(source: Greenworks PC)

(source: Alta Planning + Design)

(source: Alta Planning + Design)

- **Unpaved Paths**
  - May be appropriate for rural or recreational paths
  - Intended Users:
    - Equestrian
    - Gravel bike riders
    - Walkers / runners
  - Typical materials:
    - Crushed stone
    - Stabilized earth
    - Limestone screenings
  - Design criteria:
    - Minimum 6' wide path



(source: USFS Equestrian Design Guidebook p. 3)

  - Trails must have enough space for stock to feel at ease.
    - Horses tend to trod 18" from the edge of the tread, except while passing (see example A above)

        - Riders tend to guide horses 2-3’ away from buildings and obstacles (see example B above)
    - Limiting Factors:
        - Some users cannot traverse an unpaved path
        - May cause drainage issues

(source: NPS, labeled for re-use)

(source: unknown)

Information Sources:

- *Bicycle Facility Toolbox, Colorado Springs, Toole Design Group (https://coloradosprings.gov/sites/default/files/cos_bikes_draft_appendix_b.pdf)*
- *Off-Road facilities Part 1: Shared Use Path Design, Toole Design Group (http://www.pedbikeinfo.org/pdf/Webinar_PBIC_LC_100912_AASHTO_5.pdf)*
- *Small Town and Rural Design Guide, Alta Planning + Design (https://ruraldesignguide.com/)*
- *Equestrian Design Guidebook for Trails, Trailheads and Campgrounds, USFS (https://www.fs.fed.us/t-d/pubs/pdfpubs/pdf07232816/pdf07232816dpi72pt03.pdf)*

APPENDIX H:

Revised Policy Framework and Code Amendments

MEMORANDUM

Technical Memorandum #11: Revised Policy Framework and Code Amendments (Task 6.3)

Ontario Active Transportation Update and East Idaho Avenue Refinement Area Plan

DATE	December 28, 2021
TO	Project Management Team
FROM	Matt Hastie and Clinton "CJ" Doxsee, APG Nick Foster, KAI
CC	Matt Hughart, KAI

OVERVIEW

This memorandum outlines an approach for amending the City's regulations to incorporate the goals, objectives, and improvements identified in the Ontario Active Transportation Plan (ATP), building on earlier Technical Memo #10. The ATP is inclusive of the East Idaho Avenue Refinement Area Plan, which identifies corridor-specific improvements to promote active transportation on East Idaho Avenue. Regulatory provisions that this memorandum identifies include the City of Ontario's Comprehensive Plan, the Transportation System Plan, and the Land Use and Municipal Code. The proposed amendments are also intended to be consistent with the Oregon Transportation Planning Rule (OAR 660, Division 12, or "TPR").

The ATP will strategically update the City's Transportation System Plan (TSP) – the transportation element of the City's Comprehensive Plan – with a focus on promoting active transportation modes such as walking, bicycling, and riding transit. The current TSP was adopted in 2006 under Ordinance #2560-2005, with refinements occurring in 2009 under Instrument #2627-2009 and 2630-2009 and in 2014 under Ordinance #2694-2014. The ATP will further refine the TSP to build on the City's successes while proposing active transportation improvements to better achieve community values related to mobility and safety.

The ATP identifies needs by pedestrian, bicycle, and transit modes through community feedback, technical analysis (i.e., level of stress and qualitative multimodal analysis), and previous work by the City to develop Safe Routes to School networks. High priority transportation solutions proposed to address those needs include new and upgraded bicycle and pedestrian facility projects.

REGULATORY CONTEXT

This section provides a cursory overview of existing plans and policies that affect transportation planning in the City of Ontario. The City's Comprehensive Plan, Transportation System Plan, and Zoning Development Standards provide regulations and policies that guide development of the City's transportation system and help achieve a land use framework that supports the goals of the transportation system.

Comprehensive Plan

The City of Ontario's Comprehensive Plan, provided in Title 10 of the Ontario Planning and Zoning Development Standards, is the long-range policy guide for land use in the City's urban growth boundary (UGB), consistent with Statewide Planning Goals. The Comprehensive Plan includes background information and policies that address each of the 14 applicable Statewide Planning Goals.

The Comprehensive Plan's objectives and policies work in concert with the goals and objectives in the City's 2006 Transportation System Plan (TSP) to provide direction on transportation system and land use decision-making in the City. Transportation policies in Title 10 are established under Goal 12: Transportation. Policies are organized under transportation objectives that address mobility, efficiency, safety, equity, environment, alternative modes, agency coordination, functional classifications, freight routes, financing, and refinement plans.

Transportation System Plan

The Ontario TSP, adopted in 2006, establishes the City's goals, policies, and improvement needs for developing and improving the transportation system within the City's UGB. The TSP includes the following transportation modal plans:

- Road Plan
- Pedestrian and Bicycle System Plan
- Public Transportation Plan
- Air, Rail, Water, Pipeline Plan

The Pedestrian and Bicycle System Plan provides non-motorized facility standards and improvements. The non-motorized facilities provided in the modal plan of the TSP defers to the Oregon Bicycle and Pedestrian Plan for design standards for shared roadways, shoulder bikeways, bike lanes, multi-use paths, and sidewalks. The non-motorized improvements in the modal plan provides a prioritized list and map of bicycle and pedestrian capital improvements

The TSP also includes transportation goals and policies that mirror the objectives and policies found in the Comprehensive Plan.

Zoning Development Standards

The City of Ontario's zoning development standards are provided in Title 10A – Substantive Zoning Regulations, Title 10B – Administrative Procedures for Land Use Regulation, and 10C – Substantive Regulations for Land Development. The zoning development standards in Titles 10A, 10B, and 10C implement the long-range land use vision embodied in the Ontario Comprehensive Plan and TSP (of which is a part of the Comprehensive Plan).

The zoning development standards regulate uses within the City and establishes standards for development and land divisions. Key existing development standards are summarized below:

- Use standards are listed for individual commercial zones in Chapters 10A-27 (C-1, Neighborhood Commercial Zone) through Chapter 10A-35 (Commercial Zones, Space Limits Table). The C-2-H zone, which is the most prevalent zone in the East Idaho Avenue Study Area is provided in Chapter 10A-31, and primarily accommodates a wide range of retail, service, and wholesale activities short of heavy industrial usage.
- Landscaping standards are addressed under Section 10A-57-40 (Landscaping Required) through 10A-57-55 (Landscaping Performance Standards). The landscaping standards generally require a minimum of six percent of the site area to be landscaped; a portion of which is required to be "green and growing" and "irrigated." The standards generally require landscaping to be located in front yard areas.
- Vehicle parking regulations are addressed under Sections 10A-57-60 (Off-street Parking and Loading Requirements) through 10A-57-100 (Off-street Parking Space Design Standards). The off-street parking standards provide minimum parking and loading requirements for individual uses relative to the size of the use. The standards also provide general lot layout and design requirements for parking stalls and travel lanes.
- Building design and orientation standards are addressed under Section 10A57-210 (Design Standards). The building orientation standards generally require a building's main entrance to be oriented to a street or public space directly facing a street. Entrances are required to be directly connected to the sidewalk when buildings are set back from the sidewalk.
- On-site circulation and connectivity are addressed in Section 10C-25.04.002 (Bicycle and Pedestrian Circulation and Access Requirements for Site Plans). The standards generally require site plans to show internal pedestrian circulation systems.
- Street standards are provided in Section 10C-25.08 (Street Standards) and define design standards and cross-section diagrams for streets. Design standards are provided by street classification (i.e. arterial, collector, local streets) as well as for specific street segments within the City.

POLICY AND CODE AMENDMENT SUMMARY

The City of Ontario must amend its land use regulations to implement the ATP and to achieve the ATP's mobility and safety goals. These goals and objectives are achieved through a variety of measures, including landscape standards; pedestrian and bicycle circulation design and connectivity provisions; proposed bicycle and pedestrian improvement projects; minimum parking requirements; and land use plans, policies, and standards that promote active transportation.

The consultant team evaluated the City's Comprehensive Plan, Transportation System Plan, and Zoning Development Standards to ensure that policies and standards reflect the recommendations of the ATP and are consistent with statewide requirements in the Oregon TPR.

The following elements are recommended to be amended to implement the ATP.

- Comprehensive Plan (Title 10): update the refinement plan policy to reference the ATP, thereby incorporating the ATP as a refinement to the City's current TSP.
- Transportation System Plan: Amend the Transportation System Plan by reference through the City's Comprehensive Plan refinement plan policy described above.
- Zoning Development Standards (Titles 10A, 10B, and 10C): Update the zoning development standards to promote access and safety for active transportation modes.

Comprehensive Plan

In order to make adopted City policy consistent with the Active Transportation Plan, the Ontario Comprehensive Plan should be updated to incorporate the ATP's vision, goals, the proposed corridor design options/alternatives, and the other applicable ATP elements.

Comprehensive Plan Goal 12 – Transportation should be modified to incorporate the goals, objective, and findings of the ATP. Recommended changes to the Goal 12 section of the City's Comprehensive Plan include amending Policy 1 under Transportation Objective 11 – Development of Refinement Plans. This policy provides policy direction for plans that further refine the adopted TSP. It states:

(k) Transportation Objective 11 - Development of Refinement Plans

To develop refinement plans to the Transportation System Plan that more specifically address corridors, problems/issues, and sub-areas.

These refinement plans shall supersede the TSP if they are formally adopted by the Ontario City Council.

The policies to be used to implement Objective 11 - Development of Refinement Plans are as follows:

1) *The City of Ontario has formally adopted the following refinement plans; East Ontario Traffic Study; East Ontario Commercial Area Traffic Study; Oregon 201 Corridor Refinement Plan; and the North Ontario Interchange Management Area Plan. These Plans shall supersede the TSP in their specific defined areas as applicable.*

2) *The City of Ontario shall proactively seek funding to develop further refinement plans as necessary to address specific transportation issues.*

3) *Refinement plans to the TSP shall be formally adopted by the Ontario City Council prior to officially superseding the TSP.*

An attachment to the memorandum includes recommended amendment to the policy language that would incorporate the ATP.

Transportation System Plan

It is recommended that the City adopt the ATP as a refinement to the Transportation System Plan. By legislatively adopting the “plan” elements of the ATP, the City will have a policy framework on which to base compliance-related development requirements and seek public financing for recommended improvements.

Adopting the ATP as a refinement to the TSP will make the design elements in the “controlling” TSP elements for development and redevelopment in the City. The refinement to the TSP will be accomplished through the City’s Comprehensive Plan refinement plan policy described above.

Zoning Development Standards

It is recommended that targeted modifications to the Development Code be completed to ensure consistency with and to implement the ATP. These recommendations were described in *Technical Memorandum #3: East Idaho Refinement Area Land Use Assessment* and *Land Use Metrics for Ontario Design Concepts (Task 4.1)*. Recommendations for modifying street design standards were described in *Technical Memorandum #8: Revised Design Concept.*

Following is a summary of recommended amendments to the City’s Zoning Regulations to meet these objectives. The objectives and rationale for the proposed amendments are described in more detail in previous project memos and other materials (Technical Memoranda 3 and 6).

Table 1: Zoning Development Standard Summary

TOPIC	SUMMARY	CODE SECTION
Mixed-use Provisions in C-2-H	Permitting multi-family buildings in commercial areas allow developers to respond to several market conditions simultaneously. The C-2-H zone is recommended to allow high density residential and mixed-commercial/residential uses as a conditional use.	10A-31-10 - CONDITIONAL USES. 10A-31-30 - SPECIAL USE LIMITATIONS (new)
Enhanced Landscaping Standards	Landscaping should be provided between parking areas and adjacent pathways and adjacent streets to provide separation between active transportation users and vehicles. The landscape provisions relate to xeriscaping	10A-57-55 - LANDSCAPING, PERFORMANCE STANDARDS.

TOPIC	SUMMARY	CODE SECTION
	(drought-tolerant landscaping) and apply to new commercial uses and multi-family dwellings.	
More Efficient Use of Parking	Reducing the minimum parking requirements allows commercial developers the opportunity to use less space for parking and/or to construct other buildings for other uses or businesses. It also helps reduce the overall cost of construction.	10A-57-75 - PARKING SPACES REQUIRED, GROUP A USES. 10A-57-80 – PARKING SPACES REQUIRED; GROUP B USES.
Large Format Development Standards	Include special building design provisions for large-format developments (i.e. big box developments).	10-57-210 – DESIGN STANDARDS.
Enhanced Pedestrian Connections	Amendments seek to increase on-site connections between adjacent buildings and sidewalks to encourage people to walk or use bicycles.	10C-25.04 – BICYCLE AND PEDESTRIAN STANDARDS
Revised Street Design Standards	Replace/update street design standards for selected street classifications.	10C-25.08 – STREET STANDARDS

FINANCING PLAN

Attachment B provides additional information that summarizes the estimated costs, benefits, and implementation considerations of each pedestrian, crossing, and bicycle project identified in Technical Memorandum #9. The cost estimates are high-level planning estimates that include basic construction costs. The tables in the attachment provides details on pedestrian plan projects, intersection crossing plan projects, and bicycle plan projects.

ATTACHMENT A: LEGISLATIVE AMENDMENT RECOMMENDATIONS

The following modifications implement the recommendations of the *Draft Implementation and Financing Plan* memorandum. Recommended changes are in an adoption-ready format; text that is recommended to be added is shown as underlined, and text recommended to be removed is shown in strikeout.

TITLE 10 – COMPREHENSIVE PLAN

[…]

GOAL 12: - TRANSPORTATION

10-12-4 - Objectives and Policies: Transportation, Roads, Streets, Alternative Modes

This Section establishes broad policy objectives that provide the context to make transportation investment decisions and to develop the existing and future transportation system within the City of Ontario Urban Growth Boundary.

[...]

(k) Transportation Objective 11 - Development of Refinement Plans

To develop refinement plans to the Transportation System Plan that more specifically address corridors, problems/issues, and sub-areas.

These refinement plans shall supersede the TSP if they are formally adopted by the Ontario City Council.

The policies to be used to implement Objective 11 - Development of Refinement Plans are as follows:

1) The City of Ontario has formally adopted the following refinement plans; East Ontario Traffic Study; East Ontario Commercial Area Traffic Study; Oregon 201 Corridor Refinement Plan;~~ and,~~ the North Ontario Interchange Management Area Plan<u>; and, the Ontario Active Transportation Plan</u>. These Plans shall supersede the TSP in their specific defined areas as applicable.

2) The City of Ontario shall proactively seek funding to develop further refinement plans as necessary to address specific transportation issues.

3) Refinement plans to the TSP shall be formally adopted by the Ontario City Council prior to officially superseding the TSP

TITLE 10 – SUBSTANTIVE ZONING REGULATIONS

[…]

CHAPTER 10A-31 – C-2-H, HEAVY GENERAL COMMERCIAL ZONE

10A-31-01 – PURPOSE.

To provide a zone to accommodate a wide range of retail, service and wholesale activities short of industrial usage. 10A-31-05 - PRINCIPAL PERMITTED USES.

The following principal uses are permitted as of right in the C-2-H Zone:

1. All principal uses allowed in the C-1 and C-2 commercial zones~~, except that dwellings~~. Dwellings are prohibited, except that multi-family dwellings are allowed as provided in 10A-31-10 below. ~~Existing~~ Unless approved as a conditional use, existing dwellings shall be treated as nonconforming uses subject to provisions contained within these standards for nonconforming uses.
2. Rental of large tools or construction equipment, trucks or trailers or other equipment requiring outdoor storage;
3. Wholesale stores with stock;
4. Body, fender and paint shops, major automotive repair and automotive dismantling where all work is performed within a building, where all refuse and scrap parts are stored in closed containers, when possible, and screened from view at all points on any public or private property or street, and where all extended storage of wrecked vehicles or other equipment is screened from view from adjacent property and public streets;
5. Farm store, farm equipment dealer;
6. Truck stop with transient motel;
7. Printing and publishing;
8. Petroleum bulk plant with no more than 150,000 gallons of above ground storage and with no more than 25,000 gallons in any one above ground tank; and
9. Mini-warehouses.

10A-31-10 - CONDITIONAL USES.

The following uses are permitted conditionally in the C-2-H Zone:

1. Dwellings. Multi-family dwellings and dwellings above ground-floor of non-residential uses ("vertical mixed use") and on the bottom floor of any structure ("live/work or horizontal mixed use") are allowed only if they comply with Special Use Limitations in Chapter 10A-31-30. Dwellings in the C-2-H Zone are subject to the space limits of the C-2-H Zone found in Chapter 10A-35 instead of the space limits of the R-10 Zone in Chapter 10A-25.

~~1.~~2. Utility facilities, other than distribution lines, necessary for the functioning of that utility;

~~2.~~3. Accessory uses and structures common to all zones as listed in Chapter 10A-53;

~~3.~~4. Marijuana retailer as provided in Chapter 10A-59;

~~4.~~5. Marijuana laboratory as provided in Chapter 10A-59;

~~5.~~6. Marijuana wholesaler as provided in Chapter 10A-59; and

~~6.~~7. Marijuana processor non-flammable as provided in Chapter 10A-59; and

~~7.~~8. Marijuana grow site medical as provided by State regulations and as provided in Chapter 10A-59.

[…]

10A-31-30 - SPECIAL USE LIMITATIONS.

The following limitations or conditions shall apply in addition to any conditions or limitations applying to all zones, to specified uses permitted or permissible in the C-2-H Zone:

1. Buildings with residential uses on the ground-floor shall:

    a. Provide window glazing on the ground-floor facade, where glazing of the facade shall mean the use of transparent windows along a minimum of 50 percent of the length of the ground-level street-facing facade, and covering a minimum of 50 percent of ground-level street-facing wall area (See Figure 10A-33-07a). Minimum window glazing includes any glazed portions of doors.

    b. Provide an accessible entrance;

    c. Limit the residential use on the ground floor to 50% of the floor area of the ground floor; and

    d. Be designed to accommodate commercial uses (e.g. ceiling heights, interior support columns).

2. Fewer than ten multi-family dwellings are allowed in a building.

[…]

CHAPTER 10A-57 – GENERAL PROVISIONS

[…]

10A-57-55 - LANDSCAPING, PERFORMANCE STANDARDS.

All landscaping required by this Title shall comply with the following performance standards:

1. 65 percent minimum of the required six percent of the development site area landscaping shall be green and growing and shall be irrigated. This required coverage does not include the anticipated mature overhead canopies of new trees. The area of trees counted toward the minimum coverage shall be the canopy areas of new trees and existing trees at the time of planting. ~~Permanent landscaping shall be irrigated by means of an underground system; planters or boxes may be irrigated by daily manual watering with no permanent system.~~ Plans shall be submitted with any required permit information that show the amount of landscaping in square feet that is required for the lot; the amount of landscaping proposed and the location of what is proposed; and, a description of the type of irrigation system. ~~All required landscaping shall be continuously maintained in a neat, clean, healthy and growing condition.~~ Landscaping that is not maintained is a violation of this Code and a property owner may be subject to enforcement under the provisions of Title 10A and any other applicable City Code, and Oregon Law.

2. Required landscaping shall be distributed so that all non-driveway street frontages are landscaped, including in Industrial Zones, even if the area so used exceeds six percent of the total area required, including Industrial Zones. All of the required area cannot be satisfied by the use of remote and otherwise unusable portions of the development site.

3. Plantings used to screen a space frequently used by the public, such as a parking lot, shall have a combination of higher and lower growing species so as to provide for sight clearance at exits; for visual separation from the street, and for openings to allow police surveillance from the street.

Landscaping required by this Title shall comply with the following additional standards for new commercial uses and multi-family dwellings:

4. A combination of deciduous and evergreen trees, shrubs, and ground covers shall be used for all planted areas, the selection of which shall be based on local climate, exposure, water availability, and drainage conditions, among other factors. When new vegetation is planted, soils shall be amended and irrigation shall be provided, as necessary, to allow for healthy plant growth. The selection of plants and related materials shall be based on all of the following standards and guidelines:

   a. Use plants that are appropriate to the local climate, exposure, and water availability. The presence of utilities and drainage conditions shall also be considered.

   b. Plant species that do not require irrigation once established (drought tolerant) are preferred over species including grass lawn that require irrigation.

   c. All planted areas shall have minimum two-inch depth of bark mulch or other moisture-retentive organic or mineral mulch.

   d. Trees shall be not less than two-inch caliper for street trees and 1.5-inch caliper for other trees at the time of planting. Trees to be planted under or near high-voltage power lines shall be selected so as to not conflict with power lines at maturity.

   e. Shrubs shall be planted from five-gallon containers, minimum, where they are for required screens or buffers, and two-gallon containers minimum elsewhere.

   f. Shrubs shall be spaced in order to provide the intended screen or canopy cover within two years of planting.

   g. All landscape areas, whether required or not, that are not planted with trees and shrubs or covered with allowable non-plant material, shall have ground cover plants that are sized and spaced to achieve plant coverage of not less than 50 percent at maturity. The City may reduce this standard by one-half in areas under the canopy of existing trees to be preserved by the project. Ground cover plants shall be planted from one-gallon containers, minimum.

   h. Bark mulch, stone aggregate, or other decorative stone material shall be used to cover non-planted landscape areas, but these non-planted areas shall cover not more than 35 percent of any individual landscape area. Non-plant ground covers cannot be a substitute for required ground cover plants.

   i. Where storm water retention or detention, or water quality treatment facilities are proposed, they shall be planted with water-tolerant species.

   ij. Existing mature trees that can thrive in a developed area and that do not conflict with other provisions of this Code shall be retained where specimens are in good health, have desirable aesthetic characteristics, and do not present a hazard. Protect the root zones of existing trees to remain from construction activities.

   k. Landscape plans shall avoid conflicts between plants and buildings, streets, walkways, utilities, and other features of the built environment.

   l. Evergreen plants shall be used where a sight-obscuring landscape screen is required.

   m. Deciduous trees should be used where summer shade and winter sunlight is desirable.

   n. Landscape plans should provide focal points within a development, for example, by preserving large or unique trees or groves or by using flowering plants or trees with fall color.

o. Landscape plans should use a combination of plants for seasonal variation in color and yearlong interest.

p. Where plants are used to screen outdoor storage or mechanical equipment, the selected plants shall have growth characteristics that are compatible with such features.

q. Landscape plans shall provide for both temporary and permanent erosion control measures, which shall include plantings where cuts or fills, including berms, swales, storm water detention facilities, and similar grading, is proposed.

r. When new vegetation is planted, soils shall be amended and irrigation provided, as necessary, until the plants are fully established and able to grow on their own. Provide supplemental irrigation as needed after establishment to ensure plant health, depending on plant species and environmental conditions.

5. All of the following standards shall be met for parking lots with six (6) or more spaces, in addition to the requirements of paragraph 4 above. If a development contains multiple parking lots, then the standards shall be evaluated separately for each parking lot.

a. A minimum of 10 percent of the total surface area of all parking areas, as measured around the perimeter of all parking spaces and maneuvering areas, shall be landscaped. Such landscaping shall include canopy trees distributed throughout the parking area. At a minimum, one tree per 10 parking spaces shall be planted over and adjacent to the parking area.

b. All parking areas with more than 12 spaces shall provide landscape islands with trees that break up the parking area into rows of not more than 10 contiguous parking spaces. Landscape islands shall have dimensions of not less than 48 square feet of area (not including curbs) and no dimension of less than six feet, to ensure adequate soil, water, and space for healthy plant growth.

c. Wheel stops, curbs, bollards, or other physical barriers are required along the edges of all vehicle-maneuvering areas to protect landscaping from being damaged by vehicles. Trees shall be planted not less than two feet from any such barrier, and not less than four feet from any such barrier (except bollards) at the front of a parking stall.

d. Trees planted in tree wells within sidewalks or other paved areas shall be installed with root barriers, consistent with applicable nursery standards.

6. Landscaping located at the corner of a lot abutting a street intersection will meet the Vision Clearance standards of Section 10A-57-15 of this code.

7. Applicant is required to submit a Landscape plan showing the location of all required landscaping and a table listing plants proposed, as well as a table showing compliance with the green and growing requirements.

[…]

10A-57-75 - PARKING SPACES REQUIRED, GROUP A USES.

All uses of land or buildings enumerated under group A shall provide off street parking and loading, as specified, on the same development site as such use or building and the parking space shall have convenient and unobstructed pedestrian access across the development site to a principal entrance to the building or use.

USE	PARKING SPACES REQUIRED	LOADING SPACES REQUIRED
1. Dwelling, single-family or duplex.	Two	None
2. Dwellings, multi-family.	One and a half spaces for each dwelling.	One for each building containing over 20 units.
3. Boarding, rooming and lodging houses, bed and breakfast hotel	One for each bedroom	None
4. Doctor's offices, medical and dental clinics.	One space for each doctor and each employee, full or part-time on duty, plus one space for 300 square feet	None
5. Restaurants, taverns, bars, nightclubs, with or without dancing facilities.	~~One (1) for each four (4) fixed seats or where there are no fixed seats, one (1) space for each 50 square feet of gross floor area utilized for public space.~~ One space per 200 sq. ft. of gross floor area.	One
6. Retail stores and shops.	One for each ~~300~~ 400 square feet gross floor area.	One for the first 5,000 sq. ft. gross floor area plus one for each 30,000 sq. ft. additional or fraction thereof.
7. Furniture, appliance sales or repair.	One for each 500 sq. ft. sales and repair space.	One for the first 5,000 sq. ft. gross floor area plus one for each 30,000 sq. ft. additional or major fraction thereof.
8. Funeral homes and mortuaries.	~~one for each three seats or one for each 50 sq. ft. of public space, whichever is the greater.~~ One space per 300 sq. ft.	One for each hearse, ambulance or other non-passenger vehicle.
9. Real estate sales office	~~Two for the first 300 sq. ft. plus one for each additional 200 sq. ft. of office or public space.~~ One space per 500 sq. ft.	None.
10. Small item service and repair shop.	One for each ~~200~~ 300 sq. ft. gross floor area.	None.
11. Beauty and barber shop.	One for each ~~200~~ 300 sq. ft. gross floor area.	None.
12. Automotive or machinery sales, garages	One for each ~~400~~ 1,000 sq. ft. gross floor area.	One for each 5,000 sq. ft. gross floor area.
13. Bowling alleys.	~~Five for each lane.~~ One per 300 sq. ft.	None.

USE	PARKING SPACES REQUIRED	LOADING SPACES REQUIRED
14. Roller and ice rinks, intensive sports and recreation buildings, dance halls.	One for each three fixed seats or one for each 100 sq. ft. of gross floor area or public space.	None.
15. Banks, professional or general offices other than medical.	One for each 300 sq. ft. gross floor area.	None

10A-57-80 – PARKING SPACES REQUIRED, GROUP B USES.

All uses of land or buildings enumerated under group B shall provide off street parking and loading on the same development site as such building or use for all customers or patrons frequenting the establishment and said parking space shall have convenient and unobstructed pedestrian access across said development site to a principal entrance to the building or use; however, that portion of the parking requirement that may be attributed to employees may be provided within 400 feet of the use or building.

USE	PARKING SPACES REQUIRED	LOADING SPACES REQUIRED
1. Hotel, apartment, hotel, motel, club with guest rooms.	~~One~~ 0.75 for each unit plus one space for each employee on the largest shift.	One space for any development of over 20 units
2. Hospitals and rest homes.	~~One for each three beds plus one for each doctor and employee on the largest shift.~~ One per 300 sq. ft.	One space for the first 40,000 sq. ft. GFA plus one space for each additional 150,000 sq. ft. or major fraction.
2a. Day care center, family day care.	Two for each 12 children, or one space for each five elderly or disabled persons, plus one for each employee.	
3. College fraternities or sororities, dormitories.	One for each bedroom.	None.
4. Clubs, organization halls.	One for each 100 square feet of assembly space plus one for each employee.	None.
5. Single occupancy office buildings of 10,000 square feet and up.	One for each 500 square feet of gross floor area. (GFA)	One for the first 10,000 sq. ft. GFA plus one for each added 40,000 sq. ft. or major fraction.
6. Wholesale store with stock on site.	One for each ~~400~~ 1,000 square feet GFA	One for the first 6,000 sq. ft. GFA plus one for each added 20,000 sq. ft. or major fraction.

USE	PARKING SPACES REQUIRED	LOADING SPACES REQUIRED
7. Warehouses.	Four for the first 5,000 sq. ft. GFA plus one for each additional 5,000 sq. ft. GFA or major fraction.	Two for the first 5,000 sq. ft. GFA plus one for each added 10,000 sq. ft. or major fraction.

[…]

10-57-210 – DESIGN STANDARDS.

The design features below are required for development and redevelopment in the commercial zones (C zones) under the following conditions:

1. Upon any new development of property;
2. Upon any redevelopment of property that expands the floor area of the principal structure by 20 percent or more. This does not apply to accessory structures;
3. Upon the approval of any change in use of any residential, commercial or industrial structure or property that increases estimated trip generation by more than 50 peak hour trips over the existing use, according to the latest edition of the Institute for Transportation Engineers (ITE) Trip Generation Manual; or
4. Where the rebuilding or replacement of the building is the direct result of a casualty loss, and exceeds 60 percent of the total value of the building prior to the casualty loss.

[…]

6. Large-Format Developments. Plans for new developments, or any phase thereof, with a total ground floor area of all buildings greater than 40,000 square feet, including land divisions, shall meet all of the following standards in subsections (a) through (g), below. The City may approve adjustments to the standards pursuant to Chapters 10B-30 and 10B-40.
   a. The site plan or preliminary subdivision plan, as applicable, shall comply with the street connectivity standards of Section 10C-25.03. The plan approval shall bind on all future phases of the development, if any, to the approved block layout.
   b. Except as provided by subsection (e) through (g) below, the site shall be configured into blocks with building pads that have frontage onto improved streets meeting City standards and shall contain interior parking courts and with interconnected pedestrian walkways.
   c. Walkways shall connect the street right-of-way to all primary building entrances, and shall connect all primary building entrances to one another, including required pedestrian crossings through interior parking areas, if any, in accordance with Section 10C-25.04. The City may condition development to provide facilities exceeding those required by Section 10C-25.04, including a requirement for lighting, stairways, ramps, and midblock pedestrian access ways (e.g., to break up an otherwise long block) to ensure reasonably safe, direct, and convenient pedestrian circulation.
   d. Buildings placed at a block corner shall have a primary entrance oriented to the block corner. That entrance shall be located within 40 feet of the corner and shall have a direct and convenient pedestrian walkway connecting to the corner sidewalk.

e. All buildings shall orient to a street, pursuant to subsection 10A-57.210(1). Where it is not practical to orient all buildings to streets due to existing parcel configuration or a similar site constraints, buildings may orient to a “shopping street” providing, at a minimum, on-street parking (parallel or angled parking), 8-foot sidewalks (which shall include a four-foot zone for street trees and furnishings such as benches and other street furniture), and pedestrian-scale lighting.

f. Each building that is proposed as orienting to a shopping street shall comply with the orientation standards of Section 10A-57.210(1) in reference to the shopping street and shall have at least one primary entrance oriented to the shopping street.

g. All other provisions of this Code apply to large-format developments.

[…]

TITLE 10C – SUBSTANTIVE REGULATIONS FOR LAND DEVELOPMENT

[…]

CHAPTER 10C-25 – TRANSPORTATION STANDARDS

[…]

10C-25.04 – BICYCLE AND PEDESTRIAN STANDARDS

[…]

10C-25.04.002 – Bicycle and Pedestrian Circulation and Access Requirements for Site Plans

Required elements for a site plan shall include the design and location of bicycle parking and bicycle and pedestrian circulation elements such as accessways, walkways, and transit facilities. The following shall be included in the site plan:

(a) Bicycle parking. The development shall include the number and type of bicycle parking facilities required in the off-street parking and loading Section of this Title. The location and design of bicycle parking facilities shall be indicated on the site plan.

(b) Pedestrian access and circulation. ~~Internal pedestrian circulation shall be provided in new commercial, office, and multi-family residential developments through the clustering of buildings, construction of hard surface walkways, landscaping, accessways, or similar techniques.~~ Development shall conform to all of the following standards for pedestrian access and circulation:

(1) Continuous Walkway System. A pedestrian walkway system shall extend throughout the development site and connect to adjacent sidewalks, adjacent trails, public parks, and open space areas, if any, and to all future phases of the development, as applicable.

(2) Safe, Direct, and Convenient. Walkways within developments shall provide safe, reasonably direct, and convenient connections between primary building entrances and all adjacent parking areas, recreational areas, playgrounds, and public rights-of-way conforming to the following standards:

(a) The walkway is reasonably direct. A walkway is reasonably direct when it follows a route that does not deviate unnecessarily from a straight line or it does not involve a significant amount of out-of-direction travel.

(b) The walkway is designed primarily for pedestrian safety and convenience, meaning it is reasonably free from hazards and provides a reasonably smooth and consistent surface and direct route of travel between destinations. The City may require landscape buffering between walkways and adjacent parking lots or driveways to mitigate safety concerns.

(c) The walkway network connects to all primary building entrances, consistent with the building design standards of Section 10A-57-210 and, where required, Americans with Disabilities Act (ADA) requirements.

(3) Vehicle/Walkway Separation. Except as required for crosswalks, per subsection (4) below, where a walkway abuts a driveway or street it shall be raised six inches and curbed along the edge of the driveway or street. Alternatively, the City may approve a walkway abutting a driveway at the same grade as the driveway if the walkway is physically separated from all vehicle-maneuvering areas. An example of such separation is a row of bollards (designed for use in parking areas) with adequate minimum spacing between them to prevent vehicles from entering the walkway.

(4) Crosswalks. Where a walkway crosses a parking area or driveway (“crosswalk”), it shall be clearly marked with contrasting paving materials (e.g., pavers, light-color concrete inlay between asphalt, or similar contrasting material). The crosswalk may be part of a speed table to improve driver-visibility of pedestrians. Painted or thermo-plastic striping and similar types of non-permanent applications are discouraged, but may be approved for lesser used crosswalks not exceeding 24 feet in length.

(5) Walkway Width and Surface. Walkways, including access ways required for subdivisions, shall be constructed of concrete, asphalt, brick or masonry pavers, or other durable surface, as approved by the City Engineer, and not less than five feet wide.

(6) Walkway Construction. Walkway surfaces may be concrete, asphalt, brick or masonry pavers, or other City-approved durable surface meeting ADA requirements. Walkways shall be not less than four] feet in width, except that concrete walkways a minimum of six] feet in width are required in commercial developments and where access ways are required for subdivisions. The City may also require six-foot wide, or wider, concrete sidewalks in other developments where pedestrian traffic warrants walkways wider than four] feet.

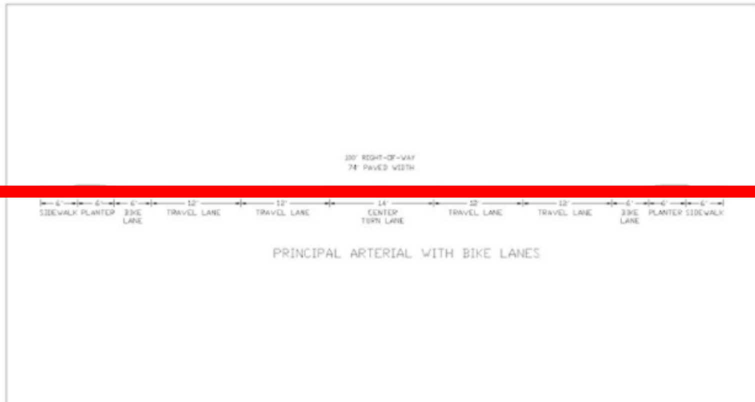
(c) All site plans (industrial and commercial) shall clearly show how the site's internal pedestrian and bicycle facilities connect with external existing or planned facilities or systems.

[…]

10C-25.08 - STREET STANDARDS

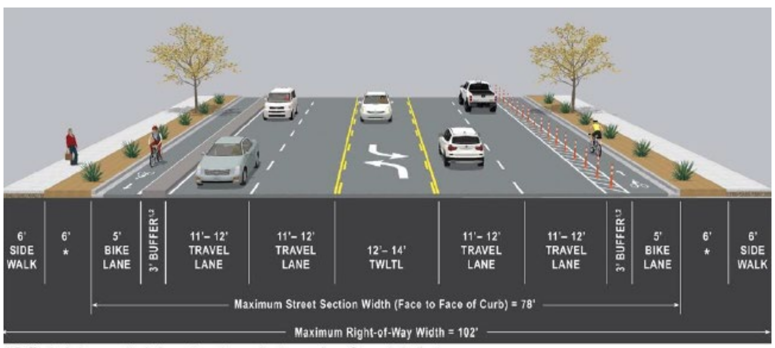
Planter strips shown on any figure, a through ~~l~~k, may be waived at the discretion of the Director of Public Works.

Figure 10C-25.08a - Principal Arterial <u>and Five-Lane Minor Arterial</u>



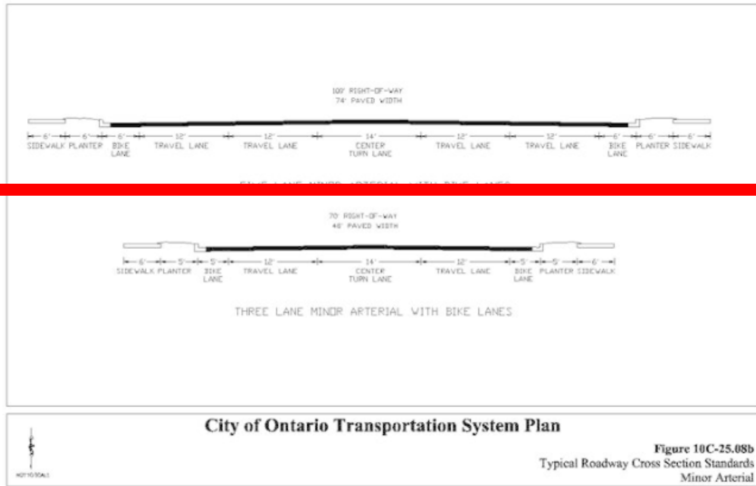
City of Ontario Transportation System Plan

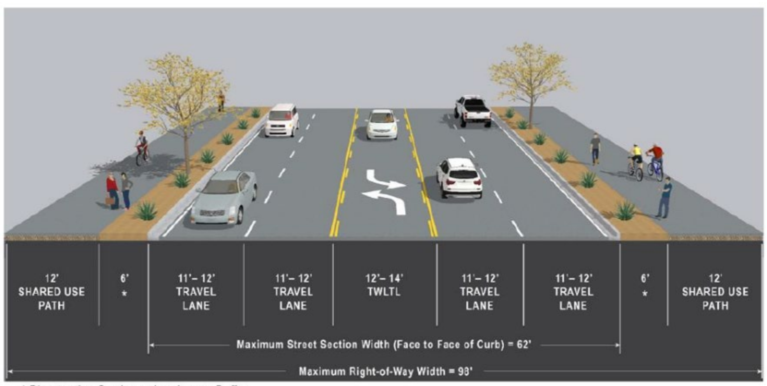
Figure 10C-25.08a
Typical Roadway Cross Section Standards
Principal Arterial



[1] Buffer includes a vertical element, such as raised concrete or flexposts/bollards.
[2] If the bike lane is grade separated (i.e., a raised bike lane) the buffer can be reduced to the curb separating the bike lane from the motor vehicle lane.
* Bioretention Swales or Landscape Buffer

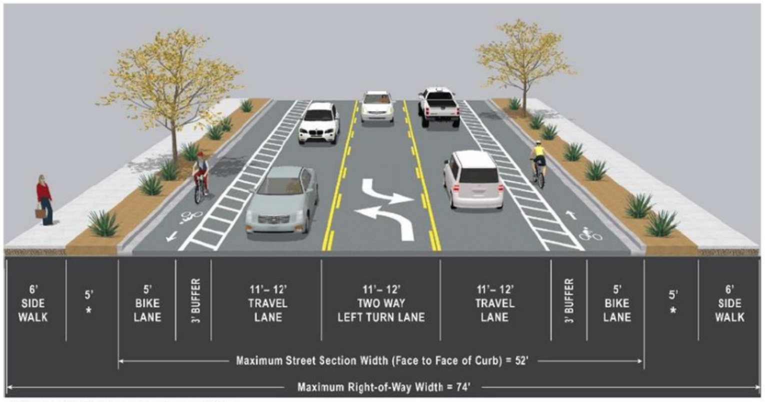
Figure 10C-25.08b - ~~Minor Arterial~~ Principal Arterial and Five-Lane Minor Arterial Shared Use Path Option





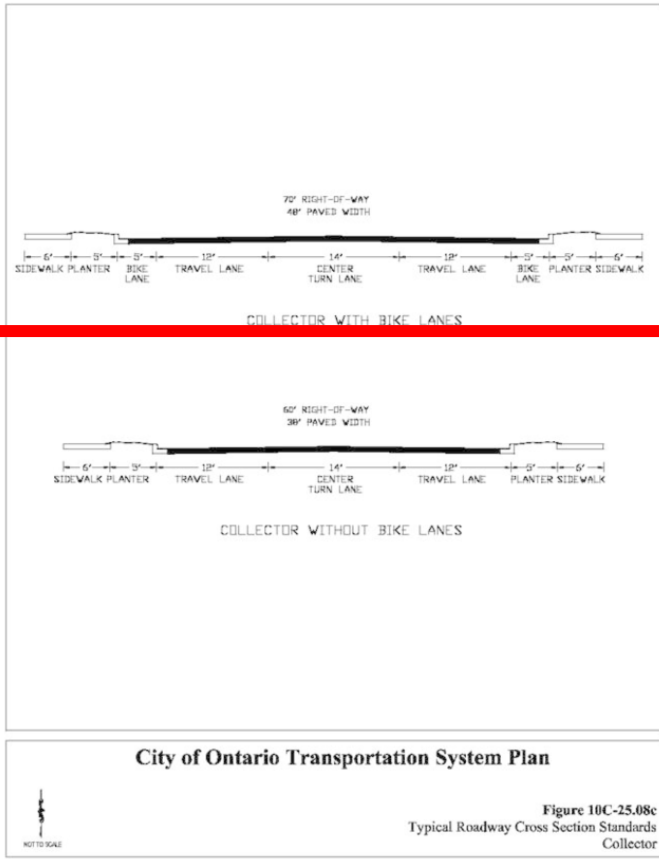
* Bioretention Swales or Landscape Buffer

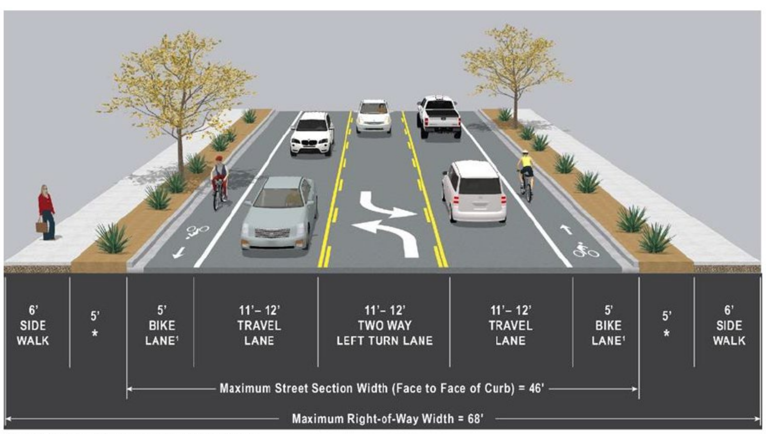
Figure 10C-25.08c – Three-Lane Minor Arterial



* Bioretention Swales or Landscape Buffer

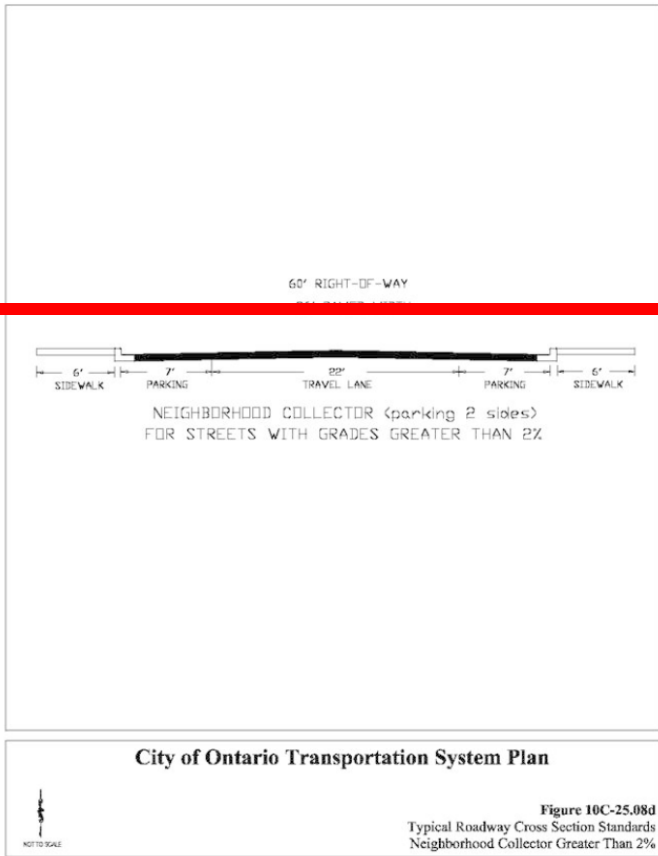
~~Figure 10C-25.08c~~ Figure 10C-25.08d – Three-Lane Collector

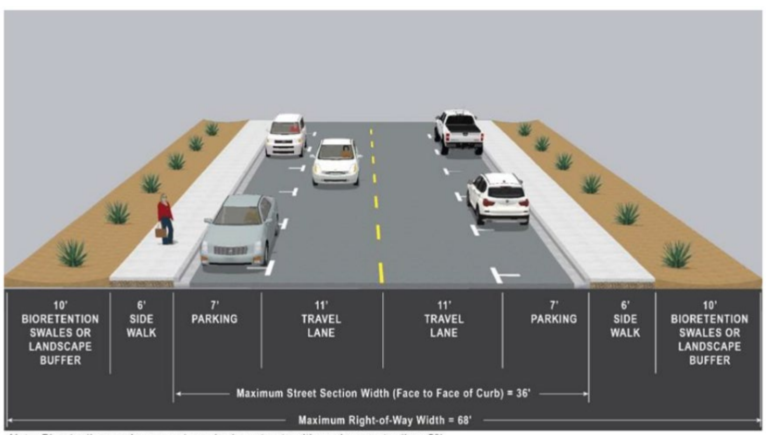




* Bioretention Swales or Landscape Buffer
[1]Bike lane buffer recommended when roadway width is available

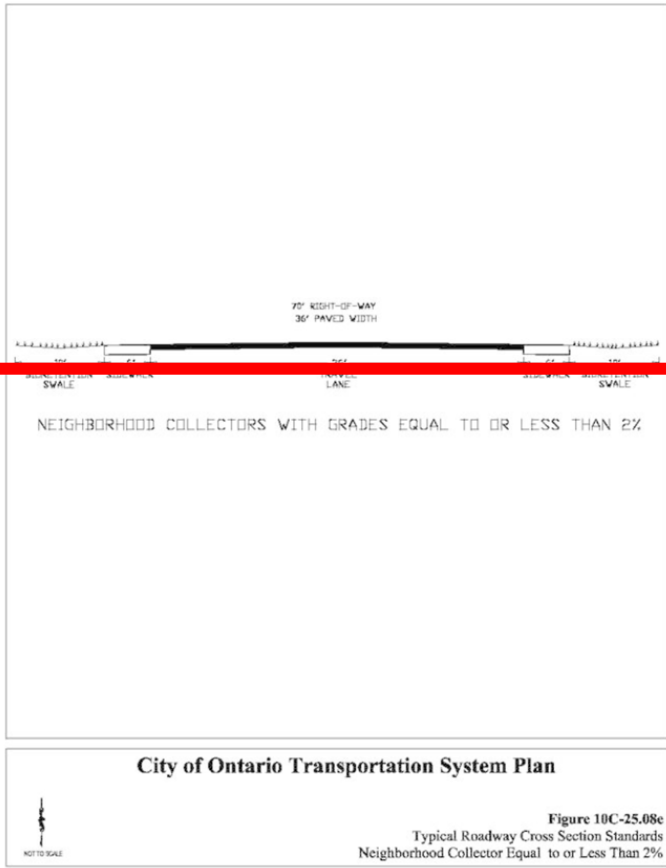
~~Figure 10C-25.08d~~ Figure 10C-25.08e - Neighborhood Collector~~, >2% grade~~

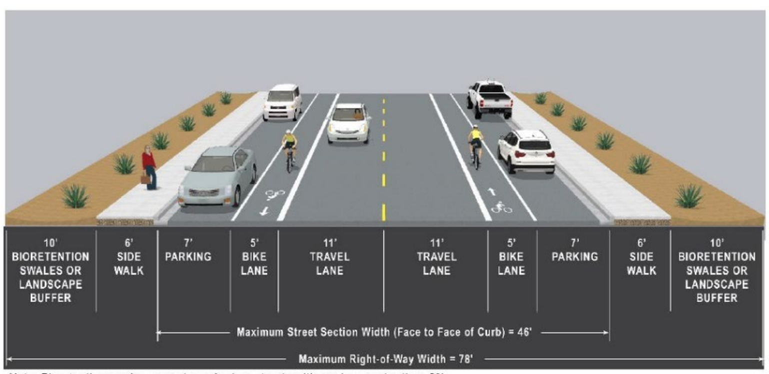




Note: Bioretention swales are not required on streets with grades greater than 2%

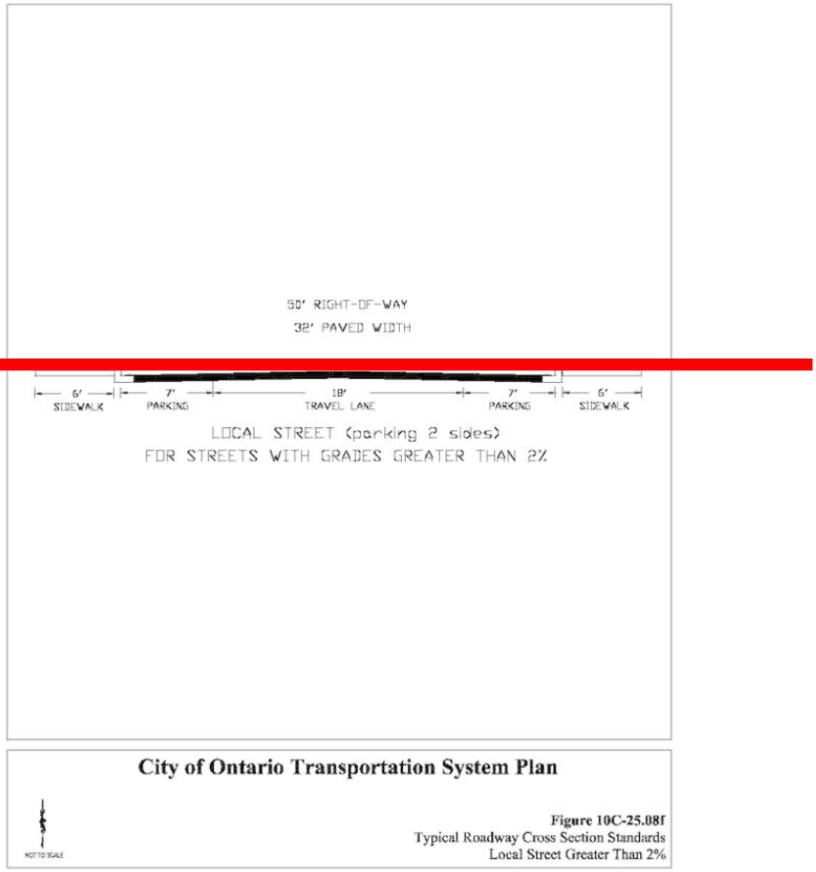
~~Figure 10C-25.08e~~ <u>Figure 10C-25.08f</u> - Neighborhood Collector~~, <2% grade~~ <u>with Bike Lanes</u>

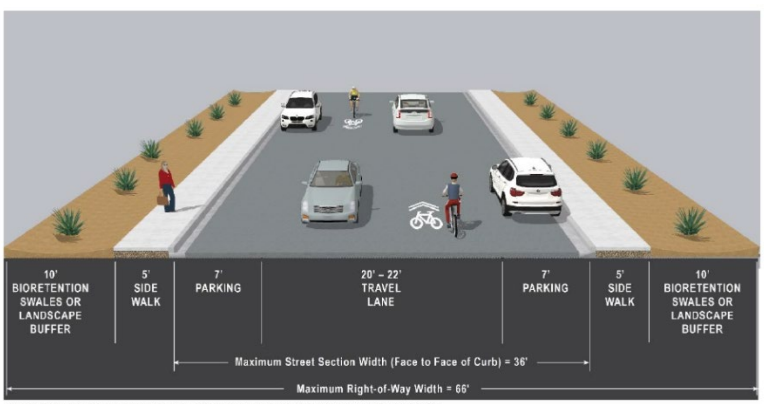




Note: Bioretention swales are not required on streets with grades greater than 2%

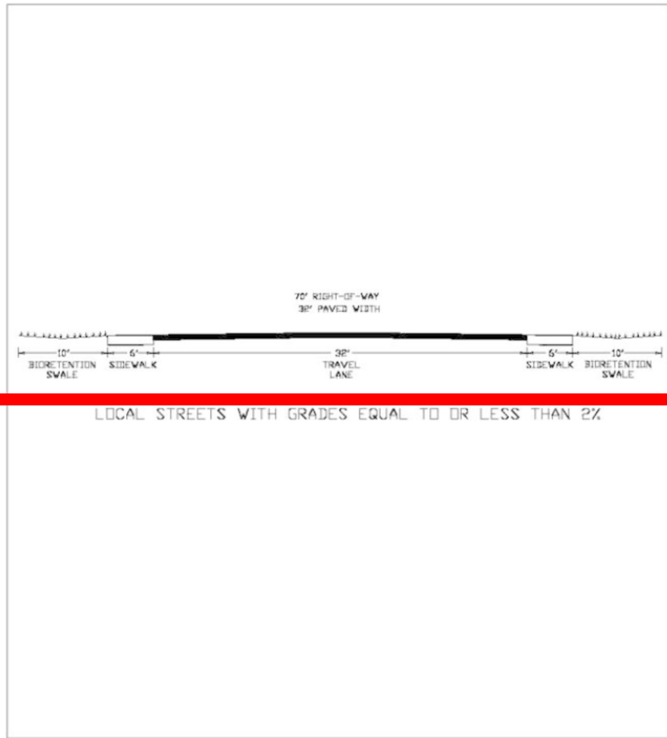
~~Figure 10C-25.08f~~ Figure 10C-25.08g - Local Street~~, >2% grade~~ (With Optional Bikeway Designation)





Note: Bioretention swales are not required on streets with grades greater than 2%

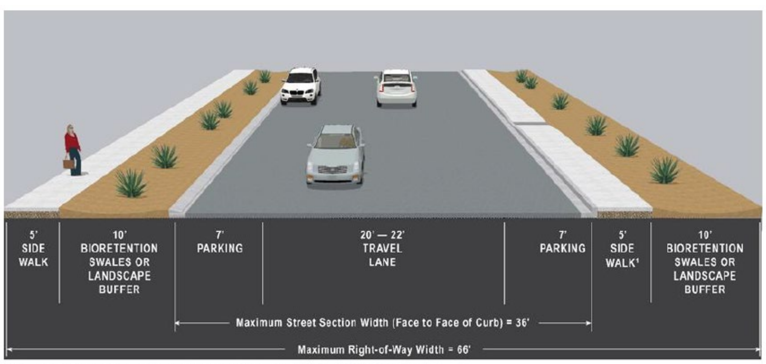
~~Figure 10C-25.08g~~ Figure 10C-25.08h - Local Street, <=2% grade



City of Ontario Transportation System Plan

NOT TO SCALE

Figure 10C-25.08g
Typical Roadway Cross Section Standards
Local Street Equal to or Less Than 2%



[1] Curb opening drainage channel through sidewalk with expanded metal cover.
Note: Ribbon curbs or curb openings with drainage channels can be use for final street sections

[remove Figure 10C-25.08h]

~~Figure 10C-25.08h - Skinny Local Street, >2% grade~~

[remove Figure 10C-25.08i]

~~Figure 10C-25.08i - Skinny Local Street, <2% grade~~

[Remove "Figure 10-25.08j" from figure]

~~Figure 10C-25.08j~~ Figure 10C-25.08i- Cul-de-sac turnaround

[No changes to the figure]

~~Figure 10C-25.08k~~ Figure 10C-25.08j - Alley cross section

[No changes to the figure]

~~Figure 10C-25.08l~~ Figure 10C-25.08k - Multi-purpose trail

[No changes to the figure]

~~Figure 10C-25.08m~~ Figure 10C-25.08l —S Oregon Street from W Idaho Avenue to 1stAvenue

[No changes to the figure]

~~Figure 10C-25.08n~~ Figure 10C-25.08m —Depot Row (SW 3rdAvenue from S Oregon Street to Depot)

[No changes to the figure]

~~Figure 10C-25.08o~~ Figure 10C-25.08n —SE 5thAvenue Railroad Crossing

[No changes to the figure]

~~Figure 10C-25.08p~~ Figure 10C-25.08o —Diagonal Parking

[No changes to the figure]

ATTACHMENT B: FINANCING PLAN MEMORANDUM

KITTELSON & ASSOCIATES

101 S CAPITOL BOULEVARD, SUITE 600
BOISE, ID 83702
P 208.338.2683 F 208.338.2685

MEMORANDUM

Date:	December 30, 2020	Project #: 23858
To:	Project Management Team	
From:	Russ Doubleday, Nick Foster, AICP, RSP, Mark Heisinger, EIT, and Matt Hughart, AICP, Kittelson & Associates, Inc.	
Project:	City of Ontario, Active Transportation Update and East Idaho Avenue Refinement Area Plan	
Subject:	Technical Memorandum #10: Financing Plan	

This memorandum describes the estimated costs, benefits, and implementation considerations of each pedestrian, crossing, and bicycle project identified in Technical Memorandum #9: Transportation Solutions. The cost estimates are high-level planning estimates that include basic construction costs. They may not capture all site-specific needs, such as right-of-way, roadway widening, or utility relocations, which may increase project costs. Table 1 provides details on pedestrian plan projects, Table 2 provides details on intersection crossing plan projects, and Table 3 provides details on bicycle plan projects.

Table 1. Future Pedestrian Plan Implementation Details

ID	Roadway	Segment	Proposed Project	Benefits	Cost	Considerations	Potential Funding Sources
High-Priority Segments							
S1	E Idaho Ave	I-84 eastbound ramps to Snake River	Build shared-use path on south side of roadway	A shared-use path on the south side of E Idaho Avenue would improve walking and biking connectivity to the city's major commercial center that is disconnected from the rest of the city by I-84 and the railroad.	$3,800,000 (includes roadway widening)	• The city will need to acquire right-of-way at the eastern end of the proposed path.	ODOT, Private Development Funds, ODOT Community Pathways Grant
P1	Sunset Dr	SW 4th Ave to City Limits	Infill sidewalk on both sides of roadway	Fills sidewalk gaps along a commercial road that provides access to the SW 4th Avenue and bus service throughout town.	$43,000	• The city's Parks Master Plan identifies a shared-use path along the Stewart Carter Canal immediately to the west. • Installation of sidewalks would likely require some utility relocations.	City of Ontario
P2	SW 8th Ave/ Alameda Dr/SW 14th Ave	SW 8th Ave: Alameda Dr to SW 12th St Alameda Dr: SW 8th Ave to SW 14th Ave SW 14th Ave: Alameda Dr to Park Blvd	Build shared-use path with parallel parking on Alameda Drive from SW 8th Avenue to SW 14th Avenue, infill sidewalk on both sides of roadway along rest of segment	Fills sidewalk gaps around Alameda Elementary School, which will make it easier for people to walk to the school.	$574,000	• The south end of Alameda Drive will need to be widened to accommodate a shared-use path.	City of Ontario, ODOT SRTS Grants, ODOT Community Pathways Grant
P3	SE 5th Ave	SE 5th St to East Ln	Construct sidewalk on both sides of roadway	Constructs sidewalk on one of the two roadways that cross I-84 and improves multimodal connectivity to the city's industrial land uses.	$613,000	• Installation of sidewalks would likely require some right-of-way acquisition and utility relocations. • While there is existing sidewalk on the bridge over I-84, the ramps up to the bridge may need to be widened to accommodate sidewalks. • This project is already under design.	City of Ontario

ID	Roadway	Segment	Proposed Project	Benefits	Cost	Considerations	Potential Funding Sources
P4	Verde Dr	NW 4th Ave to SW 4th Ave	Construct sidewalk on both sides of roadway	Fills sidewalk gaps on one of the few north-south roads that connects SW 4th Avenue, W Idaho Avenue, and NW 4th Avenue, provides improved access to Aiken Elementary School, and connects with bus service across Ontario.	$238,000	• Installation of sidewalks would likely require some right-of-way acquisition and utility relocations.	City of Ontario, ODOT SRTS Grants
P5	S Dorian Way	W Idaho Ave to SW 4th Ave	Infill sidewalk on both sides of roadway	Fills sidewalk gaps on a street with commercial, residential, and assisted living land uses, as well as provide a connection to Four Rivers Community School	$112,000	• Installation of sidewalks would likely require some right-of-way acquisition and utility relocations.	City of Ontario, ODOT SRTS Grants
P6	SW 10th St/SW 2nd Ave	SW 10th St: W Idaho Ave to SW 2nd Ave SW 2nd Ave: SW 10th St to Ontario Middle School	Infill sidewalk on both sides of roadway	Fills sidewalk gaps around Lions Park, Ontario Middle School, and St. Peter Catholic School in the heart of Ontario.	$115,000	• Installation of sidewalks would likely require some right-of-way acquisition.	City of Ontario, ODOT SRTS Grants
P7	E Idaho Ave	Oregon St to I-84 eastbound ramps	Reconstruct sidewalks where necessary and install barriers to prevent dirt and debris from washing over the sidewalks	Currently, it is not clear where the existing sidewalk is on both the north and south sides of the roadway, which can create a more stressful experience for the pedestrian.	$108,000	• The city may need to partner with local business to ensure that the sidewalk remains clean.	City of Ontario, ODOT, Private Development Funds
P8	Park Blvd	SW 5th Ave to Evergreen Cemetery	Construct shared-use path on the east side of the road	Continues the Treasure Valley Connector Trail northward toward SW 4th Avenue, setting up an alignment north toward the county fairgrounds.	$210,000	• No significant considerations.	City of Ontario, ODOT Community Pathways Grant
P9	SW 5th Ave	SW 12th St to SE 5th St	Construct sidewalk on both sides of roadway	Connects residential land uses on both sides of the railroad tracks with Treasure Valley Community College, access to downtown Ontario, and bus service across Ontario.	$823,000	• Installation of sidewalks would likely require some right-of-way acquisition and utility relocations. • Sidewalk construction will cross Union Pacific Railroad.	City of Ontario
P10	SW 14th Ave/SW 4th St/Park Blvd	SW 14th Ave: Park Blvd to SW 4th St SW 4th St: SW 14th Ave to SW 18th Ave Park Blvd: SW 14th Ave to SW 18th Ave	Construct sidewalk on both sides of roadway	Provides access to Treasure Valley Ball Park and constructs sidewalk along the proposed Cross-Town Trail from the city's Parks Master Plan.	$569,000	• Installation of sidewalks would likely require some right-of-way acquisition and utility relocations.	City of Ontario

ID	Roadway	Segment	Proposed Project	Benefits	Cost	Considerations	Potential Funding Sources
P11	Sears Dr/NW 12th St	Sears Dr: NW 4th Ave to NW 12th St NW 12th St: Sears Dr to W Idaho Ave	Construct sidewalk on both sides of roadway	Constructs sidewalk through a residential development that connects two major east-west roads – W Idaho Avenue and NW 4th Avenue – and improves walking accessibility to Aiken Elementary School and Ontario High School	$217,000	• Installation of sidewalks would likely require some right-of-way acquisition and utility relocations.	City of Ontario, ODOT SRTS Grants
P12	SW 4th St	SW 3rd Ave to SW 11th Ave	Infill sidewalk on both sides of roadway	Fills in sidewalk gaps along a roadway that already has bike lanes, creating a multimodal north-south street that connects homes to businesses in downtown Ontario to Treasure Valley Ball Park.	$310,000	• Installation of sidewalks would likely require some right-of-way acquisition.	City of Ontario
P13	SW 7th St/SW 6th St/ SW 3rd Ave	SW 7th St: SW 2nd Ave to SW 4th Ave SW 6th St: SW 2nd Ave to SW 5th Ave SW 3rd Ave: SW 7th St to SW 6th St	Infill sidewalk on both sides of roadway	Fills in sidewalk gaps near downtown Ontario that connect with multiple schools, parks, businesses, homes, and bus service.	$196,000	• Installation of sidewalks would likely require some right-of-way acquisition and utility relocations.	City of Ontario, Private Development Funds
P14	SW 5th St/SW 1st Ave	SW 5th St: W Idaho Ave to SW 1st Ave SW 1st Ave: SW 5th St to SW 4th St	Infill sidewalk on both sides of roadway	Fills in sidewalk gaps north of Ontario Middle School and providing connections between the residential areas north of W Idaho Avenue with businesses in downtown Ontario.	$52,000	• Installation of sidewalks would likely require some right-of-way acquisition.	City of Ontario, ODOT SRTS Grants
P15	SW 2nd Ave	SW 2th St to S Oregon St	Infill sidewalk on both sides of roadway	Helps create a complete sidewalk network in downtown Ontario	$11,000	• Wider sidewalks, especially on the south side of SW 2nd Avenue, would require taking roadway space.	City of Ontario
P16	SW 12th St /Locust Way/SW 11th St	SW 12th St: SW 3rd Ave to Locust Way Locust Way: SW 12th St to SW 11th St SW 11th St: Locust Way to SW 14th Ave	Infill sidewalk on both sides of roadway	Fills in sidewalk gaps on a segment that connects to businesses on SW 4th Avenue with the residential areas to the south, as well as access to Alameda Elementary School.	$479,000	• Installation of sidewalks would likely require some right-of-way acquisition and utility relocations.	City of Ontario, ODOT SRTS Grants
Medium-Priority Segments							

ID	Roadway	Segment	Proposed Project	Benefits	Cost	Considerations	Potential Funding Sources
P17	SW 2nd St/SW 11th Ave/Park Blvd	SW 2nd St: SW 5th Ave to SW 11th Ave SW 11th Ave: SW 2nd St to Park Blvd Park Blvd: SW 11th Ave to SW 14th Ave	Construct sidewalk on both sides of roadway	Constructs sidewalk around the Treasure Valley Ball Park, providing a connection to the Treasure Valley Connector Trail at one end and to downtown Ontario at the other end.	$611,000	• Installation of sidewalks would likely require some right-of-way acquisition and utility relocations. • Much of the segment is an unimproved roadway with no curbs.	City of Ontario
P18	NW 4th Ave	N Park Blvd to N Oregon St	Construct sidewalk on both sides of roadway	Constructs sidewalks along a roadway that runs from the Union Pacific Railroad tracks to Highway 201, providing connectivity across much of northern Ontario, including May Roberts Elementary School	$541,000	• Installation of sidewalks would likely require some right-of-way acquisition and utility relocations.	City of Ontario, ODOT SRTS Grants
P19	E Idaho Ave Area Sidewalks	Tapadera Ave: Lincoln Ave to Clarion Inn Access SW 13th St: SE 1st Ave to SE 5th Ave Goodfellow St: E Idaho Ave to End of Roadway	Infill sidewalk on both sides of roadway	Fills gaps in the sidewalk network along the commercial properties that are located adjacent to E Idaho Avenue, improving access for customers on foot and allowing shoppers who drove to walk between multiple destinations.	$266,000	• Installation of sidewalks would likely require some right-of-way acquisition and utility relocations. • Some gaps could be filled in as part of future redevelopment of adjacent properties.	City of Ontario, Private Development Funds
P20	SE 2nd St	E Idaho Ave to SE 18th Ave	Construct sidewalk on both sides of roadway	Constructs sidewalk on a road with residential and industrial land uses, connecting to E Idaho Avenue on the north end with SE 18th Avenue, a major east-west roadway on the south end.	$442,000	• Installation of sidewalks would likely require some right-of-way acquisition and utility relocations. • Roadway reconstruction with bike lanes and sidewalks is currently underway from SE 5th Avenue to SE 12th Avenue.	City of Ontario
P21	SW 18th Ave	Sunset Dr to SE 2nd Ave	Construct sidewalk on both sides of the roadway	Constructs sidewalks on a through road on the south end of Ontario, part of which is on the Safe Routes to School network.	$1,047,000	• Installation of sidewalks would likely require some right-of-way acquisition and utility relocations.	City of Ontario, ODOT SRTS Grants

ID	Roadway	Segment	Proposed Project	Benefits	Cost	Considerations	Potential Funding Sources
P22	NW 9th St/NW 10th St/W Idaho Ave	NW 9th St: NW 4th Ave to W Idaho St NW 10th St: NW 2nd Ave to W Idaho St W Idaho Ave: NW 9th St to NW 10th St	Construct sidewalk on both sides of roadway, construct North-South Connector Trail on east side of NW 9th St	Completes the sidewalk network around Ontario High School and filles a small gap in the sidewalk network on W Idaho Avenue and adds to city's trail network	$405,000	• Installation of sidewalks would likely require some right-of-way acquisition.	City of Ontario, ODOT SRTS Grants, ODOT Community Pathways Grant
P23	NW 6th St	NW 8th Ave to Ontario Middle School	Construct sidewalk on both sides of roadway	Connects several major destinations, including two schools (May Roberts Elementary School and Ontario Middle School) with Beck-Kiwanis Park and the county fairgrounds with sidewalks in a residential neighborhood.	$301,000	• Installation of sidewalks would likely require some right-of-way acquisition and utility relocations.	City of Ontario, ODOT SRTS Grants
P24	Dorian Dr	NW 4th Ave to W Idaho Ave	Infill sidewalk on both sides of roadway	Extends sidewalks from an existing project (Project P5) to the north to meet the NW 4th Avenue, another major east-west road in the city, and provide connections to additional housing areas.	$163,000	• Installation of sidewalks would likely require some right-of-way acquisition. • Much of the segment is an unimproved roadway with no curbs or curbs on one side of the roadway.	City of Ontario
P25	NW 8th Ave/NW 9th St	NW 8th Ave: NW 9th St to N Oregon St NW 9th St: NW 8th Ave to NW 4th Ave	Construct sidewalk on both sides of roadway, construct North-South Connector Trail on east side of NW 9th St	Constructs sidewalk connections to Beck-Kiwanis Park and the county fairgrounds, and it provides a connection to the North-South Connector trail that will run along NW 8th Street or NW 9th Street, as well as providing a connection to the bus.	$761,000	• Installation of sidewalks would likely require some right-of-way acquisition and utility relocations.	City of Ontario, ODOT Community Pathways Grant
Low-Priority Segments							

ID	Roadway	Segment	Proposed Project	Benefits	Cost	Considerations	Potential Funding Sources
P26	Sunset Dr	City Limit to SW 18th Ave	Construct sidewalk on both sides of roadway	Connects the future Sunset Park and SW 18th Avenue with the incorporated city to the north.	$636,000	• Installation of sidewalks would likely require some right-of-way acquisition and utility relocations. • The city's Parks Master Plan identifies a shared-use path along the Stewart Carter Canal immediately to the west. • The city may need to incorporate land before constructing sidewalks	City of Ontario
P27	Alameda Dr	SW 14th Ave to SW 18th Ave	Construct sidewalk on both sides of roadway	Connects SW 18th Avenue and the farm-oriented properties to the southwest to the Safe Routes to School Network and Alameda Elementary School.	$260,000	• Installation of sidewalks would likely require some right-of-way acquisition and utility relocations.	City of Ontario, ODOT SRTS Grants
P28	SE 5th St/SE 6th Ave	SE 5th St: SE 5th Ave to SE 6th Ave SE 6th Ave: SE 5th St to SE 6th St	Construct sidewalk on both sides of roadway	Completes a sidewalk connection between SE 5th Avenue and SE 9th Avenue with access to apartments and to Eastside Park.	$111,000	• Installation of sidewalks would likely require some right-of-way acquisition and utility relocations.	City of Ontario
P29	SE 9th Ave	SE 2nd St to SE Claude Road	Construct sidewalk on both sides of roadway	Provides access to housing and industrial jobs, as well as the Ontario Head Start Center and lower-income housing on Claude Road on the east end of the segment.	$568,000	• Installation of sidewalks would likely require some right-of-way acquisition and utility relocations.	City of Ontario
P30	SE 3rd St	E Idaho Ave to SE 5th Ave	Infill sidewalk on both sides of roadway	Complements the sidewalk improvements on SE 2nd St while providing more connections between E Idaho Avenue and commercial and industrial land uses.	$165,000	• Installation of sidewalks would likely require some right-of-way acquisition and utility relocations.	City of Ontario
P31	NW 5th St/NW 3rd Ave/NW 4th St	NW 5th St: NW 4th Ave to NW 3rd Ave NW 4th St: NW 4th Ave to NW 3rd Av NW 3rd Ave: NW 5th St to NW 4th St	Construct sidewalk on both sides of roadway	Constructs sidewalks around three sides of Laxson Park and improves accessibility in the surrounding residential neighborhood.	$203,000	• Installation of sidewalks would likely require some right-of-way acquisition and utility relocations. • The sidewalks in Laxson Park will need to navigate around trees.	City of Ontario

ID	Roadway	Segment	Proposed Project	Benefits	Cost	Considerations	Potential Funding Sources
P32	N Oregon St	NW 9th St to NW 8th Ave	Construct sidewalk on both sides of roadway	Provides a walking connection north out of Ontario to the businesses along Highway 201 to the north.	$650,000	• There is no curb on either side of the road for much of the segment, and the gravel area is used as parking, which may need to be adjusted.	City of Ontario
P33	SW 18th Ave	Sunset Dr to Highway 201	Construct sidewalk on both sides of roadway	Mirrors a future path on SW 18th Avenue as outlined in Ontario's Parks Master Plan.	$746,000	• Installation of sidewalks would likely require some right-of-way acquisition and utility relocations.	City of Ontario
P34	Hunter Ln	Western End of Road to Verde Dr	Construct sidewalk on both sides of roadway	Adds to the sidewalk network in a neighborhood where there is existing sidewalk infrastructure.	$281,000	• Installation of sidewalks would likely require some right-of-way acquisition and utility relocations.	City of Ontario
P35	SE Claude Rd	SE 5th Ave to SE 13th Ave	Construct sidewalk on west side of roadway	Improves walking access to lower-income pre-fab homes in the southeast corner of the city	$195,000	• Installation of sidewalks would likely require some right-of-way acquisition and utility relocations.	City of Ontario
P36	Rieter Dr/Arata Way/Sears Dr	Rieter Dr: NW 4th Ave to Arata Way Arata Way: Reiter Dr to Sears Dr Sears Dr: Arata Way to NW 12th St	Construct sidewalk on both sides of roadway	Constructs sidewalk through a residential development that connects two major east-west roads – W Idaho Avenue and NW 4th Avenue – and improves walking accessibility to Aiken Elementary School and Ontario High School	$235,000	• Installation of sidewalks would likely require some right-of-way acquisition and utility relocations.	City of Ontario, ODOT SRTS Grants
P37	SW 4th Ave	SW 33rd St to Highway 201	Construct sidewalk on south side of roadway	Improves connections to housing and the airport on this stretch of SW 4th Avenue west of Highway 201.	$70,000	• Installation of sidewalks would likely require some right-of-way acquisition and utility relocations. • Ontario's Parks Master Plan envisions an Airport Trail around the airport.	City of Ontario

ID	Roadway	Segment	Proposed Project	Benefits	Cost	Considerations	Potential Funding Sources
P38	NW 4th Ave	Highway 201 to N Dorian Dr	Construct sidewalk on both sides of roadway	Continues NW 4th Avenue sidewalk connection across Ontario.	$251,000	• Installation of sidewalks would likely require some right-of-way acquisition. • Much of the segment is an unimproved roadway with no curbs.	City of Ontario
P39	Washington Ave/ Verde Dr	Washington Ave: Verde Dr to Highway 201 Verde Dr: Washington Ave to Highway 201	Construct sidewalk on both sides of roadway	Improves walkability around the industrial job areas north of Ontario.	$597,000	• Installation of sidewalks would likely require some right-of-way acquisition and utility relocations. • Much of the segment is an unimproved roadway with no curbs.	City of Ontario, Private Development Funds
P40	Malheur Dr/Park Blvd	Malheur Dr: Verde Dr to Park Blvd Park Blvd: Malheur Dr to NW 4th Ave	Construct sidewalk on both sides of roadway	Improves connectivity for pedestrians on the north side of Ontario.	$878,000	• Installation of sidewalks would likely require some right-of-way acquisition and utility relocations. • Much of the segment is an unimproved roadway with no curbs.	City of Ontario
P41	Fortner St	N Oregon St to NW 4th Ave	Construct sidewalk on both sides of roadway	Provides a north-south connection from Oregon Street to NW 4th Avenue through residential land uses.	$323,000	• Installation of sidewalks would likely require some right-of-way acquisition.	City of Ontario
P42	NW 12th St	North End of Roadway to NW 4th Ave	Construct sidewalk on both sides of roadway	Fills in the sidewalk network within a residential neighborhood.	$219,000	• Installation of sidewalks would likely require some right-of-way acquisition and utility relocations. • Much of the segment is an unimproved roadway with no curbs.	City of Ontario

Table 2. Future Intersection Crossing Plan Implementation Details

ID	Intersection	Proposed Project	Benefits	Cost	Considerations	Potential Funding Sources
High-Priority Projects						

ID	Intersection	Proposed Project	Benefits	Cost	Considerations	Potential Funding Sources
I1	Sunset Dr and SW 4th Ave	Install a rectangular rapid flashing beacon across SW 4th Ave at the existing marked crosswalk	Provides higher level of safety for pedestrians crossing a five-lane arterial and connects with existing sidewalks on all roads approaching the intersection while also connecting to bus service in Ontario.	$40,000	• Adding a pedestrian refuge island in the middle, similar to the crossing across SW 4th Avenue between SW 7th Street and SW 9th Street, provides greater protection to pedestrians.	City of Ontario, Private Development Funds
I2	Hillcrest Dr and SW 4th Ave	Install a rectangular rapid flashing beacon across SW 4th Ave at the existing marked crosswalk, install curb ramp at south side of crosswalk (1)	Provides higher level of safety for pedestrians crossing a five-lane arterial and connects.	$45,000	• Further study should examine whether the crossing should be on the west side of the intersection (where westbound left-turning vehicles will queue) or on the east side of the intersection (where southbound left-turning vehicles will turn).	City of Ontario, Private Development Funds
I3	SW 12th St and SW 4th Ave	Install a rectangular rapid flashing beacon across SW 4th Ave at existing marked crosswalk	Provides higher level of safety for pedestrians crossing a five-lane arterial and connects with bus service in Ontario.	$40,000	• Could be built together with Project P16 to create a complete sidewalk network for people crossing SW 4th Avenue at this location.	City of Ontario, Private Development Funds
I4	SW 6th St and SW 4th Ave	Install a rectangular rapid flashing beacon across SW 4th Ave on the west side of the intersection at existing marked crosswalk	Provides higher level of safety for pedestrians crossing a five-lane arterial and connects with downtown Ontario as well as Treasure Valley Community College	$40,000	• Could be built together with Project P13 to create a complete sidewalk network for people crossing SW 4th Avenue at this location.	City of Ontario
I5	SE 5th Ave and East Ln	Create all-way stop by removing free southbound right turn	Eliminates a free right-turn for vehicles turning onto SE 5th Avenue, which is a 35 MPH facility, and improves safety for pedestrians in a dense commercial area	$5,000	• Could be built together with Projects P8 to create a complete sidewalk network on SE 5th Avenue. • Provides an opportunity to stripe crosswalks and create an expectation that there may be pedestrians. • May require temporary signage alerting drivers to a new traffic pattern.	City of Ontario, Private Development Funds

ID	Intersection	Proposed Project	Benefits	Cost	Considerations	Potential Funding Sources
I6	GameStop Lot/Walmart Lot and East Ln	Mark crosswalk and install a rectangular rapid flashing beacon across East Ln on the south side of the intersection	Allows shoppers to more easily walk between stores without needing to drive to a new parking lot while helping people who are not drivers (such as transit riders) navigate to their shopping destinations.	$42,000	• May need to work with property owners, especially on the east side of the intersection, to create sidewalks to and from the intersection.	City of Ontario, Private Development Funds
I7	Waremart Lot and East Ln	Mark crosswalk and install a rectangular rapid flashing beacon across East Ln on south side of the intersection with the existing pedestrian path through the parking lot, install curb ramps on both sides of the street at the new crosswalk location (2)	Creates a pedestrian connection to a major grocery store in the city, making it easier for people to not drive from parking lot to parking lot and making it easier for people without vehicles (such as transit riders) to complete their shopping trips.	$50,000	• May need to work with property owners, especially on the east side of the intersection, to create sidewalks to and from the intersection.	City of Ontario, Private Development Funds
I8	SW 9th St and SW 2nd Ave	Stripe crosswalks and complete curb ramp installation on the south side of the intersection (2)	Improves access to Lions Park and St. Peter Catholic School while also creating a safer intersection crossing on the city's Safe Routes to School network.	$9,000	• Could be built together with Project P5 to create a complete sidewalk network for people crossing SW 9th Street at this location.	City of Ontario, ODOT SRTS Grants
I9	SW 6th St and W Idaho Ave	Add stop bar for pedestrian crossing and improve pedestrian crossing signage (W11-2 or R1-5b/R1-5c) on W Idaho Ave approaches	Creates driver awareness that pedestrians (and especially middle school-age students) may be crossing a major east-west road in the city that provides access to Ontario Middle School.	$5,000	• Could be built together with Project P23 to create a complete sidewalk network for students heading north from Ontario Middle School.	City of Ontario, ODOT SRTS Grants
I10	Park Blvd and SW 5th Ave	Stripe crosswalk across Park Blvd to connect offset intersection, stripe crosswalks across SW Fifth Ave in both locations to connect to existing sidewalks, and complete curb ramp installation at all corners without curb ramps (2)	Designates a crossing locations for pedestrians looking to cross Park Boulevard and create awareness for drivers who may be making two turning movements to stay on SW 5th Avenue.	$13,000	• Could be built together with Project P9 to create a complete sidewalk network on SW 5th Avenue. • Sidewalk placement and design will need to consider that many drivers may be making turning movements across this offset intersection.	City of Ontario
Medium-Priority Projects						

ID	Intersection	Proposed Project	Benefits	Cost	Considerations	Potential Funding Sources
I11	Alameda Dr and SW 8th Ave	Stripe crosswalk across Alameda Dr to connect offset intersection, complete curb ramp installation on west side of Alameda Dr (2)	Improves walking and crossing conditions at an offset intersection that is next to Alameda Elementary School.	$10,000	• Could be built with project P2 to create a complete sidewalk network around Alameda Elementary School. • Sidewalk placement and design will need to consider that many drivers may be making turning movements across this offset intersection.	City of Ontario, ODOT SRTS Grants
I12	SW 10th St and W Idaho Ave	Add stop bar for pedestrian crossing and improve pedestrian crossing signage (W11-2 or R1-5b/R1-5c) on W Idaho Ave approaches, complete curb ramp installation on south side of W Idaho Ave (2)	Establishes driver expectation for pedestrians around Ontario High School across a major east-west road in the city.	$10,000	• Could be built with either Project P5 or P22 to improve walking conditions around Ontario High School.	City of Ontario, ODOT SRTS Grants
I13	SW 6th St and SW 2nd Ave	Study intersection for all-way stop-control; uncontrolled intersection is located at a major hub for Ontario Middle School	Prioritizes pedestrian movement at an intersection outside of Ontario Middle School and the vehicle drop-off/pick-up location.	$10,000	• Manual on Uniform Traffic Control Devices guidance should be followed in completing the study.	City of Ontario, ODOT SRTS Grants
I14	SW 4th St and W Idaho Ave	Study intersection for all-way stop control, install a rectangular rapid flashing beacon across W Idaho Ave on the west side of the intersection	An all-way stop intersection may improve crossings near Ontario Middle School.	$10,000	• Manual on Uniform Traffic Control Devices guidance should be followed in completing the study. • Traffic could be encouraged to use SW 2nd Street or S Oregon Street to move between W Idaho Avenue and SW 4th Avenue.	City of Ontario, ODOT SRTS Grants
I15	SW 4th St and SW 11th Ave	Add stop bar for pedestrian crossing and improve pedestrian crossing signage (W11-2 or R1-5b/R1-5c) on SW 4th St approaches, complete curb ramp installation at northeast corner of the intersection (1)	Creates a safer environment for pedestrians at an intersection with a channelized southbound right turn.	$6,000	• Could be built with either Project P12 or P17 to improve walking conditions around the Treasure Valley Ball Park.	City of Ontario
I16	SW 12th St and SW 5th Ave	Stripe crosswalks across the north and east side of the intersection, install curb ramps at all intersection corners (4)	Improves walking access in a residential neighborhood).	$18,000	• Could be built with either Project P9 or P15 to improve walking conditions in the neighborhood and to Alameda Elementary School.	City of Ontario

ID	Intersection	Proposed Project	Benefits	Cost	Considerations	Potential Funding Sources
I17	SE 5th Ave and SE 13th St	Study intersection for potential enhanced crossing alternatives	Improves walkability in a major commercial area and provides an improved walking conditions for when new development is added.	$10,000	• Could be built together with Project P8 to create a complete sidewalk network on SE 5th Avenue. • Intersection improvements could be filled in as part of future redevelopment of adjacent properties.	City of Ontario, Private Development Funds
I18	Staples Lot and SE 13th St	Stripe crosswalk across SE 13th Ave, install curb ramp at the location of the crosswalk on the east side of the street (1)	Allows shoppers to more easily walk between stores without needing to drive to a new parking lot while helping people who are not drivers (such as transit riders) navigate to their shopping destinations.	$6,000	• May need to work with property owners, especially on the west side of the intersection, to create sidewalks to and from the intersection.	City of Ontario, Private Development Funds
I19	SE 1st Ave and Goodfellow St	Stripe crosswalks across Goodfellow St on the south side of the intersection, install curb ramp at southeast corner of intersection with new crosswalk (1)	Improves access to a major grocery store in Ontario while making it easier for people to walk between stores in the E Idaho Avenue commercial area.	$7,000	• Could be built together with Project P19 to create a complete sidewalk network or could be built when Goodfellow Street is extended to SE 5th Avenue.	City of Ontario, Private Development Funds
I20	Dairy Queen Lot and Goodfellow St	Stripe crosswalk across Goodfellow St, install curb ramps on both sides of the street at the new crosswalk location (2)	Improves walking access to fast food restaurants and access to the businesses located along Goodfellow Street north of E Idaho Avenue.	$9,000	• May need to work with property owners to create sidewalks to and from the intersection.	City of Ontario, Private Development Funds
			Low-Priority Projects			
I21	SW 2nd St and SW 5th Ave	Stripe crosswalk across SW 5th Ave on the west side of the intersection, install curb ramps at all corners of the intersection (4)	Improves access between downtown Ontario and the residential neighborhood to the south.	$19,000	• Could be built together either with Projects P9 or P17 to improve sidewalk connectivity on either SW 5th Avenue or SW 2nd Street.	City of Ontario
I22	SE 5th St and SE 5th Ave	Install a rectangular rapid flashing beacon across SW 5th Ave at existing marked crosswalk, complete curb ramp installation at all corners without curb ramps (2)	Creates a safer crossing across SE 5th Avenue (a 35 MPH road) while improving access to a bus stop, Eastside Park, and housing in southeast Ontario.	$49,000	• Could be built with Projects P8, P9, or P28 to create a connected sidewalk network on SE 5th Avenue or SE 5th Street.	City of Ontario

ID	Intersection	Proposed Project	Benefits	Cost	Considerations	Potential Funding Sources
I23	Tapadera Ave and Goodfellow St	Stripe crosswalk across Goodfellow St on north side of the intersection, install curb ramps on both sides of the street at the new crosswalk location (2)	Improves walking conditions in the E Idaho Avenue commercial area and makes it easier for people to shop without a car or needing to drive between parking lots.	$9,000		City of Ontario, Private Development Funds
I24	NW 6th St and NW 4th Ave	Stripe crosswalk across NW 6th St on the north side of the intersection, install curb ramps at all corners of the intersection (4)	Improves walking access in the residential neighborhood north of downtown and provides a better walking experience for people reaching May Roberts Elementary School.	$19,000	• Could be built either with Projects P18 or P23 to improve sidewalk connectivity on NW 4th Avenue or NW 6th Street.	City of Ontario, ODOT SRTS Grants
I25	NE 18th St and W Idaho Ave	Stripe crosswalks across W Idaho Ave, complete curb ramp installation on north side of the intersection (2)	Provides an improved crossing environment for pedestrians crossing W Idaho Avenue on a through road connecting north-south.	$12,000		City of Ontario
I26	Dorian Dr and NW 4th Ave	Stripe crosswalk across NW 4th Ave on the west side of the intersection, complete curb ramp installation at southeast corner of intersection (1)	Provides an improved crossing opportunity for pedestrians walking on either Dorian Drive or NW 4th Avenue – through roads that connect to much of the rest of Ontario.	$6,000	• Could be built either with Projects P24 or P38 to improve sidewalk connectivity on Dorian Drive or NW 4th Avenue.	City of Ontario
I27	N Oregon St and NW 4th Ave	Add stop bar for pedestrian crossing and improve pedestrian crossing signage (W11-2 or R1-5b/R1-5c) on N Oregon St approaches	Creates a safer pedestrian crossing environment across a wide, three-lane roadway and provides access to a bus stop.	$5,000	• Could be built together with Project P18 to improve sidewalk connectivity on NW 4th Avenue.	City of Ontario
I28	Walmart Lot and East Ln	Restripe existing crossing across East Ln with continental striping, add signage on East Ln approaches	Improves walking access and driver expectations outside of a major shopping destination in Ontario and allows people to shop without driving between parking lots.	$5,000		City of Ontario, Private Development Funds

Table 3. Future Bicycle Plan Implementation Details

ID	Roadway	Segment	Proposed Project	Benefits	Cost	Considerations	Potential Funding Sources
High-Priority Segments							

ID	Roadway	Segment	Proposed Project	Benefits	Cost	Considerations	Potential Funding Sources
S1	E Idaho Ave	I-84 eastbound ramps to Snake River	Construct shared-use path on south side of road	A shared-use path on the south side of E Idaho Avenue would improve walking and biking connectivity to the city's major commercial center that is disconnected from the rest of the city by I-84 and Union Pacific railroad.	$3,800,000 (includes roadway widening)	• The city will need to acquire right-of-way at the eastern end of the proposed path.	ODOT, Private Development Funds, ODOT Community Pathways Grant
B1	SW 4th Ave	Highway 201 to 9th St	Construct protected bike lanes	Improves biking conditions on the city's primary commercial corridor on the west side of downtown, improving access to jobs and shopping.	$774,000	• May require narrowing travel lanes and/or the two-way left turn lane along the entire segment.	City of Ontario, Private Development Funds, ODOT SRTS Grants
B2	Verde Dr	NW 4th Ave to SW 4th Ave	Stripe bike lanes	Establishes bike infrastructure on a through north-south route connecting to homes, schools, and jobs.	$29,000	• May require the removal of on-street parking.	City of Ontario, ODOT SRTS Grants
B3	Sears Dr/NW 12th St	Sears Dr: NW 4th Ave to NW 12th St NW 12th St: Sears Dr to SW 4th Ave	Create enhanced bike route through shared lane markings, wayfinding signage, and enhanced crossings and traffic calming, if necessary	Creates a local street bike route that connects to St. Alphonsus Medical Center, Ontario High School, and the major employment/commercial area of SW 4th Avenue.	$46,000	• The City should study what, if any, traffic calming measures would be most appropriate.	City of Ontario, ODOT SRTS Grants
B4	S Oregon St	NW 1st Ave to SW 4th Ave	Add shared lane markings and wayfinding signage	Extends the bike infrastructure from Oregon Street north of Idaho Avenue to the south , improving access to downtown Ontario.	$6,000		City of Ontario
B5	SW 2nd St/SW 11th Ave	SW 2nd St: W Idaho Ave to SW 11th Ave SW 11th Ave: SW 2nd St to SW 4th St	Add shared lane markings and wayfinding signage	Provides a north-south connection from the heart of downtown Ontario to the homes to the south and connecting with the Treasure Valley Ball Park.	$15,000		City of Ontario
B6	W Idaho Ave	Dorian Way to SW 4th St	Stripe bike lanes	Creates bike infrastructure on a major east-west crosstown street in the city with connections to many of the city's neighborhoods and three different schools.	$88,000	• May require the removal of on-street parking.	City of Ontario, ODOT SRTS Grants
B7	Dorian Way	W Idaho Ave to SW Fourth Ave	Stripe bike lanes	Provides a connection to SW 4th Avenue on the western edge of Ontario where there are fewer streets on a grid network.	$14,000		City of Ontario

ID	Roadway	Segment	Proposed Project	Benefits	Cost	Considerations	Potential Funding Sources
B8	SW 6th St	SW 2nd Ave to SW 5th Ave	Create enhanced bike route through shared lane markings, wayfinding signage, and enhanced crossings and traffic calming, if necessary	A short segment that connects schools, parks, a major commercial corridor, and downtown Ontario on a comfortable local street.	$44,000	• The City should study what, if any, traffic calming measures would be most appropriate.	City of Ontario, ODOT SRTS Grants
B9	SW 2nd Ave	SW 10th St to S Oregon Ave	Add shared lane markings and wayfinding signage	Connects residential and commercial land uses with Ontario Middle School, Lions Parks, and a future north-south shared use path on SW 9th Street.	$10,000	• The city should study whether a bike route should continue on the north side of Ontario Middle School where the street is disconnected.	City of Ontario, ODOT SRTS Grants
B10	SW 12th St/Locust Way/SW 11th St	SW 12th St: SW 4th Ave to Locust Way Locust Way: SW 12th St to SW 11th St SW 11th St: Locust Way to SW 14th Ave	Create enhanced bike route through shared lane markings, wayfinding signage, and enhanced crossings and traffic calming, if necessary	Connects neighborhoods to the south of SW 4th Avenue with access to jobs and shopping as well as Alameda Elementary School.	$68,000	• The City should study what, if any, traffic calming measures would be most appropriate.	City of Ontario, ODOT SRTS Grants
B11	E Idaho Ave/SE 1st Ave	E Idaho Ave: I-84 eastbound ramps to 650 feet west of ramps SE 1st Ave: SE 2nd St to E Idaho Ave	Construct shared-use path on south side of road, connect E Idaho Avenue and SE 1st Avenue at the narrowest point between the two roads with a path across the vacant lot, and add shared lane markings and wayfinding signage on SE 1st Avenue	Provides important connection between the E Idaho Avenue shared-use path to the east and with the rest of the city to the west by connecting bicycle traffic to a railroad crossing at SW 5th Avenue and creates a connection over one of two routes across I-84.	$111,000	• Right-of-way may be required to make the connection between SE 1st Avenue and E Idaho Avenue.	City of Ontario, ODOT, ODOT Community Pathways Grant

ID	Roadway	Segment	Proposed Project	Benefits	Cost	Considerations	Potential Funding Sources
B12	NW 6th St	NW 8th Ave to Ontario Middle School	Create enhanced bike route through shared lane markings, wayfinding signage, and enhanced crossings and traffic calming, if necessary	Creates a parallel north-south route to a future shared-use path on NW 9th Street with direct connections to Ontario Middle School on the south end and Beck-Kiwanis Park on the north end.	$91,000	• The City should study what, if any, traffic calming measures would be most appropriate.	City of Ontario, ODOT SRTS Grants
B13	SW 8th Ave/Alameda Dr	SW 8th Ave: Alameda Dr to SW 12th St Alameda Dr: SW 8th Ave to SW 18th Ave	Add shared lane markings and wayfinding signage	Connects Alameda Elementary School to housing to the north, west, and south.	$10,000	•	City of Ontario, ODOT SRTS Grants
Medium-Priority Segments							
B14	E Idaho Ave Area Roadways	East Ln: North End of Road to W Idaho Ave Goodfellow St: North End to South End of Road Lincoln Ave: Tapadera Ave to Goodfellow St Tapadera Ave: Lincoln Ave to Goodfellow St SE 1st Ave: Goodfellow St to SE 13th St SE 13th St: SE 1st Ave to SE 5th Ave	Add shared lane markings and wayfinding signage	Provides people on the E Idaho Avenue shared-use path with direct connections at various stores in this major commercial area.	$14,000	• The city should work with various businesses in the area to ensure that there is enough bike parking for people who may arrive by bike.	City of Ontario, Private Development Funds
B15	SW 11th Ave/Park Blvd	SW 11th Ave: SW 4th St to Park Blvd Park Blvd: SE 11th Ave to SE 18th Ave	Add shared lane markings and wayfinding signage	Extends a bike connection (Project B5) around the Treasure Valley Ball Park to the existing Treasure Valley Connector Trail.	$5,000	• Timing for this related project may be impacted by Project B5 implementation, a high-priority project.	City of Ontario

ID	Roadway	Segment	Proposed Project	Benefits	Cost	Considerations	Potential Funding Sources
B16	Sunset Dr	SW 4th Ave to SW 18th Ave	Add shared lane markings and wayfinding signage or construct shared-use path	Connects more rural areas of the community with SW 4th Avenue and a potential future park on the west side of the roadway.	$6,000 (shared lane markings) $675,000 (shared-use path)	• A path, if chosen, may require right-of-way acquisition. • If the city chooses to build a path along the canal, as outlined in the Parks Master Plan, connections to the street grid will be needed.	City of Ontario, ODOT Community Pathways Grant
B17	NW 9th St/SW 9th St/ Park Blvd/	NW/SW 9th St: NW 8th Ave to SW 4th Ave Park Blvd: SW 4th Ave to End of Road	Construct shared-use path as outlined in the City of Ontario's Parks and Recreation Master Plan	Extends the Treasure Valley Connector Trail to the north to SW 4th Avenue, the edge of downtown, schools and parks, and the Malheur County Fairgrounds at the north end of the segment.	$785,000	• The city may need to acquire right-of-way to construct a shared-use path. • Without right-of-way, the city may need to remove on-street parking.	City of Ontario, ODOT Community Pathways Grant
B18	SE 9th Ave/SE Claude Road	SE 9th Ave: SE 2nd Ave to SE Claude Road SE Claude Road: SE 9th Ave to SE 13th Ave	Add shared lane markings and wayfinding signage	Connects housing developments along I-84 to existing bike infrastructure on SE 2nd Street.	$16,000	•	City of Ontario
B19	SE 2nd St	E Idaho Ave to SE 5th Ave	Add shared lane markings and wayfinding signage	Extends the existing bike infrastructure on SE 2nd Street to E Idaho Avenue and fills in a vital connection between the city to the west of the railroad tracks and the E Idaho Avenue shared-use path.	$6,000	•	City of Ontario
B20	NW 4th Ave	Tori Dr to N Oregon St	Create enhanced bike route through shared lane markings, wayfinding signage, and enhanced crossings and traffic calming, if necessary	Creates a third crosstown east-west route that connects with several housing subdivisions, May Roberts Elementary School, and N Oregon Street.	$64,000	• The City should study what, if any, traffic calming measures would be most appropriate.	City of Ontario, ODOT SRTS Grants

ID	Roadway	Segment	Proposed Project	Benefits	Cost	Considerations	Potential Funding Sources
B21	SW/SE 5th Ave	SW 12th St to SE 5th St	Stripe bike lanes, improve rail crossing for bicyclists	Completes the connection between Ontario on the west side of the railroad tracks with the E Idaho Avenue shared-use path, as well as creating a connection for people to the south of downtown Ontario.	$122,000	• May need to work with Union Pacific Railroad on the improved rail crossing.	City of Ontario
B22	SW 4th Ave	SW 9th St to S Oregon St	Construct protected bike lanes - this will likely require removing one or more motor vehicle lanes	Creates improved biking conditions on the city's primary commercial corridor on the west side of downtown, improving access to jobs and shopping.	$312,000	• May reallocating a travel lane along the entire segment..	City of Ontario, Private Development Funds
B23	Washington Ave	Highway 201 to NW 8th St	Construct buffered bike lanes	Creates a buffered bike lane connection on a section of roadway that will connect to a shared-use path coming from the Malheur County Fairgrounds.	$57,000	• May need to narrow existing vehicle travel lanes to create buffer space.	City of Ontario, Private Development Funds
B24	Idaho Ave	SW 4th St to Oregon Street	Construct protected bike lanes – this will likely require removing one or more motor vehicle lanes	Adds bike infrastructure on a major commercial corridor immediately to the north of downtown Ontario.	$131,000	• May require reallocating a travel lane along the entire segment.	City of Ontario, Private Development Funds
B25	Dorian Dr	NW 4th Ave to W Idaho Ave	Add shared lane markings and wayfinding signage	Extends a planned bike route (Project B7) to the north, connecting more residential areas with the city's commercial areas to the south.	$5,000	• Timing for this related project may be impacted by Project B7 implementation, a high-priority project.	City of Ontario
B26	SW 4th St	W Idaho Ave to SW 4th Ave	Stripe bike lanes	Provides direct access to many commercial and municipal destinations, including Ontario Middle School, the Ontario Community Library, and the state Employment Department.	$16,000	• May require the removal of on-street parking.	City of Ontario, ODOT SRTS Grants
Low-Priority Segments							
B27	SE 2nd St	SE 12th Ave to SE 18th Ave	Stripe bike lanes	Extends the existing bike lanes on SE 2nd Street from the north to SE 18th Avenue, the next major street to the south.	$18,000	• Road widening will be necessary to install bike lanes.	City of Ontario

ID	Roadway	Segment	Proposed Project	Benefits	Cost	Considerations	Potential Funding Sources
B28	East Ln	E Idaho Ave to south end of road	Stripe bike lanes	Provides a connection from the E Idaho Avenue shared-use path to shopping and grocery destinations.	$14,000	• Timing for this related project may be impacted by Project S1 implementation, a high-priority project on E Idaho Avenue.	City of Ontario, Private Development Funds
B29	N Oregon St	NW 1st Ave to NW 8th Ave	Construct buffered bike lanes	Improves existing bike infrastructure on a higher-speed road.	$69,000	• The two-way left-turn lane may need to be narrowed to create buffer space.	City of Ontario
B30	Malheur Drive/Park Blvd	Verde Dr to NW 4th Ave	Add shared lane markings and wayfinding signage	Provides a quieter connection for bicyclists between NW 4th Avenue and Verde Drive with access to homes and the Malheur County Fairgrounds.	$5,000	•	City of Ontario
B31	NW 8th Ave	NW 9th St to N Oregon St	Add shared lane markings and wayfinding signage	Connects N Oregon Street, Beck-Kiwanis Park, Malheur County Fairgrounds, and a future north-south shared-use path, along with homes in the northern part of the city.	$10,000	•	City of Ontario
B32	SW/SE 18th Ave	SW 4th St to SE 2nd St	Construct buffered bike lanes	Installs bike infrastructure around industrial lands and adds another bike connection across the railroad tracks.	$52,000	• May not be sufficient room on the railroad overpass to accommodate buffered bike lanes	City of Ontario
B33	SW 14th St	Alameda Dr to SW 4th St	Add shared lane markings and wayfinding signage	Creates an east-west connection from Alameda Elementary School to Treasure Valley Ball Park and the Treasure Valley Connector Trail, as well as begins a future trail that will eventually head east.	$6,000	•	City of Ontario, ODOT SRTS Grants
B34	Fortner St	N Oregon St to NW 4th Ave	Add shared lane markings and wayfinding signage	Creates a parallel route from N Oregon Street through residential land uses.	$7,000	•	City of Ontario
B35	Verde Dr	Highway 201 to NW 4th Ave	Construct buffered bike lanes	Extend proposed bike infrastructure (Project B2) to the north to reach additional homes, industrial lands, and Highway 201.	$60,000	• Timing for this related project may be impacted by Project B2 implementation, a high-priority project.	City of Ontario
B36	SW 4th Ave	SW 33rd St to Highway 201	Construct protected bike lanes	Extend proposed bike infrastructure (Project B1) to the west to reach the airport and housing.	$189,000	• Road widening will be necessary to install bike lanes (not included in cost estimate).	City of Ontario, Private Development Funds

ID	Roadway	Segment	Proposed Project	Benefits	Cost	Considerations	Potential Funding Sources
B37	SE 5th Ave	SE 5th St to East Ln	Construct protected bike lanes	Create a parallel bike connection south of the E Idaho Avenue shared-use path and a second connection over I-84 for access to the commercial areas on the east side of the city.	$418,000	• Road widening will be necessary to install bike lanes.	City of Ontario, Private Development Funds
B38	NW 4th Ave	Highway 201 to Tori Dr	Construct buffered bike lanes	Extend proposed bike infrastructure (Project B20) west to reach Highway 201.	$29,000	• Road widening will be necessary to install bike lanes, which is not included in the project cost.	City of Ontario, Private Development Funds
B39	Washington Ave/Verde Dr	Washington Ave: Verde Dr to Highway 201 Verde Dr: Washington Ave to Highway 201	Construct buffered bike lanes	Provide a bike connection to a major industrial job center around Ontario.	$77,000	• Road widening will be necessary to install bike lanes, which is not included in the project cost.	City of Ontario, Private Development Funds
B40	SW 18th Ave	Highway 201 to SW 4th St	Construct protected bike lanes	Connect rural farmlands to Ontario and to Highway 201 by bike in a future growth area.	$909,000	• Road widening will be necessary to install bike lanes, which is not included in the project cost.	City of Ontario, Private Development Funds
B41	N Oregon St	NW 8th St to NW 8th Ave	Construct protected bike lanes	Close a gap in bike infrastructure on a higher-speed street in Ontario.	$377,000	• Road widening, or the elimination of the two-way left-turn lane, will be necessary to install bike lanes.	City of Ontario

APPENDIX I:

Revised Design Concept

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MEMORANDUM

Date:	October 22, 2020	Project #: 23858
To:	Project Management Team	
From:	Mark Heisinger, EIT, Russ Doubleday, Nick Foster, AICP, RSP, and Matt Hughart, AICP; Kittelson & Associates Andrew Holder, Margot Halpin, Chris Weaver, and Mike Faha; Greenworks	
Project:	City of Ontario, Active Transportation Update and East Idaho Avenue Refinement Area Plan	
Subject:	Technical Memo #8: Revised Design Concept	

This memorandum is part of the City of Ontario's update to its 2006 Transportation System Plan (TSP). This memorandum presents the revised design concept and proposed revisions and guidance for City street standards. This memorandum presents material that has been updated or revised from *Technical Memorandum #6: Draft Design Concepts* (Reference 1).

DRAFT DESIGN CONCEPT

The East Idaho Avenue Refinement Area includes East Idaho Avenue from the I-84 westbound ramp terminal intersection to the Snake River, and the adjacent commercial areas. *Technical Memorandum #6* presented a draft design concept for the East Idaho Avenue Refinement Area. The draft design concept leveraged planned intersection improvements on East Idaho Avenue and available ODOT right-of-way south of the roadway, to implement upgrades outside the roadway that would benefit people walking and biking and enhance the identity of Ontario. The concept included a shared-use path south of the road, gateway treatments, future connections to the planned trail along the Snake River, and an overlook of the river. Enlargements of the Goodfellow Lane and East Lane intersections and the Snake River overlook area were also included.

Feedback Received on the Draft Design Concept

Efforts to collect feedback on the draft design concept included a booth at the Ontario Saturday Market, an online workshop, a Technical Advisory Committee (TAC) meeting, and opportunities to provide comments via the project website. The Project Management Team (PMT) also provided feedback on the draft design concept.

Feedback from TAC and PMT

The draft design concept was reviewed during meetings with the TAC and PMT. A summary of feedback received from the TAC and PMT on the draft design concept is as follows:

- Explore ways to increase comfort of the bicycle and pedestrian crossing on the southern leg of East Lane intersection where the new channelized eastbound right-turn is proposed
- Look into possibility of adding pedestrian refuges on East Idaho Avenue crossings
- Study the possibility of including dual eastbound left-turn lanes at the East Lane intersection as an alternative to extended westbound left-turn lane storage at Goodfellow Street
- Review a map of utilities near the proposed overlook to identify and avoid potential conflicts

Feedback from Public

Generally, attendees of the public involvement efforts were supportive of the East Idaho Avenue Draft Design Concept and were glad to see proposed improvements to walking and biking in the area, especially if the proposed pathway connected to a river trail. There were concerns raised about policing on the shared use paths (mainly the river trail) as there have been camps along the river. Other comments on the draft design concept included:

Saturday Market Booth

- Consider business sponsors or partnerships for trail networks
- Have East Idaho Avenue path and river trail be ADA accessible
- The East Idaho Avenue improvements are good, but lack connectivity to the rest of town
- There was concerns about congestion and safety near the Dutch Bros access

A detailed summary of the Task 4 outreach efforts and feedback received are shown in Attachment "A."

REVISED DESIGN CONCEPT

The following section presents the revised design concept for the East Idaho Avenue Refinement Area. Included in the section is a summary of revisions made to the draft design concept, revised concept figures, and cost estimates.

Revisions to Draft Design Concept

Revisions were made to the draft design concept based on direction from the PMT and TAC, feedback received as part of the Task 4 outreach efforts, and additional traffic analysis that was conducted on East Idaho Avenue. The two key revisions made to the draft design concept include:

- **Westbound Bike Lane Buffer:** A three-foot painted buffer was added between the westbound bike lane and the adjacent travel lane from Snake River to the I-84 eastbound ramp terminal intersection. The buffer was added to meet the updated City street standards for active transportation facilities and to create a more comfortable environment for people biking on East Idaho Avenue. In order to create enough space for the buffer, the westbound travel lanes were reduced from 12 feet to 11 feet.
- **Dual Eastbound Left-Turn Lanes at East Lane:** Participants at the August PMT meeting expressed interest in having dual eastbound left-turn lanes on East Idaho Avenue at East Lane. At the same time, they wanted to maintain the additional storage for the outer left-turn lane shown in the draft design concept since there is likely to be more demand for that lane. This could be accomplished by leaving the current left-turn lanes between East Lane and Goodfellow Street as they are today and then adding an additional eastbound left-turn lane on the south side of the current lanes.[1]

Other minor revisions to the draft design concept include:

- **Removal of the sidewalk on the south side of East Idaho Avenue from the I-84 westbound ramp terminal intersection to the Snake River:** People will be able to walk on the shared-use path on this portion of East Idaho Avenue. Removing the sidewalk from the concept decreases construction and maintenance costs associated with the sidewalk.
- **Relocation of the future riverfront trail and trail junction:** Through discussions with the City, it was determined that the future riverfront trail would likely follow a path closer to the Snake River than what was previously shown in the draft design concept.
- **Removal of the eastbound channelized right-turn at the East Lane intersection:** There was concerns from the TAC that adding a channelized right-turn at this location would create an

[1] A trade-off of the dual eastbound left-turn configuration at East Lane is it does not increase the storage for westbound left-turns at Goodfellow Street. Therefore, the project team conducted additional traffic analysis on the East Lane and Goodfellow Street intersections to evaluate vehicle queuing and intersection capacity under the revised draft design concept. This analysis considered additional growth that could occur in the area as properties south of Idaho Avenue develop and Goodfellow Street is extended south to SE 5th Avenue. The results of this analysis showed that the existing storage for the westbound left-turn lane at Goodfellow Street is expected to be adequate to accommodate 95th percentile queues, even with this development. The traffic operations and queuing analysis results are shown in Attachment "B."

uncomfortable environment for bicyclists or pedestrians crossing the intersection. The channelized right-turn was removed from the design so that the right-turn will follow a similar profile as existing conditions.

Revised Design Concept Components

Figure 1 shows the revised design concept for the East Idaho Avenue Refinement Area. The concept includes a shared-use path south of the road, gateway and overlook treatments, future connections to the planned trail along the Snake River, and an overlook of the river. Enlargements of the Goodfellow Lane and East Lane intersections and the Snake River overlook area are included in Attachment "C."

Shared-Use Path

The primary upgrade proposed is to remove the south side sidewalk and the eastbound bike lane from East Idaho Avenue and replace them with a shared-use path running through the publicly owned tracts on the south side of the road. Since the speed limit on East Idaho Avenue is 35 miles-per-hour (mph), this off-street path will be more comfortable to a wider range of bicyclists than the existing on-street bike lane. It will also be more attractive to pedestrians since it is further from the busy road.

The shared-use path will create a key connection to a future riverfront trail along the Snake River, adding to the riverfront trail's planned connectivity to parks, natural areas, and other future trails around Ontario. The intersection with the future riverfront trail is proposed to be a roundabout with special paving to match the overlook. This roundabout will minimize traffic conflicts as well as create a focal point in the middle for enhanced planting and a gateway element.

Example of a Shared-Use Path in Pendleton Oregon *(**Source: Eastern Oregonian)***

LEGEND

TYPE 1 LANDSCAPE: ENHANCED IRRIGATED PLANTING

TYPE 2 LANDSCAPE: BASIC IRRIGATED - STREET TREES & PLANTS OR GRAVEL MULCH

TYPE 3 LANDSCAPE: NON-IRRIGATED FIELD GRASS

TYPE 4 LANDSCAPE: STORMWATER TREATMENT AREA PLANTING

- PROPOSED STREET TREE
- EXISTING STREET TREE
- PRIMARY GATEWAY ELEMENT
- SECONDARY GATEWAY ELEMENT
- WAYFINDING ELEMENT
- PROPOSED SHARED-USE PATH
- FUTURE RIVERFRONT TRAIL

N

0 75 150 300

SCALE: 1" = 150'

Figure 1

OVERALL PLAN
EAST IDAHO AVENUE REFINEMENT AREA PLAN

Oregon Department of Transportation

Kittelson & Associates, Inc. Transportation Engineering/Planning

GREENWORKS

11.10.2020

To make the new multi-use path most effective, it should extend across both the I-84 overpass and the Highway 30 bridge across the Snake River. This will create a more comfortable and safe experience for bicyclists traveling through the corridor and set the stage for similar improvements in the future beyond this corridor. Currently both bridges have on-street eastbound bike lanes plus sidewalks separated from the road by concrete barriers. Based on the information available, it appears that by moving the barriers toward the centerline (leaving 2 feet shy distance to the vehicular lanes) there will be room for a 12 feet wide shared use path on the I-84 overpass, and an at least 10 feet wide shared use path on the Snake River bridge, both separated from traffic by the barriers.

The guardrail on the Snake River bridge appears to be the minimum 42 inches in height, but taller protection is recommended for cyclists. A “rub rail” should be added to the existing guardrail to raise the height to 54 inches. The guardrail/barrier on the I-84 bridge is much taller.

Overlook

Two nodes are proposed along the shared-use path where users can rest and take in the surroundings. The first is a simple rest stop with a bench, planting, trees for shade, and a view of the enhanced swale, located just east of Goodfellow Street The other is a scenic overlook plaza, located at the edge of the upper river terrace near the toe of the Snake River bridge. This overlook is positioned for a view over the Snake River and the lower river terrace, and to be visible from East Idaho Avenue. Some existing trees may need to be thinned to create the best views. The overlook may feature special paving, enhanced planting, benches, interpretive signage, and gateway elements. An enlargement of the overlook area is shown in Attachment “C.”

Gateway

East Idaho Avenue is the route many take to enter and leave Ontario and the state of Oregon, and I-84 crosses under East Idaho Avenue shortly after it enters Oregon. As such, the East Idaho Avenue Refinement Area is a highly visible opportunity to create a gateway that welcomes visitors (and returning residents) to the city and the state, as well as to create a strong visual identity for Ontario.

Gateways can take many forms, such as arches, columns, walls, banners, signage, special planting, sculpture, or combinations of these elements. A gateway may occupy a single spot or may consist of repeated elements along a route. Gateways are an opportunity to display public art, to highlight the unique local character, and to express civic pride.

Because of the major entry moments at either end of the East Idaho Avenue Refinement Area, we propose creating a series of gateway features that span the whole corridor. Primary gateway features would be prominently displayed near the toe of the Snake River bridge and at the east end of the I-84 overpass. The feature at the I-84 overpass would be visible both from East Idaho Avenue and from I-84 westbound. ODOT has restrictions regarding welcome signage and public art near highways, which may limit the possibilities for gateway elements. Exceptions to these restrictions are common though, for example the Oregon welcome sign and imagery on the I-84 overpass for E. Idaho Ave. Any gateway concepts that are developed in the future will need to be coordinated with and reviewed by ODOT.

Between the primary gateway features, there would be several secondary gateway features along the south side of East Idaho Avenue. These secondary features would be smaller and simpler, but of the same theme and materials as the primary gateway features. Taken together, the series of gateway elements can create a visual identity that ties the East Idaho Avenue Refinement Area together and expresses Ontario's character on a large scale.

Wayfinding

The City of Ontario has recently engaged in conceptual designs for a system of wayfinding elements. Two of these element types are proposed to be located at key points along the shared-use path, both to aid in navigation and to express the City's branded identity. The taller Pedestrian Directional Sign will be placed at intersection decision points, and the smaller bollard version will be placed at intervals along the route. The conceptual designs of the wayfinding elements are shown in Attachment "D."

Example Wayfinding Sign

Planting

The proposed planting is divided into four general landscape types, and the overall intention is to maximize the aesthetic impact of the planting while keeping irrigation and maintenance minimal. Only native and drought-adapted plant species will be used. Examples of the landscape types are shown in Figure 2 and are further described in the following section.

Figure 2 Landscape Types

Type 1 Landscape is enhanced irrigated shrub and tree planting, the densest and most ornamental planting type proposed. It also occupies the smallest proportion of the planted areas, limited to areas where it is most visible and where it supports other key features, such as the gateway elements and the overlook.

Type 2 Landscape includes more basic irrigated planting and trees, primarily located adjacent to the curb. The planting in some places may be replaced by ornamental rock mulch to reduce maintenance needs. Where the shared-use path is near the curb, the area between the two is all Type 2 Landscape. Where the path is further from the curb there is an even-width strip of Type 2 Landscape at the curb, similar to a typical sidewalk planting strip. Without the shared-use path to define the edge, a 12" wide concrete mow band provides a clear distinction between Type 2 and other landscape types which have different maintenance needs.

Type 3 Landscape is non-irrigated field grass with sparse trees. It occupies by far the largest proportion of the planted areas and requires the least maintenance. The grass is intended to be mowed only a few times a year, mainly to minimize fire risk but also to periodically keep weeds down. Since there is no irrigation, trees will need to be watered using "gator bags" or similar for establishment.

Type 4 Landscape is the treatment area planting in the flat bottom of the swales. This is the part that provides the water-quality benefits for the storm runoff, and will include drought-adapted sedges and rushes, plus grass species from the Type 3 field grass. Similar to Type 3, it will only require minimal maintenance, mainly mowing at a few strategic points during the year.

Revised Design Concept Cost Estimate

The total estimated project cost of the East Idaho Avenue Refinement Area Revised Design Concept is approximately $3.8 million. The total estimated construction cost is approximately $2.5 million and the total estimated engineering and contingency costs are approximately $1.3 million. A detailed breakdown of the cost estimate is shown in Attachment "E."

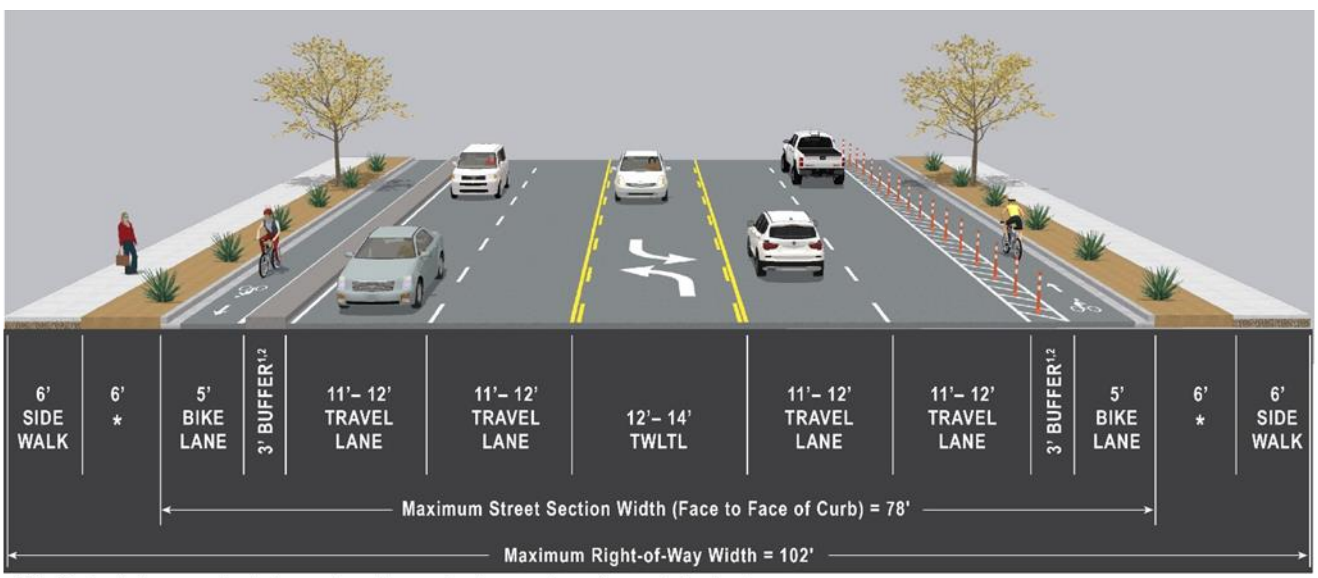
UPDATES TO STREET STANDARDS REVISIONS

The City's Existing Transportation System Plan defines cross-sectional street standards for different roadway functional classifications. The street standards relate the design of the roadway to its desired function. *Technical Memorandum #6* proposed draft updates to the street standards to incorporate best practices for active transportation accommodation. The proposed updates were based on the recommendations and guidance of the Oregon Department of Transportation (ODOT), the National Association of City Transportation Officials (NACTO), and Oregon Transportation and Growth Management (TGM).

The draft street standards presented in *Technical Memorandum #6* were updated based on feedback from the City, PMT, and TAC. The primary updates made to the draft street standards were made to maintain consistency with existing City code requirements and are as follows:

- Added maximum right-of-way width and maximum street section width to each section
- Clarified that street sections could utilize landscape buffers or bioretention swales
- Changed bike lane widths to 5 feet
- Changed local street sidewalk widths to 5 feet
- Changed local street widths to a minimum of 20 feet to meet Fire Code Requirements
- Added a street section for local streets with grades equal to or less that 2%
- Removed the "Skinny Local Street" section

Figures 3-10 show the updated cross-section standards.



[1] Buffer includes a vertical element, such as raised concrete or flexposts/bollards.
[2] If the bike lane is grade separated (i.e., a raised bike lane) the buffer can be reduced to the curb separating the bike lane from the motor vehicle lane.
* Bioretention Swales or Landscape Buffer

Figure 3 Principal Arterial and Five-Lane Minor Arterial Proposed Cross-Section

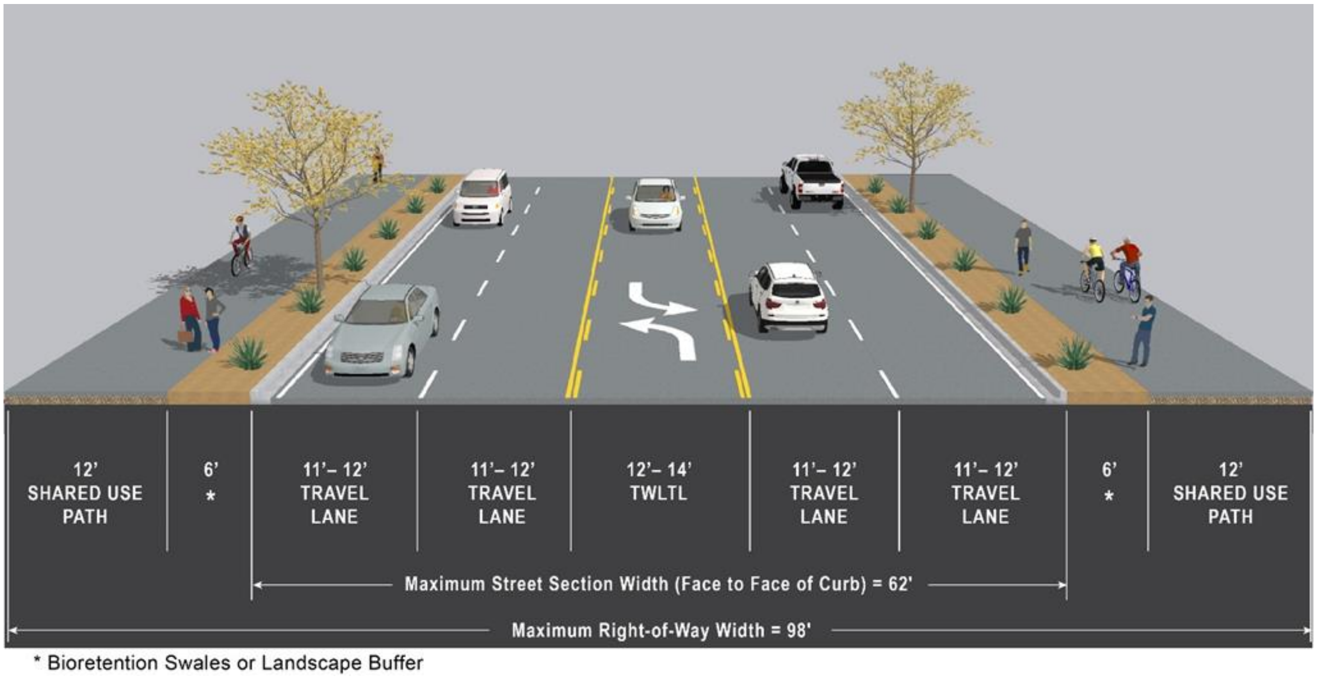


Figure 4 Principal Arterial and Five-Lane Minor Arterial Proposed Cross-Section – Shared-Use Path Option

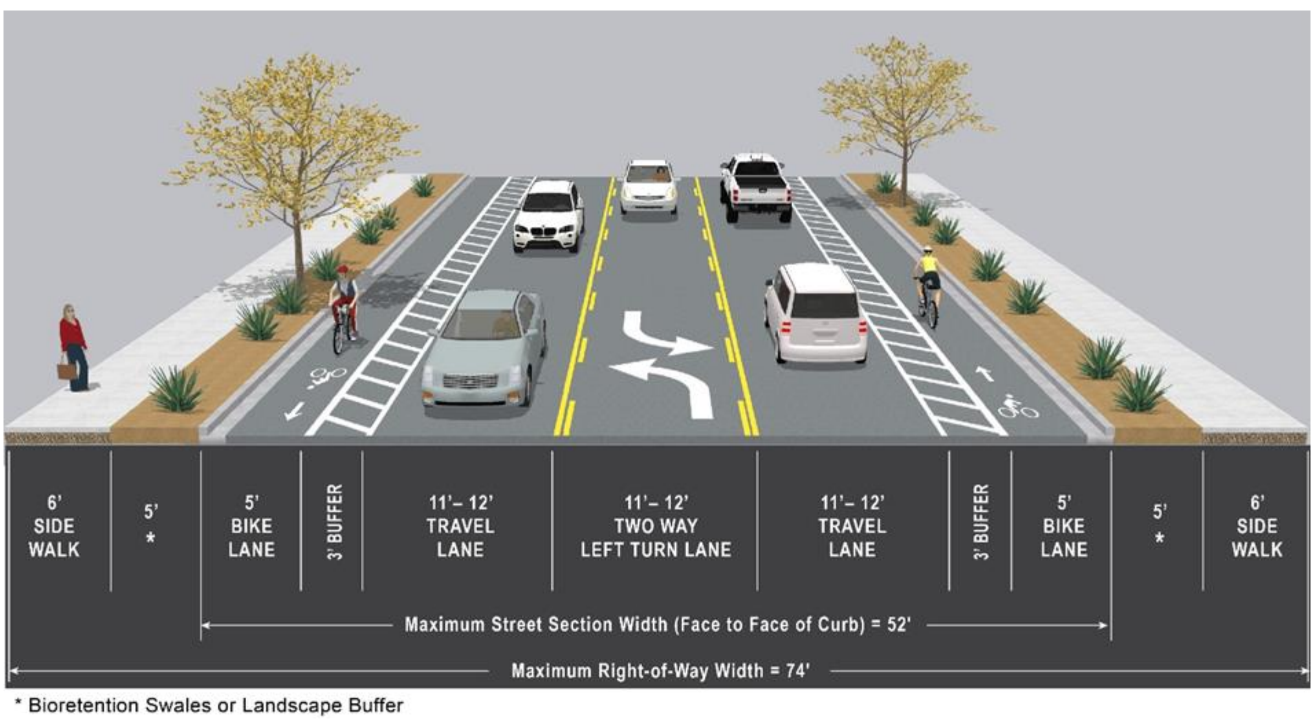
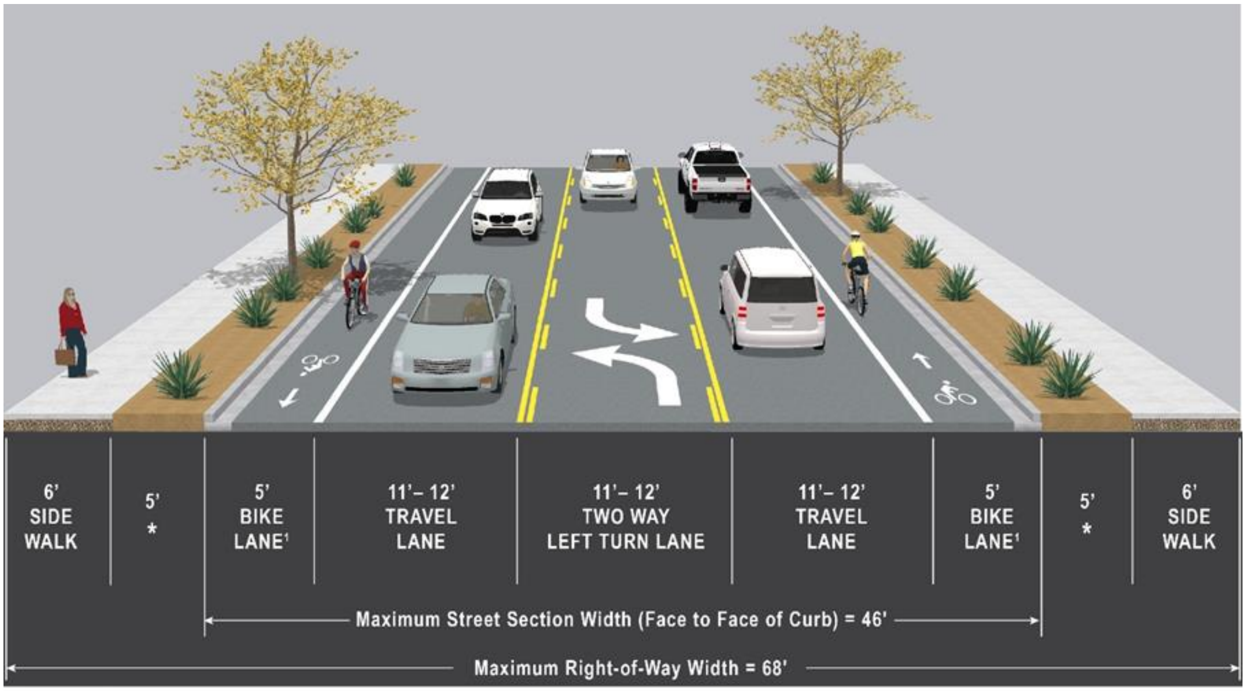
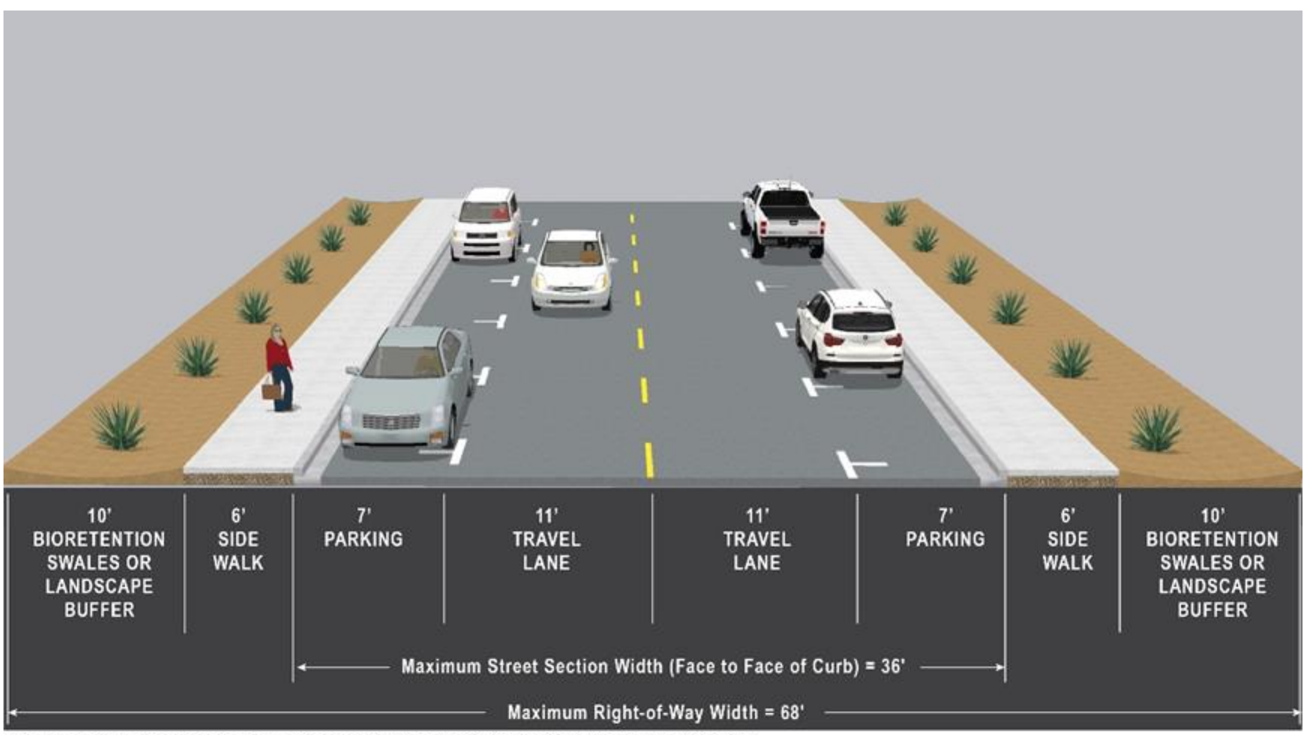


Figure 5 Three-Lane Minor Arterial Cross-Section



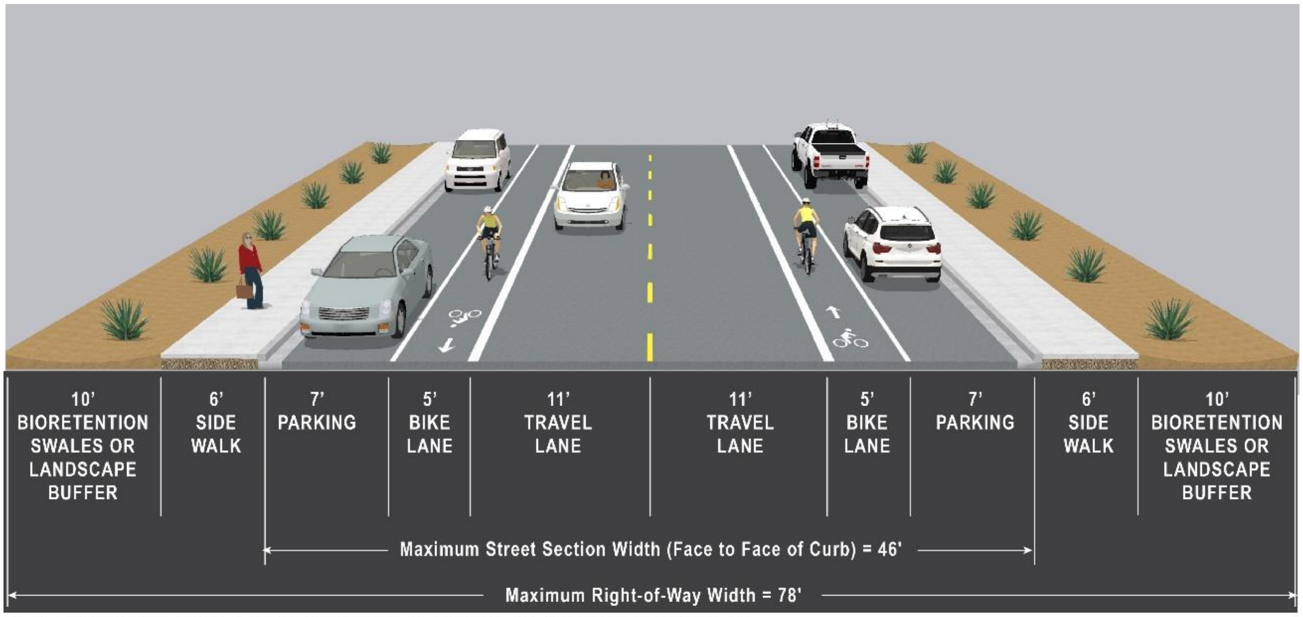
* Bioretention Swales or Landscape Buffer
[1]Bike lane buffer recommended when roadway width is available

Figure 6 Three-Lane Collector Proposed Cross-Section



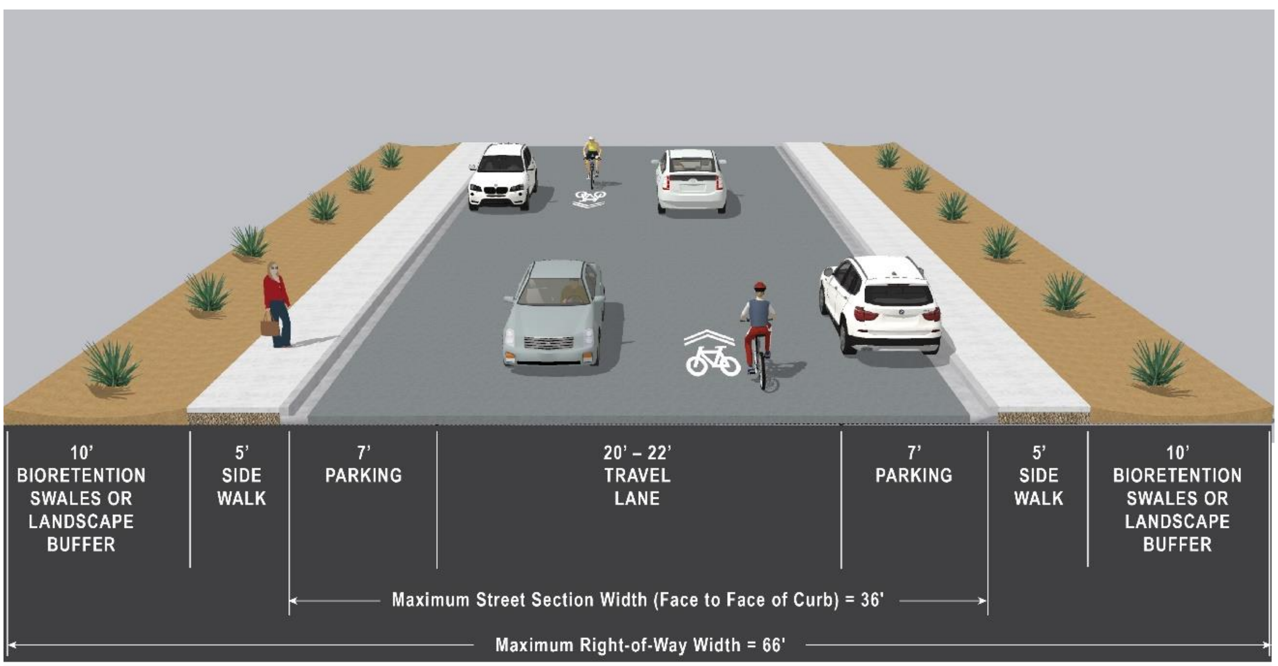
Note: Bioretention swales are not required on streets with grades greater than 2%

Figure 7 Neighborhood Collector Proposed Cross-Section



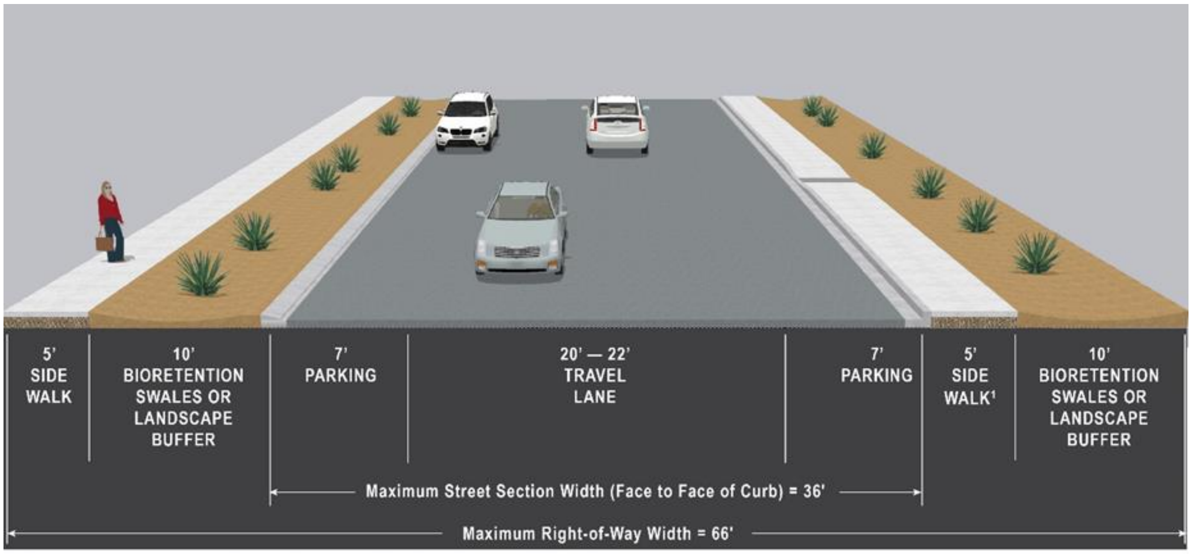
Note: Bioretention swales are not required on streets with grades greater than 2%

Figure 8 Neighborhood Collector with Bike Lanes Proposed Cross-Section



Note: Bioretention swales are not required on streets with grades greater than 2%

Figure 9 Local Street (With Optional Bikeway Designation) Proposed Cross-Section



[1] Curb opening drainage channel through sidewalk with expanded metal cover.

Note: Ribbon curbs or curb openings with drainage channels can be use for final street sections

Figure 10 Local Streets with Grades Equal or Less Than 2 percent

NEXT STEPS

The findings of the memorandum were presented at TAC Meeting #3, an online community open house, and an Ontario Saturday Market. Feedback received from the TAC and the community will be used create the final design concept of East Idaho Avenue and to refine the other elements contained in this memorandum.

REFERENCES

1. Kittelson and Associates. *City of Ontario, Active Transportation Update and East Idaho Avenue Refinement Area Plan Technical Memorandum #6: Draft Design Concepts*. 2020.

ATTACHMENTS

A. Outreach Summary
B. East Idaho Avenue Traffic Analysis Results
C. Revised Design Concept Graphics
D. Wayfinding Graphics
E. Revised Design Concept Cost Estimate

Attachment A Outreach Summary

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MEMORANDUM

Date: September 11, 2020 Project #: 23858

To: Project Management Team

From: Russ Doubleday, Mark Heisinger, EIT, and Nick Foster, AICP, RSP

Project: City of Ontario, Active Transportation Update and East Idaho Avenue Refinement Area Plan

Subject: Task 4 Outreach Summary

The project team and City of Ontario recently completed outreach efforts related to the Draft Design Concept for the East Idaho Avenue Refinement Area, safe routes to school (SRTS) improvements, roadway cross-section updates, and the healthy community impact analysis. These efforts included:

- A booth at the Ontario Saturday Market on August 8, 2020.
- An online workshop held from August 7, 2020 to August 28, 2020.
- Opportunities to provide comments via the project website.

This memorandum summarizes the feedback received from the Saturday Market outreach, online workshop, and any email comments received as of September 10, 2020.

SATURDAY MARKET OUTREACH

Members of the project team had a booth at the Ontario Saturday Market (held at Moore Park) on August 8, 2020 from 10 a.m. to 2 p.m. This provided the opportunity to present the Draft Design Concept and proposed SRTS improvements to the Saturday Market attendees, answer questions related to the project, and solicit feedback on the Task 4 materials. The project team spoke with approximately 44 attendees. Verbal feedback was written down by the project team and the attendees were encouraged to provide additional feedback via the online workshop

Saturday Market Booth

Specific comments and feedback received at the Saturday Market are as follows:

- **East Idaho Avenue Comments**
  - Consider business sponsors or partnerships for trail networks
  - Would like East Idaho Avenue path and river trail to be ADA accessible
  - The East Idaho Avenue improvements are good, but lack connectivity to the rest of town
  - There was concern about congestion and safety near the Dutch Bros access
- **SRTS Comments**
  - Areas west/northwest of Aiken Elementary needs sidewalk and crosswalk improvements.
    - There are gaps in the sidewalk (especially on Verde Drive) and limited crosswalks.
  - Enhanced crossings on 4th Ave are needed
    - Grade-separated crossing in front of hospital would be ideal
    - Cars run the light at 9th St/4th Ave.
  - Alameda Elementary has sidewalk gaps around the immediate vicinity of the school
- **General Comments**
  - Oregon St/Idaho Ave is uncomfortable from a driver perspective especially for WB traffic. Consider removing lanes where not necessary (it's not always clear when a lane is going to be a left-only, shared through/left, etc.).
  - Make sure that beautification focuses on cost-effective treatments. More trees are needed in Ontario.
  - The newspaper is a good way to share information about the project
  - Would like improved ADA accessibility at the rest of the parks, especially river access points.
    - It would be nice to have a list or website that specifies which parks and Fish and Game facilities are ADA accessible.
  - TVCC pathway is a great improvement that has a lot of bike/ped activity (x2)
  - It is good that the City is making a public outreach effort (x2)
  - A river trail like the Greenbelt would be great
  - Have we considered ways to police the river trail? There are issues with homeless camps in the area (x2)
  - Would like to see more green and pleasant places to walk in Ontario – especially 4th Ave
  - Removing goatheads should be a priority on bike facilities

Generally, attendees were supportive of the East Idaho Avenue Draft Design Concept and were glad to see proposed improvements to walking and biking in the area, especially if the proposed pathway connected to a river trail. There were concerns raised about policing on the shared use paths (mainly the river trail) as there have been camps along the river.

Attendees identified 4th Avenue (near 9th Street), Verde Drive, and the streets adjacent to Alameda elementary as locations to prioritize for SRTS improvements.

Other general themes in the attendees' comments included the need to create more walking and biking facilities in areas with trees/greenery and praise for the TVCC pathway. Attendees were also glad to see that the City was making a public outreach effort.

ONLINE WORKSHOPS

An online workshop was held from August 7, 2020 to August 28, 2020. The online workshop presented the East Idaho Avenue Draft Design Concept, SRTS findings, proposed updated street standards, and the healthy communities impact assessment. The online workshop also provided an opportunity for attendees to provide feedback on the materials.

One comment was received through the online workshop. The comment expressed support for the Draft Design Concept and wanted to see separate through and left-turn lanes on Goodfellow Lane since that person believes this would reduce the potential for crashes.

Attachment B East Idaho Avenue Traffic Analysis Results

Queues | Ontario TSP

3: E Idaho Ave & Goodfellow St

Year 2030 - Single EB Left at East Lane

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBT	NBR	SBT	SBR
Lane Group Flow (vph)	282	1256	362	152	1232	65	376	181	135	158
v/c Ratio	1.00	0.81	0.43	0.87	0.92	0.11	1.12	0.33	0.70	0.28
Control Delay	100.9	28.7	4.8	69.1	27.6	2.8	132.6	15.7	66.3	6.4
Queue Delay	0.0	0.0	0.0	0.0	0.3	0.0	0.0	0.0	0.0	0.0
Total Delay	100.9	28.7	4.8	69.1	27.9	2.8	132.6	15.7	66.3	6.4
Queue Length 50th (ft)	~270	493	35	158	668	4	~422	44	116	0
Queue Length 95th (ft)	m#463	443	39	m#220	m653	m4	#631	110	#223	53
Internal Link Dist (ft)		859			728		381		497	
Turn Bay Length (ft)	510		215	275		110		150		
Base Capacity (vph)	282	1658	890	175	1334	594	335	547	192	565
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	7	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	1.00	0.76	0.41	0.87	0.93	0.11	1.12	0.33	0.70	0.28

Intersection Summary

~ Volume exceeds capacity, queue is theoretically infinite.
Queue shown is maximum after two cycles.

95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.

m Volume for 95th percentile queue is metered by upstream signal.

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	274	1218	351	147	1195	63	303	62	176	88	43	153
Future Volume (vph)	274	1218	351	147	1195	63	303	62	176	88	43	153
Ideal Flow (vphpl)	1750	1750	1750	1750	1750	1750	1750	1750	1750	1750	1750	1750
Total Lost time (s)	4.5	5.0	5.0	4.5	5.0	5.0		4.5	4.5		4.5	4.5
Lane Util. Factor	1.00	0.95	1.00	1.00	0.95	1.00		1.00	1.00		1.00	1.00
Frt	1.00	1.00	0.85	1.00	1.00	0.85		1.00	0.85		1.00	0.85
Flt Protected	0.95	1.00	1.00	0.95	1.00	1.00		0.96	1.00		0.97	1.00
Satd. Flow (prot)	1599	3197	1473	1662	3228	1377		1647	1473		1670	1444
Flt Permitted	0.95	1.00	1.00	0.95	1.00	1.00		0.62	1.00		0.35	1.00
Satd. Flow (perm)	1599	3197	1473	1662	3228	1377		1061	1473		607	1444
Peak-hour factor, PHF	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97
Adj. Flow (vph)	282	1256	362	152	1232	65	312	64	181	91	44	158
RTOR Reduction (vph)	0	0	135	0	0	26	0	0	81	0	0	108
Lane Group Flow (vph)	282	1256	227	152	1232	39	0	376	100	0	135	50
Heavy Vehicles (%)	4%	4%	1%	0%	3%	8%	1%	7%	1%	2%	0%	3%
Turn Type	Prot	NA	Perm	Prot	NA	Perm	Perm	NA	Perm	Perm	NA	Perm
Protected Phases	5	2		1	6			8			4	
Permitted Phases			2			6	8		8	4		4
Actuated Green, G (s)	26.5	72.7	72.7	15.8	62.0	62.0		47.5	47.5		47.5	47.5
Effective Green, g (s)	26.5	72.7	72.7	15.8	62.0	62.0		47.5	47.5		47.5	47.5
Actuated g/C Ratio	0.18	0.48	0.48	0.11	0.41	0.41		0.32	0.32		0.32	0.32
Clearance Time (s)	4.5	5.0	5.0	4.5	5.0	5.0		4.5	4.5		4.5	4.5
Vehicle Extension (s)	2.5	4.8	4.8	2.5	4.8	4.8		2.5	2.5		2.5	2.5
Lane Grp Cap (vph)	282	1549	713	175	1334	569		335	466		192	457
v/s Ratio Prot	c0.18	0.39		0.09	c0.38							
v/s Ratio Perm			0.15			0.03		c0.35	0.07		0.22	0.03
v/c Ratio	1.00	0.81	0.32	0.87	0.92	0.07		1.12	0.22		0.70	0.11
Uniform Delay, d1	61.8	32.8	23.6	66.1	41.8	26.6		51.2	37.6		45.1	36.3
Progression Factor	0.95	0.78	0.63	0.70	0.52	0.24		1.00	1.00		1.00	1.00
Incremental Delay, d2	43.0	3.1	0.8	15.8	5.4	0.1		86.5	0.2		10.3	0.1
Delay (s)	101.7	28.8	15.7	62.1	27.0	6.5		137.7	37.8		55.4	36.4
Level of Service	F	C	B	E	C	A		F	D		E	D
Approach Delay (s)		37.1			29.7			105.2			45.1	
Approach LOS		D			C			F			D	

Intersection Summary			
HCM 2000 Control Delay	44.2	HCM 2000 Level of Service	D
HCM 2000 Volume to Capacity ratio	1.01		
Actuated Cycle Length (s)	150.0	Sum of lost time (s)	14.0
Intersection Capacity Utilization	92.4%	ICU Level of Service	F
Analysis Period (min)	15		
c Critical Lane Group			

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	274	1218	351	147	1195	63	303	62	176	88	43	153
Future Volume (veh/h)	274	1218	351	147	1195	63	303	62	176	88	43	153
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1695	1695	1736	1750	1709	1641	1654	1654	1736	1750	1750	1709
Adj Flow Rate, veh/h	282	1256	362	152	1232	65	312	64	181	91	44	158
Peak Hour Factor	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97
Percent Heavy Veh, %	4	4	1	0	3	8	7	7	1	0	0	3
Cap, veh/h	285	1388	634	260	1342	575	44	0	466	40	11	459
Arrive On Green	0.35	0.86	0.86	0.31	0.83	0.83	0.32	0.32	0.32	0.32	0.32	0.32
Sat Flow, veh/h	1615	3221	1471	1667	3247	1391	0	0	1471	0	36	1448
Grp Volume(v), veh/h	282	1256	362	152	1232	65	376	0	181	135	0	158
Grp Sat Flow(s),veh/h/ln	1615	1611	1471	1667	1624	1391	0	0	1471	36	0	1448
Q Serve(g_s), s	26.0	36.7	10.0	11.5	40.9	1.3	0.0	0.0	14.4	0.0	0.0	12.6
Cycle Q Clear(g_c), s	26.0	36.7	10.0	11.5	40.9	1.3	47.5	0.0	14.4	47.5	0.0	12.6
Prop In Lane	1.00		1.00	1.00		1.00	0.83		1.00	0.67		1.00
Lane Grp Cap(c), veh/h	285	1388	634	260	1342	575	44	0	466	51	0	459
V/C Ratio(X)	0.99	0.90	0.57	0.59	0.92	0.11	8.56	0.00	0.39	2.62	0.00	0.34
Avail Cap(c_a), veh/h	285	1671	763	260	1342	575	44	0	466	51	0	459
HCM Platoon Ratio	2.00	2.00	2.00	2.00	2.00	2.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	0.56	0.56	0.56	0.26	0.26	0.26	1.00	0.00	1.00	1.00	0.00	1.00
Uniform Delay (d), s/veh	48.3	8.4	6.6	47.6	11.2	7.7	75.0	0.0	39.9	64.7	0.0	39.3
Incr Delay (d2), s/veh	36.8	6.1	2.1	0.8	3.6	0.1	3448.7	0.0	0.4	783.2	0.0	0.3
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(95%),veh/ln	16.3	7.3	4.2	6.1	7.0	0.8	74.9	0.0	9.1	23.7	0.0	8.1
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	85.1	14.5	8.7	48.3	14.7	7.8	3523.7	0.0	40.3	847.9	0.0	39.6
LnGrp LOS	F	B	A	D	B	A	F	A	D	F	A	D
Approach Vol, veh/h		1900			1449			557			293	
Approach Delay, s/veh		23.9			17.9			2391.8			412.1	
Approach LOS		C			B			F			F	

Timer - Assigned Phs	1	2		4	5	6		8
Phs Duration (G+Y+Rc), s	28.4	69.6		52.0	31.0	67.0		52.0
Change Period (Y+Rc), s	5.0	* 5		4.5	4.5	5.0		4.5
Max Green Setting (Gmax), s	10.7	* 78		47.5	26.5	62.0		47.5
Max Q Clear Time (g_c+I1), s	13.5	38.7		49.5	28.0	42.9		49.5
Green Ext Time (p_c), s	0.0	25.9		0.0	0.0	13.5		0.0

Intersection Summary	
HCM 6th Ctrl Delay	363.0
HCM 6th LOS	F

Notes

User approved pedestrian interval to be less than phase max green.

* HCM 6th computational engine requires equal clearance times for the phases crossing the barrier.

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Group Flow (vph)	352	1164	175	395	1088	122	179	185	516	261	266	211
v/c Ratio	0.97	0.93	0.28	0.80	1.03	0.23	0.76	0.76	1.05	0.93	0.97	0.49
Control Delay	113.7	39.9	13.0	73.9	86.0	9.1	82.2	81.2	76.4	98.5	106.2	10.5
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	113.7	39.9	13.0	73.9	86.0	9.1	82.2	81.2	76.4	98.5	106.2	10.5
Queue Length 50th (ft)	362	305	20	194	~604	9	180	185	~266	267	274	0
Queue Length 95th (ft)	#557	#764	m62	245	#744	57	#303	#310	#499	#448	#465	75
Internal Link Dist (ft)		728			448			1219			507	
Turn Bay Length (ft)	275		150	440		240	250		250	280		280
Base Capacity (vph)	367	1252	618	600	1052	540	235	244	492	283	278	429
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.96	0.93	0.28	0.66	1.03	0.23	0.76	0.76	1.05	0.92	0.96	0.49

Intersection Summary

~ Volume exceeds capacity, queue is theoretically infinite.
Queue shown is maximum after two cycles.

95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.

m Volume for 95th percentile queue is metered by upstream signal.

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	320	1059	159	359	990	111	209	122	470	349	130	192
Future Volume (vph)	320	1059	159	359	990	111	209	122	470	349	130	192
Ideal Flow (vphpl)	1750	1750	1750	1750	1750	1750	1750	1750	1750	1750	1750	1750
Total Lost time (s)	4.5	5.0	5.0	4.5	5.0	5.0	4.5	4.5	4.5	4.5	4.5	4.5
Lane Util. Factor	1.00	0.95	1.00	0.97	0.95	1.00	0.95	0.95	1.00	0.95	0.95	1.00
Frt	1.00	1.00	0.85	1.00	1.00	0.85	1.00	1.00	0.85	1.00	1.00	0.85
Flt Protected	0.95	1.00	1.00	0.95	1.00	1.00	0.95	0.99	1.00	0.95	0.98	1.00
Satd. Flow (prot)	1646	3228	1473	3162	3260	1444	1548	1608	1458	1548	1521	1403
Flt Permitted	0.95	1.00	1.00	0.95	1.00	1.00	0.95	0.99	1.00	0.95	0.98	1.00
Satd. Flow (perm)	1646	3228	1473	3162	3260	1444	1548	1608	1458	1548	1521	1403
Peak-hour factor, PHF	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91
Adj. Flow (vph)	352	1164	175	395	1088	122	230	134	516	384	143	211
RTOR Reduction (vph)	0	0	47	0	0	74	0	0	271	0	0	173
Lane Group Flow (vph)	352	1164	128	395	1088	48	179	185	245	261	266	38
Heavy Vehicles (%)	1%	3%	1%	2%	2%	3%	2%	2%	2%	2%	11%	6%
Turn Type	Prot	NA	Perm	Prot	NA	Perm	Split	NA	Perm	Split	NA	Perm
Protected Phases	5	2		1	6		8	8		4	4	
Permitted Phases			2			6			8			4
Actuated Green, G (s)	33.1	58.2	58.2	23.3	48.4	48.4	22.8	22.8	22.8	27.2	27.2	27.2
Effective Green, g (s)	33.1	58.2	58.2	23.3	48.4	48.4	22.8	22.8	22.8	27.2	27.2	27.2
Actuated g/C Ratio	0.22	0.39	0.39	0.16	0.32	0.32	0.15	0.15	0.15	0.18	0.18	0.18
Clearance Time (s)	4.5	5.0	5.0	4.5	5.0	5.0	4.5	4.5	4.5	4.5	4.5	4.5
Vehicle Extension (s)	2.5	4.8	4.8	2.5	4.8	4.8	2.5	2.5	2.5	2.5	2.5	2.5
Lane Grp Cap (vph)	363	1252	571	491	1051	465	235	244	221	280	275	254
v/s Ratio Prot	c0.21	0.36		0.12	c0.33		0.12	0.12		0.17	c0.17	
v/s Ratio Perm			0.09			0.03			c0.17			0.03
v/c Ratio	0.97	0.93	0.23	0.80	1.04	0.10	0.76	0.76	1.11	0.93	0.97	0.15
Uniform Delay, d1	58.0	43.9	30.8	61.2	50.8	35.6	61.0	61.0	63.6	60.5	61.0	51.7
Progression Factor	1.41	0.63	0.66	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Incremental Delay, d2	33.2	10.9	0.7	9.0	37.3	0.4	13.0	12.1	92.2	36.0	44.8	0.2
Delay (s)	115.0	38.6	20.9	70.2	88.1	36.0	74.0	73.0	155.8	96.5	105.8	51.9
Level of Service	F	D	C	E	F	D	E	E	F	F	F	D
Approach Delay (s)		52.7			79.7			121.7			87.1	
Approach LOS		D			E			F			F	

Intersection Summary			
HCM 2000 Control Delay	79.0	HCM 2000 Level of Service	E
HCM 2000 Volume to Capacity ratio	1.02		
Actuated Cycle Length (s)	150.0	Sum of lost time (s)	18.5
Intersection Capacity Utilization	89.2%	ICU Level of Service	E
Analysis Period (min)	15		
c Critical Lane Group			

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	320	1059	159	359	990	111	209	122	470	349	130	192
Future Volume (veh/h)	320	1059	159	359	990	111	209	122	470	349	130	192
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1736	1709	1736	1723	1723	1709	1723	1723	1723	1723	1600	1668
Adj Flow Rate, veh/h	352	1164	175	395	1088	122	182	201	516	264	312	211
Peak Hour Factor	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91
Percent Heavy Veh, %	1	3	1	2	2	3	2	2	2	2	11	6
Cap, veh/h	368	1310	594	446	1050	465	246	258	219	301	293	259
Arrive On Green	0.30	0.54	0.54	0.14	0.32	0.32	0.15	0.15	0.15	0.18	0.18	0.18
Sat Flow, veh/h	1654	3247	1471	3183	3273	1448	1641	1723	1460	1641	1600	1414
Grp Volume(v), veh/h	352	1164	175	395	1088	122	182	201	516	264	312	211
Grp Sat Flow(s),veh/h/ln	1654	1624	1471	1591	1637	1448	1641	1723	1460	1641	1600	1414
Q Serve(g_s), s	31.4	47.6	9.8	18.3	48.1	9.4	15.9	16.8	22.5	23.5	27.5	21.5
Cycle Q Clear(g_c), s	31.4	47.6	9.8	18.3	48.1	9.4	15.9	16.8	22.5	23.5	27.5	21.5
Prop In Lane	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	368	1310	594	446	1050	465	246	258	219	301	293	259
V/C Ratio(X)	0.96	0.89	0.29	0.89	1.04	0.26	0.74	0.78	2.36	0.88	1.06	0.81
Avail Cap(c_a), veh/h	369	1310	594	605	1050	465	246	258	219	301	293	259
HCM Platoon Ratio	1.33	1.33	1.33	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	0.58	0.58	0.58	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	52.1	31.8	23.0	63.3	50.9	37.8	60.9	61.3	63.7	59.6	61.3	58.8
Incr Delay (d2), s/veh	25.2	5.7	0.7	10.9	37.5	1.4	10.7	13.5	624.3	23.8	70.4	17.3
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(95%),veh/ln	19.8	23.2	5.7	12.7	33.9	6.4	11.9	13.2	73.2	17.5	24.5	14.0
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	77.3	37.5	23.8	74.2	88.5	39.1	71.7	74.8	688.0	83.4	131.7	76.1
LnGrp LOS	E	D	C	E	F	D	E	E	F	F	F	E
Approach Vol, veh/h		1691			1605			899			787	
Approach Delay, s/veh		44.4			81.2			426.2			100.6	
Approach LOS		D			F			F			F	
Timer - Assigned Phs	1	2		4	5	6		8				
Phs Duration (G+Y+Rc), s	25.5	65.5		32.0	37.9	53.1		27.0				
Change Period (Y+Rc), s	4.5	5.0		4.5	4.5	5.0		4.5				
Max Green Setting (Gmax), s	28.5	53.0		27.5	33.5	48.0		22.5				
Max Q Clear Time (g_c+I1), s	20.3	49.6		29.5	33.4	50.1		24.5				
Green Ext Time (p_c), s	0.7	2.9		0.0	0.0	0.0		0.0				

Intersection Summary		
HCM 6th Ctrl Delay		134.0
HCM 6th LOS		F

Notes

User approved pedestrian interval to be less than phase max green.
User approved volume balancing among the lanes for turning movement.

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBT	NBR	SBT	SBR
Lane Group Flow (vph)	282	1256	362	152	1232	65	376	181	135	158
v/c Ratio	1.00	0.81	0.43	0.47	0.93	0.11	1.10	0.33	0.68	0.28
Control Delay	100.9	28.7	4.8	53.9	37.7	3.5	125.3	15.7	63.1	6.4
Queue Delay	0.0	0.0	0.0	0.0	0.3	0.0	0.0	0.0	0.0	0.0
Total Delay	100.9	28.7	4.8	53.9	38.0	3.5	125.3	15.7	63.1	6.4
Queue Length 50th (ft)	~270	493	35	80	668	5	~421	44	116	0
Queue Length 95th (ft)	m#463	443	39	m98	#752	m6	#630	110	#218	53
Internal Link Dist (ft)		859			728		381		497	
Turn Bay Length (ft)	510		215	275		110		150		
Base Capacity (vph)	282	1658	890	323	1334	594	341	554	200	571
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	7	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	1.00	0.76	0.41	0.47	0.93	0.11	1.10	0.33	0.68	0.28

Intersection Summary

~ Volume exceeds capacity, queue is theoretically infinite.
Queue shown is maximum after two cycles.

95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.

m Volume for 95th percentile queue is metered by upstream signal.

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	274	1218	351	147	1195	63	303	62	176	88	43	153
Future Volume (vph)	274	1218	351	147	1195	63	303	62	176	88	43	153
Ideal Flow (vphpl)	1750	1750	1750	1750	1750	1750	1750	1750	1750	1750	1750	1750
Total Lost time (s)	4.5	5.0	5.0	4.5	5.0	5.0		4.5	4.5		4.5	4.5
Lane Util. Factor	1.00	0.95	1.00	0.97	0.95	1.00		1.00	1.00		1.00	1.00
Frt	1.00	1.00	0.85	1.00	1.00	0.85		1.00	0.85		1.00	0.85
Flt Protected	0.95	1.00	1.00	0.95	1.00	1.00		0.96	1.00		0.97	1.00
Satd. Flow (prot)	1599	3197	1473	3225	3228	1377		1647	1473		1670	1444
Flt Permitted	0.95	1.00	1.00	0.95	1.00	1.00		0.62	1.00		0.36	1.00
Satd. Flow (perm)	1599	3197	1473	3225	3228	1377		1064	1473		623	1444
Peak-hour factor, PHF	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97
Adj. Flow (vph)	282	1256	362	152	1232	65	312	64	181	91	44	158
RTOR Reduction (vph)	0	0	135	0	0	26	0	0	80	0	0	107
Lane Group Flow (vph)	282	1256	227	152	1232	39	0	376	101	0	135	51
Heavy Vehicles (%)	4%	4%	1%	0%	3%	8%	1%	7%	1%	2%	0%	3%
Turn Type	Prot	NA	Perm	Prot	NA	Perm	Perm	NA	Perm	Perm	NA	Perm
Protected Phases	5	2		1	6			8			4	
Permitted Phases			2			6	8		8	4		4
Actuated Green, G (s)	26.5	72.7	72.7	15.0	61.2	61.2		48.3	48.3		48.3	48.3
Effective Green, g (s)	26.5	72.7	72.7	15.0	61.2	61.2		48.3	48.3		48.3	48.3
Actuated g/C Ratio	0.18	0.48	0.48	0.10	0.41	0.41		0.32	0.32		0.32	0.32
Clearance Time (s)	4.5	5.0	5.0	4.5	5.0	5.0		4.5	4.5		4.5	4.5
Vehicle Extension (s)	2.5	4.8	4.8	2.5	4.8	4.8		2.5	2.5		2.5	2.5
Lane Grp Cap (vph)	282	1549	713	322	1317	561		342	474		200	464
v/s Ratio Prot	c0.18	0.39		0.05	c0.38							
v/s Ratio Perm			0.15			0.03		c0.35	0.07		0.22	0.04
v/c Ratio	1.00	0.81	0.32	0.47	0.94	0.07		1.10	0.21		0.68	0.11
Uniform Delay, d1	61.8	32.8	23.6	63.8	42.5	27.1		50.9	37.0		44.1	35.7
Progression Factor	0.95	0.78	0.63	0.78	0.66	0.29		1.00	1.00		1.00	1.00
Incremental Delay, d2	43.0	3.1	0.8	0.5	9.2	0.1		78.1	0.2		7.9	0.1
Delay (s)	101.7	28.8	15.7	50.0	37.4	8.1		128.9	37.2		52.0	35.8
Level of Service	F	C	B	D	D	A		F	D		D	D
Approach Delay (s)		37.1			37.4			99.1			43.3	
Approach LOS		D			D			F			D	

Intersection Summary			
HCM 2000 Control Delay	45.9	HCM 2000 Level of Service	D
HCM 2000 Volume to Capacity ratio	1.01		
Actuated Cycle Length (s)	150.0	Sum of lost time (s)	14.0
Intersection Capacity Utilization	92.4%	ICU Level of Service	F
Analysis Period (min)	15		
c Critical Lane Group			

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	274	1218	351	147	1195	63	303	62	176	88	43	153
Future Volume (veh/h)	274	1218	351	147	1195	63	303	62	176	88	43	153
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1695	1695	1736	1750	1709	1641	1654	1654	1736	1750	1750	1709
Adj Flow Rate, veh/h	282	1256	362	152	1232	65	312	64	181	91	44	158
Peak Hour Factor	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97
Percent Heavy Veh, %	4	4	1	0	3	8	7	7	1	0	0	3
Cap, veh/h	285	1388	634	504	1342	575	44	0	466	40	11	459
Arrive On Green	0.35	0.86	0.86	0.31	0.83	0.83	0.32	0.32	0.32	0.32	0.32	0.32
Sat Flow, veh/h	1615	3221	1471	3233	3247	1391	0	0	1471	0	36	1448
Grp Volume(v), veh/h	282	1256	362	152	1232	65	376	0	181	135	0	158
Grp Sat Flow(s),veh/h/ln	1615	1611	1471	1617	1624	1391	0	0	1471	36	0	1448
Q Serve(g_s), s	26.0	36.7	10.0	5.4	40.9	1.3	0.0	0.0	14.4	0.0	0.0	12.6
Cycle Q Clear(g_c), s	26.0	36.7	10.0	5.4	40.9	1.3	47.5	0.0	14.4	47.5	0.0	12.6
Prop In Lane	1.00		1.00	1.00		1.00	0.83		1.00	0.67		1.00
Lane Grp Cap(c), veh/h	285	1388	634	504	1342	575	44	0	466	51	0	459
V/C Ratio(X)	0.99	0.90	0.57	0.30	0.92	0.11	8.56	0.00	0.39	2.62	0.00	0.34
Avail Cap(c_a), veh/h	285	1671	763	504	1342	575	44	0	466	51	0	459
HCM Platoon Ratio	2.00	2.00	2.00	2.00	2.00	2.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	0.56	0.56	0.56	0.54	0.54	0.54	1.00	0.00	1.00	1.00	0.00	1.00
Uniform Delay (d), s/veh	48.3	8.4	6.6	45.4	11.2	7.7	75.0	0.0	39.9	64.7	0.0	39.3
Incr Delay (d2), s/veh	36.8	6.1	2.1	0.1	6.8	0.2	3448.7	0.0	0.4	783.2	0.0	0.3
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(95%),veh/ln	16.3	7.3	4.2	3.8	8.6	0.8	74.9	0.0	9.1	23.7	0.0	8.1
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	85.1	14.5	8.7	45.6	18.0	8.0	3523.7	0.0	40.3	847.9	0.0	39.6
LnGrp LOS	F	B	A	D	B	A	F	A	D	F	A	D
Approach Vol, veh/h		1900			1449			557			293	
Approach Delay, s/veh		23.9			20.4			2391.8			412.1	
Approach LOS		C			C			F			F	

Timer - Assigned Phs	1	2		4	5	6		8
Phs Duration (G+Y+Rc), s	28.4	69.6		52.0	31.0	67.0		52.0
Change Period (Y+Rc), s	5.0	* 5		4.5	4.5	5.0		4.5
Max Green Setting (Gmax), s	10.7	* 78		47.5	26.5	62.0		47.5
Max Q Clear Time (g_c+I1), s	7.4	38.7		49.5	28.0	42.9		49.5
Green Ext Time (p_c), s	0.1	25.9		0.0	0.0	13.5		0.0

Intersection Summary	
HCM 6th Ctrl Delay	363.9
HCM 6th LOS	F

Notes

User approved pedestrian interval to be less than phase max green.

* HCM 6th computational engine requires equal clearance times for the phases crossing the barrier.

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Group Flow (vph)	352	1164	175	395	1088	122	179	185	516	261	266	211
v/c Ratio	0.77	0.93	0.28	0.80	0.83	0.19	0.76	0.76	1.05	0.93	0.97	0.49
Control Delay	86.3	39.9	13.0	73.9	47.6	7.5	82.2	81.2	76.4	98.5	106.2	10.5
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	86.3	39.9	13.0	73.9	47.6	7.5	82.2	81.2	76.4	98.5	106.2	10.5
Queue Length 50th (ft)	184	305	20	194	501	8	180	185	~266	267	274	0
Queue Length 95th (ft)	236	#764	m62	245	#667	53	#303	#310	#499	#448	#465	75
Internal Link Dist (ft)		728			448			1219			507	
Turn Bay Length (ft)	275		150	440		240	250		250	280		280
Base Capacity (vph)	713	1252	618	600	1306	643	235	244	492	283	278	429
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.49	0.93	0.28	0.66	0.83	0.19	0.76	0.76	1.05	0.92	0.96	0.49

Intersection Summary

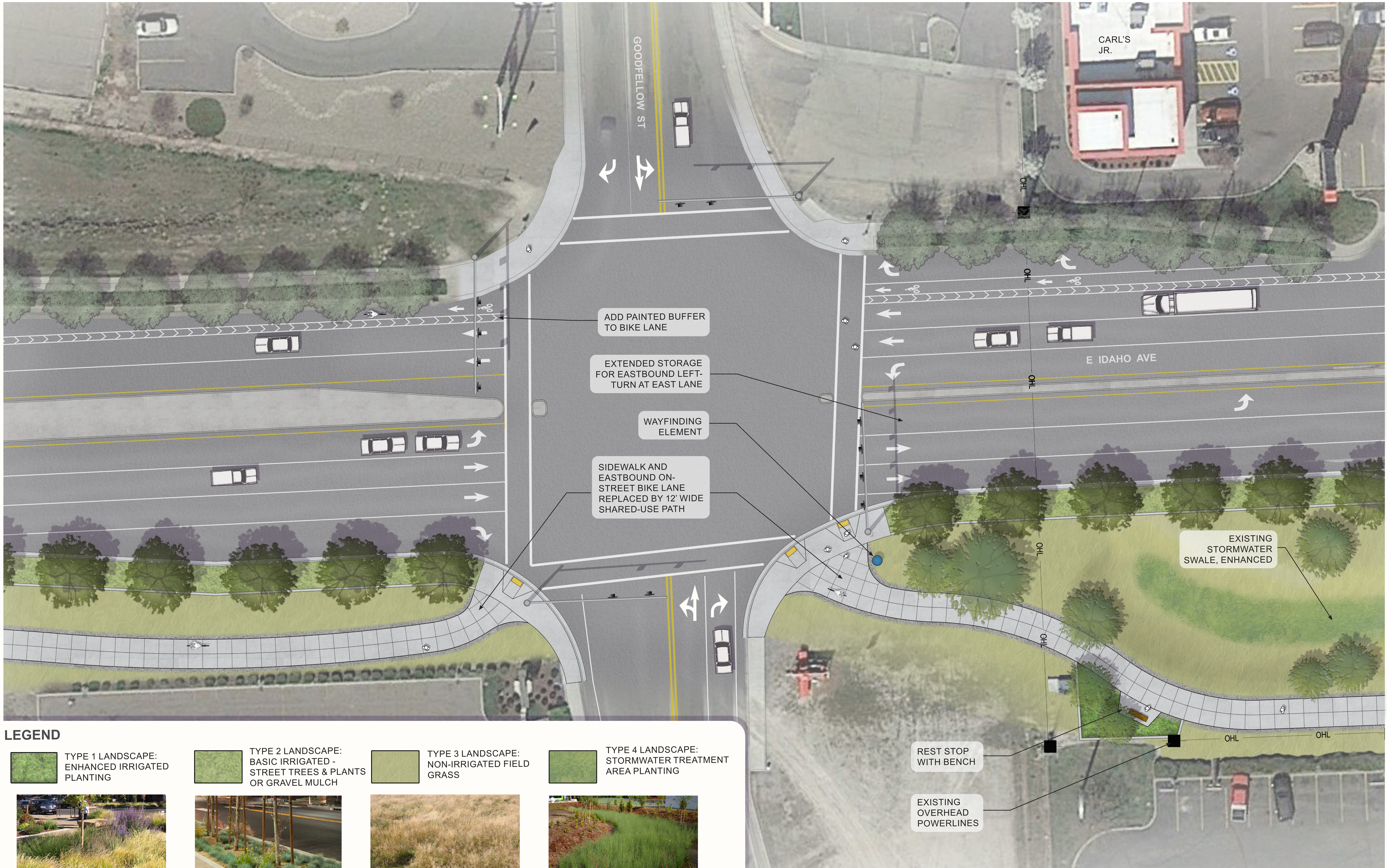
~ Volume exceeds capacity, queue is theoretically infinite.
Queue shown is maximum after two cycles.
95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.
m Volume for 95th percentile queue is metered by upstream signal.

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	320	1059	159	359	990	111	209	122	470	349	130	192
Future Volume (vph)	320	1059	159	359	990	111	209	122	470	349	130	192
Ideal Flow (vphpl)	1750	1750	1750	1750	1750	1750	1750	1750	1750	1750	1750	1750
Total Lost time (s)	4.5	5.0	5.0	4.5	5.0	5.0	4.5	4.5	4.5	4.5	4.5	4.5
Lane Util. Factor	0.97	0.95	1.00	0.97	0.95	1.00	0.95	0.95	1.00	0.95	0.95	1.00
Frt	1.00	1.00	0.85	1.00	1.00	0.85	1.00	1.00	0.85	1.00	1.00	0.85
Flt Protected	0.95	1.00	1.00	0.95	1.00	1.00	0.95	0.99	1.00	0.95	0.98	1.00
Satd. Flow (prot)	3193	3228	1473	3162	3260	1444	1548	1608	1458	1548	1521	1403
Flt Permitted	0.95	1.00	1.00	0.95	1.00	1.00	0.95	0.99	1.00	0.95	0.98	1.00
Satd. Flow (perm)	3193	3228	1473	3162	3260	1444	1548	1608	1458	1548	1521	1403
Peak-hour factor, PHF	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91
Adj. Flow (vph)	352	1164	175	395	1088	122	230	134	516	384	143	211
RTOR Reduction (vph)	0	0	47	0	0	65	0	0	271	0	0	173
Lane Group Flow (vph)	352	1164	128	395	1088	57	179	185	245	261	266	38
Heavy Vehicles (%)	1%	3%	1%	2%	2%	3%	2%	2%	2%	2%	11%	6%
Turn Type	Prot	NA	Perm	Prot	NA	Perm	Split	NA	Perm	Split	NA	Perm
Protected Phases	5	2		1	6		8	8		4	4	
Permitted Phases			2			6			8			4
Actuated Green, G (s)	21.4	58.2	58.2	23.3	60.1	60.1	22.8	22.8	22.8	27.2	27.2	27.2
Effective Green, g (s)	21.4	58.2	58.2	23.3	60.1	60.1	22.8	22.8	22.8	27.2	27.2	27.2
Actuated g/C Ratio	0.14	0.39	0.39	0.16	0.40	0.40	0.15	0.15	0.15	0.18	0.18	0.18
Clearance Time (s)	4.5	5.0	5.0	4.5	5.0	5.0	4.5	4.5	4.5	4.5	4.5	4.5
Vehicle Extension (s)	2.5	4.8	4.8	2.5	4.8	4.8	2.5	2.5	2.5	2.5	2.5	2.5
Lane Grp Cap (vph)	455	1252	571	491	1306	578	235	244	221	280	275	254
v/s Ratio Prot	0.11	c0.36		c0.12	0.33		0.12	0.12		0.17	c0.17	
v/s Ratio Perm			0.09			0.04			c0.17			0.03
v/c Ratio	0.77	0.93	0.23	0.80	0.83	0.10	0.76	0.76	1.11	0.93	0.97	0.15
Uniform Delay, d1	62.0	43.9	30.8	61.2	40.4	28.0	61.0	61.0	63.6	60.5	61.0	51.7
Progression Factor	1.25	0.63	0.66	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Incremental Delay, d2	6.0	10.9	0.7	9.0	6.3	0.3	13.0	12.1	92.2	36.0	44.8	0.2
Delay (s)	83.4	38.7	21.0	70.2	46.8	28.4	74.0	73.0	155.8	96.5	105.8	51.9
Level of Service	F	D	C	E	D	C	E	E	F	F	F	D
Approach Delay (s)		46.1			51.1			121.7			87.1	
Approach LOS		D			D			F			F	

Intersection Summary			
HCM 2000 Control Delay	67.5	HCM 2000 Level of Service	E
HCM 2000 Volume to Capacity ratio	0.94		
Actuated Cycle Length (s)	150.0	Sum of lost time (s)	18.5
Intersection Capacity Utilization	89.2%	ICU Level of Service	E
Analysis Period (min)	15		
c Critical Lane Group			

HCM 6th Edition methodology does not support turning movements with shared & exclusive lanes.

Attachment C Revised Design Concept Graphics



LEGEND

TYPE 1 LANDSCAPE: ENHANCED IRRIGATED PLANTING

TYPE 2 LANDSCAPE: BASIC IRRIGATED - STREET TREES & PLANTS OR GRAVEL MULCH

TYPE 3 LANDSCAPE: NON-IRRIGATED FIELD GRASS

TYPE 4 LANDSCAPE: STORMWATER TREATMENT AREA PLANTING

0 10 20 40

SCALE: 1" = 20'

N

GOODFELLOW ST. INTERSECTION ENLARGEMENT PLAN

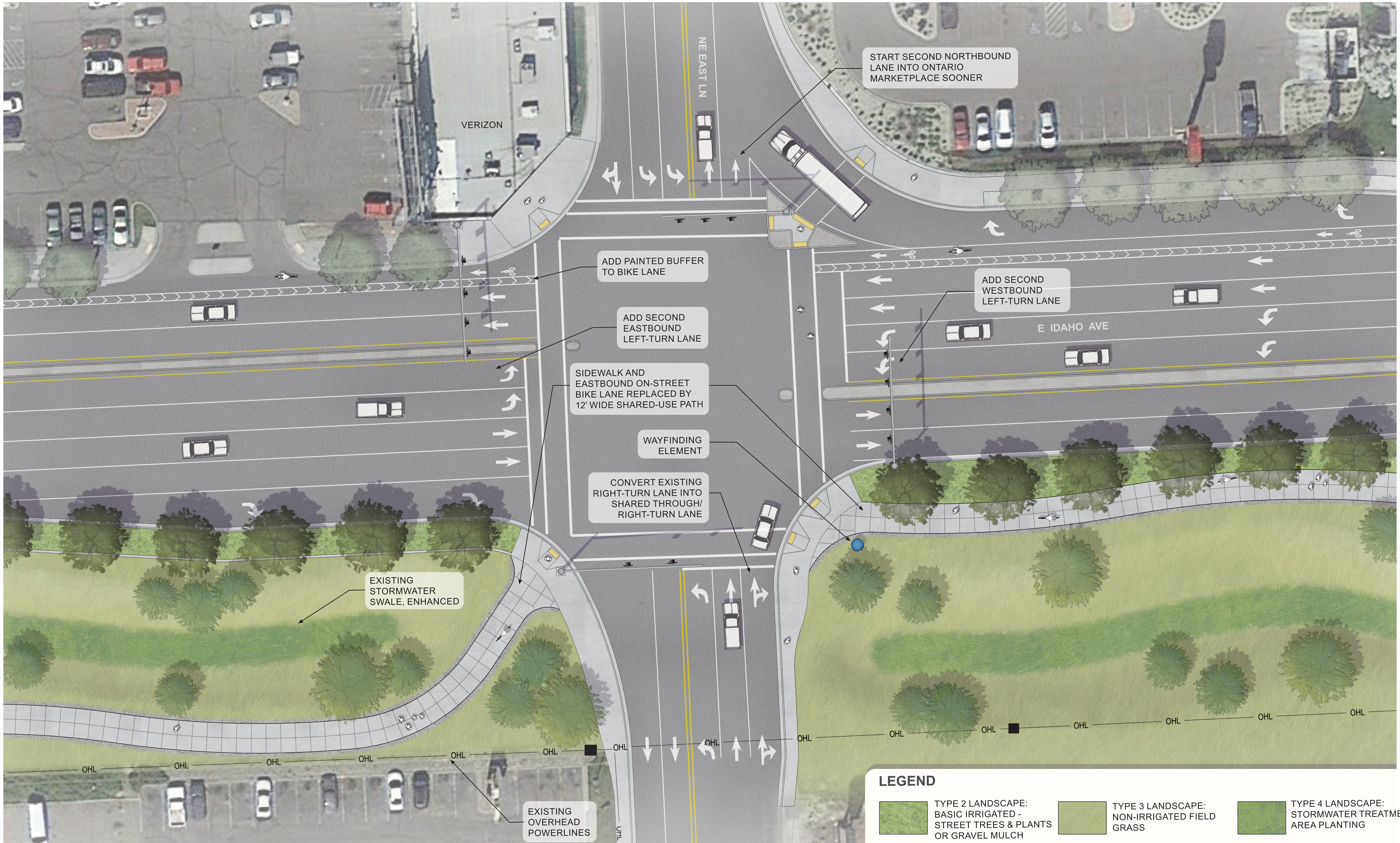
EAST IDAHO AVENUE REFINEMENT AREA PLAN

Oregon Department of Transportation

Kittelson & Associates, Inc. Transportation Engineering/Planning

GREENWORKS

11.10.2020



LEGEND

TYPE 2 LANDSCAPE: BASIC IRRIGATED - STREET TREES & PLANTS OR GRAVEL MULCH

TYPE 3 LANDSCAPE: NON-IRRIGATED FIELD GRASS

TYPE 4 LANDSCAPE: STORMWATER TREATMENT AREA PLANTING

EAST LN. INTERSECTION ENLARGMENT PLAN

EAST IDAHO AVENUE REFINEMENT AREA PLAN

Oregon Department of Transportation

Kittelson & Associates, Inc. Transportation Engineering/Planning

GREENWORKS

11.10.2020

TRAIL JUNCTION AND OVERLOOK ENLARGEMENT

EAST IDAHO AVENUE REFINEMENT AREA PLAN

N 0 10 20 40 SCALE: 1" = 20'

Oregon Department of Transportation

Kittelson & Associates, Inc. Transportation Engineering/Planning

GREENWORKS

09.10.2020

Attachment D Wayfinding Graphics

OPTION 2 : VIEW POINT

WELCOME TO ONTARIO (at major decision points- off highway)

VEHICULAR DIRECTIONAL SIGN (at major decision points)

PEDESTRIAN DIRECTIONAL SIGN (throughout walkable dt)

INFORMATIONAL SIGNAGE

VEHICULAR DIRECTIONAL SIGN (mid-neighborhood)

PEDESTRIAN DIRECTIONAL SIGN (at major decisions throughout trails)

PEDESTRIAN DIRECTIONAL SIGN (throughout trails)

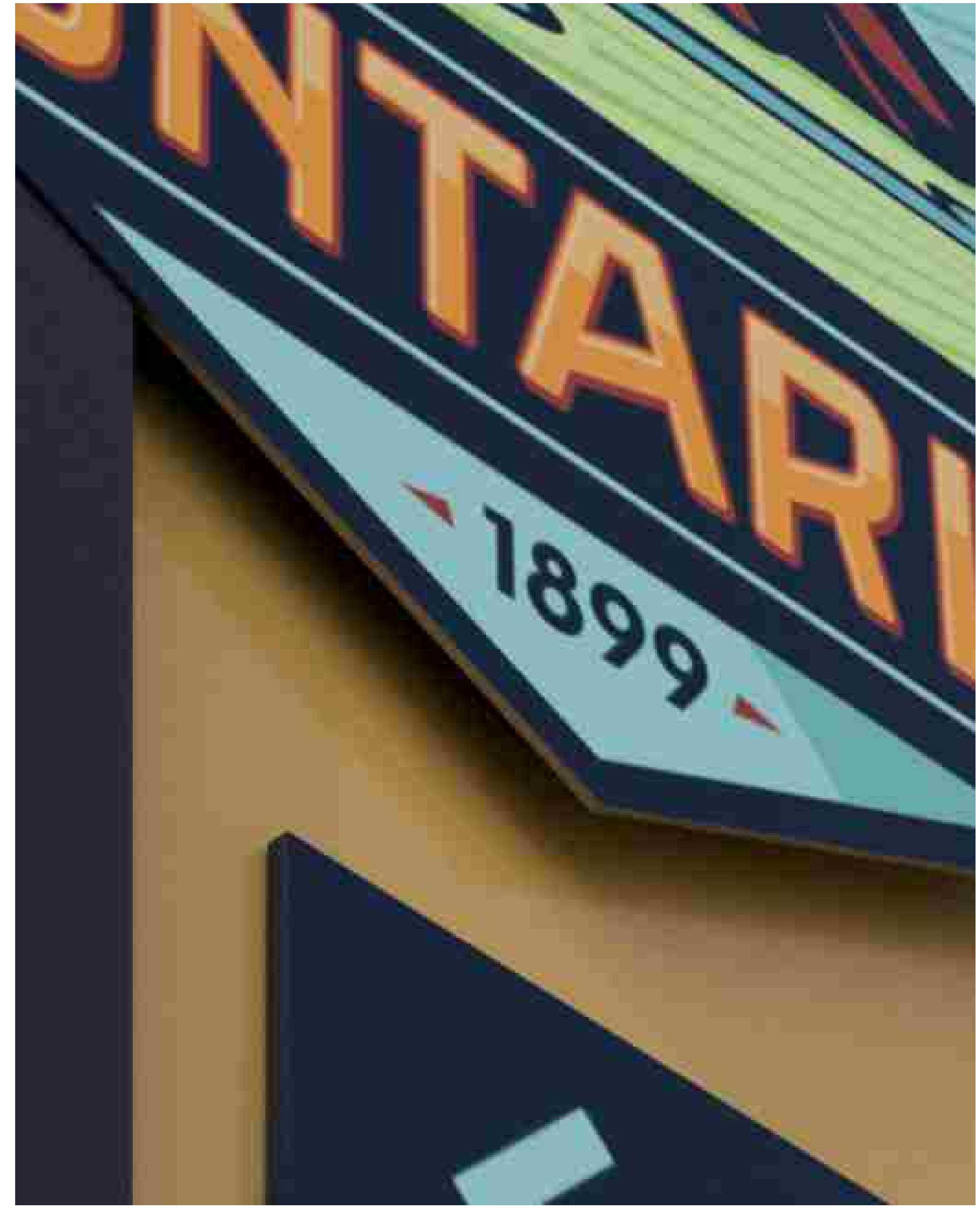
FLAG POLE DESIGN

NEIGHBORHOOD SIGNAGE

208.949.1160
915 West Royal Boulevard
Boise, Idaho 83706

TRADEMARK
DESIGN | FABRICATION

OPTION 2 : VIEW POINT



CONCEPTUAL RENDERS

208.949.1160
915 West Royal Boulevard
Boise, Idaho 83706

TRADEMARK
DESIGN | FABRICATION

Attachment E Revised Design Concept Cost Estimate

CITY OF ONTARIO, OREGON
ACTIVE TRANSPORTATION UPDATE AND EAST IDAHO AVENUE REFINEMENT PLAN
PRELIMINARY COST ESTIMATE
(YEAR 2020 COSTS)
September 11, 2020

NO.	DESCRIPTION	UNIT	UNIT PRICE	ESTIMATED QUANTITY	TOTAL PRICE
1	Mobilization/Demobilization	LS	$ 230,000	All Req'd	$ 230,000
2	Temporary Protection and Direction of Traffic/Project Safety	LS	67,000	All Req'd	67,000
3	Asphalt Concrete Pavement	TON	100	825	82,500
4	Aggregate Base	TON	30	4,600	138,000
5	Geotextile Fabric	SY	2	11,250	22,500
6	12-foot by 4-inch Concrete Multi-use Path	SY	50	6,050	302,500
7	4-inch Concrete (Roundabout/Overlook/Median)	SY	50	630	31,500
8	Type 1 Landscaping	ACRE	2,000	0.5	1,000
9	Type 2 Landscaping	ACRE	1,800	0.6	1,100
10	Type 3 Landscaping	ACRE	1,500	2.7	4,100
11	Type 4 Landscaping	ACRE	2,500	1	2,500
12	Topsoil for Landscaping	CY	30	8,500	255,000
13	Small Tree	EA	400	67	26,800
14	Large Tree	EA	1,000	12	12,000
15	12-inch Concrete Flush Curb	LF	50	2,550	127,500
16	6-inch Concrete Curb and Gutter	LF	25	2,000	50,000
17	Primary Gateway Element	EA	1,000	3	3,000
18	Secondary Gateway Element	EA	500	6	3,000
19	Irrigation for Landscaping (Types 1 and 2)	LF	25	3,900	97,500
20	Pedestrian Bridge	SF	225	1,800	405,000
21	Additional for Curb Ramps	EA	2,000	9	18,000
22	Stormwater Improvements (Inlet/Outlet)	LS	20,000	All Req'd	20,000
23	Relocate Concrete Barriers on Bridges	LS	12,000	All Req'd	12,000
24	Sawcut Asphalt/Concrete	LF	4	6,300	25,200
25	Relocate Signalized Pedestrian Crossing Post	EA	50,000	2	100,000
26	Relocate Streetlight	EA	15,000	1	15,000
27	Remove and Relocate Existing Sign	EA	500	4	2,000
28	Remove and Relocate Storm Inlet	EA	5,000	2	10,000
29	Permanent Signing and Striping	LS	25,000	All Req'd	25,000
30	Demolition of Concrete Sidewalk	SY	20	10,000	200,000
31	Demolition of Concrete Curb and Gutter	LF	5	1,400	7,000
32	Demolition of Roadway	SY	3	32,000	96,000
33	Demolition of Concrete Tree Boxes	EA	50	13	700
34	Demolition of Tree Removal (0- to 24-inch diameter)	EA	700	18	12,600
35	Earthwork	LS	20,000	All Req'd	20,000
36	Erosion Control	LS	107,000	All Req'd	107,000
				Total Estimated Construction Cost	**$ 2,533,000**
				Preliminary Engineering (15%)	380,000
				Construction Engineering (15%)	380,000
				Construction Contingencies (20%)	507,000
				TOTAL ESTIMATED PROJECT COST (2020)	**$ 3,800,000**

APPENDIX J:

Cursory Environmental Memorandum

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engineering · surveying · natural resources

MEMO

To:	Nick Foster, Associate Planner, Kittelson & Associates, Inc.
From:	Dana Kurtz, Senior Environmental Scientist
Subject:	**City of Ontario, Oregon - Active Transportation Update and East Idaho Avenue Refinement Area Plan - Cursory Environmental Memo**
Date:	June 10, 2020
Job/File No.:	53-101-111 (w/encl.)
cc:	Andy Lindsey, P.E., Anderson Perry & Associates, Inc. (w/encl.)

Project Description

The Oregon Department of Transportation (ODOT) and the City of Ontario, Oregon, are preparing an Active Transportation Update for all areas located within the City's urban growth boundary (Management Area). In conjunction with the Active Transportation Update, ODOT and the City are also preparing an East Idaho Avenue Refinement Area Plan consisting of the areas within the East Idaho Avenue Refinement Area, which includes the East Idaho Avenue corridor, U.S. Highway 30, and adjacent properties between the interchange with Interstate 84 (I-84) and the Snake River Ontario bridge, which is the border with Idaho. The East Idaho Avenue Refinement Area provides vital access between I-84 and Fruitland, Idaho, and is located in the eastern portion of the City (see Figure 1, Location and Vicinity Maps). ODOT has contracted with Kittelson & Associates, Inc., and Anderson Perry & Associates, Inc., to assist in identifying current conditions, opportunities, and constraints; analyzing alternatives; and recommending improvements and implementation.

Cursory Environmental Assessment

This cursory environmental memo evaluates features in the vicinity of the Management Area. The potential development is limited by several key factors, including the Snake River, I-84, protected species, floodplains, wetlands, cultural and historic sites, hazardous materials sites, parks, and recreational sites. The purpose of this memo is to identify the existing environmental and cultural resource conditions in the proposed area for improvements, which includes the entire Management Area, and to evaluate the potential constraints associated with the East Idaho Avenue Refinement Area. Specific projects for the Active Transportation Update have not yet been proposed and are identified as "potential improvements" throughout this memo. The information in this memo will be used to develop project alternatives.

The cursory environmental assessment is based on an evaluation of existing data. The assessment includes the existing natural resources and environmental barriers. The following environmental conditions and concerns exist or are associated with the Management Area and the East Idaho Avenue Refinement Area.

Goal 5 Resource Mapping

Goal 5 Resources address a broad statewide planning goal that incorporates important local resources to protect natural resources and conserve scenic and historic areas and open spaces. Wild and Scenic Rivers, groundwater resources, trails, wilderness areas, sage-grouse habitat are the Goal 5 resources addressed below.

- The National Wild and Scenic Rivers (NWSR) System map and Oregon's Scenic Waterways list indicate that no designated Wild and Scenic Rivers or State Scenic Waterways are located within the Management Area (Oregon Parks and Recreation Department, 2020; NWSR, 2020).

- According to the Oregon Water Resources Department (OWRD), no groundwater restricted areas are located within the vicinity of the Management Area (OWRD, 2020).

- No designated Oregon scenic or regional trails are located within the Management Area (Oregon State Parks, 2020). The nearest wilderness area is the Strawberry Mountain Wilderness located approximately 70 miles northwest of the Management Area (Wilderness Connect, 2020).

- The Oregon Sage-Grouse Core Areas Map developed by the Oregon Department of Fish and Wildlife (ODFW) and Bureau of Land Management shows that the Management Area does not include areas of core habitat (ODFW, 2011; SageCon, 2020).

Due to the distance of Goal 5 Resources from the Management Area, potential improvements within the East Idaho Avenue Refinement Area are not anticipated to impact Goal 5 Resources. See Attachment A, Goal 5 Resources, for maps reviewed in this section.

Federal Emergency Management Agency Floodplain Mapping

According to the Federal Emergency Management Agency (FEMA) Map Service Center, FEMA Flood Insurance Rate Map Panels No. 4101520005B and 4101490510B, the areas of the Management Area immediately adjacent to the Snake and Malheur Rivers are located within Zone A (areas of 100-year flood). The north and central portions of the Management Area are located within Zone B (areas between limits of the 100- and 500-year flood; or certain areas subject to 100-year flooding with average depths less than 1 foot or where the contributing drainage area is less than 1 square mile; or areas protected by levees from the base flood, described herein as 500-year flood). All other areas are located within Zone C (areas of minimal flooding). The East Idaho Avenue Refinement Area is primarily Zone C with small areas of Zones A and B in the southeast corner (see Figure 2, Floodplain Map) (FEMA, 2020). If the potential improvements were to occur within the 100-year floodplain, FEMA development standards would need to be considered, and a Floodplain Development Permit and accompanying No-Rise Certification would need to be obtained from the City or Malheur County (depending on jurisdiction).

Potential Wetlands and Waterways

The Snake River is the nearest waterbody to the East Idaho Avenue Refinement Area. The Snake River is a perennial river originating in western Wyoming, flowing through southern Idaho, the Oregon-Idaho border, southeast Washington, and into the Columbia River at Burbank, Washington. The Snake River runs along the eastern border of the Management Area and is adjacent to the eastern border of the East Idaho Avenue Refinement Area. Depending on the location of proposed project construction, it could have temporary (erosion and sedimentation during construction) or permanent (fill or removal) impacts to the Snake River. Three other waterways are located within the Management Area, which include the Malheur River, a 190-mile-long tributary to the Snake River that flows along the northern edge of the Management Area, and the Dork Canal and Stewart Carter Ditch, which were constructed to convey water for irrigation and flows and are located in the northwestern portion of the Management Area (see Figure 3, Waterway Map). Impacts to the Malheur River, Dork Canal, and Stewart Carter Ditch within the Management Area are not anticipated because the waterbodies are not located near the East Idaho Avenue Refinement Area.

According to the U.S. Fish and Wildlife Service (USFWS) National Wetlands Inventory Map, four freshwater emergent wetlands are mapped within the Management Area (USFWS, 2020a). The first wetland, Wetland Area 1, is mapped on the northern end of the Management Area south of Stewart Carter Ditch . A second wetland, Wetland Area 2, is mapped south of West Idaho Avenue and north of Southwest 2nd Avenue between Wellsprings Drive and Southwest 18th Street. The third wetland, Wetland Area 3, is mapped east of the Treasure Valley Ball Park and the fourth wetland, Wetland Area 4, is mapped west of I-84 north of Devo Bridge. Multiple ponds are located in the Management Area, which appear to be artificially constructed or located in managed parks. No wetlands are located within the East Idaho Avenue Refinement Area. One pond is mapped within the East Idaho Avenue Refinement Area but is associated with the Ontario Water Treatment Plant (see Figure 4, Wetland Map).

Once the potential improvements are identified, an Oregon Department of State Lands (DSL) off-site wetland determination will be required. A wetland delineation may be required to quantify potential impacts to wetlands. A DSL and U.S. Army Corps of Engineers (USACE) Joint Permit Application may be required if any work is needed in jurisdictional waterbodies. If a USACE 404 permit is required, an Oregon Department of Environmental Quality (DEQ) 401 Water Quality Certification would also be required. If additional impervious surfaces are created as a result of the potential improvements, a Post-Construction Stormwater Management Plan would also be required. A 1200-C Stormwater Construction Permit would be required if the total disturbed area exceeds 1 acre.

Once the final project components are determined, impacts to jurisdictional waterbodies will need to be assessed.

Threatened and Endangered Listed Species

Several federally listed species occur in Malheur County. Bull trout (*Salvelinus confluentus*), Lahontan cutthroat trout (*Oncorhynchus clarkii henshawi*), and yellow-billed cuckoo (*Coccyzus americanus*) are listed as threatened. Gray wolf (*Canis lupis*) is listed as endangered for Malheur County; however, the wolf population east of Highway 395/Highway 78/Highway 95 (Northern

Rocky Mountain Distinct Population Segment), which includes the Management Area, has been delisted and is no longer protected under the federal Endangered Species Act (ESA) (USFWS, 2020b) (Attachment B, U.S. Fish and Wildlife Service Species List and National Marine Fisheries Service [NMFS] Species Map). The NMFS list indicates that anadromous salmon and steelhead species do not utilize the mainstem or tributaries to the Snake River upstream of Brownlee Dam (Attachment B, USFWS Species List and NMFS Species Map) (NMFS, 2020a). The Snake River in Malheur County is not designated as Essential Salmonid Habitat (DSL, 2020) or Essential Fish Habitat (NMFS, 2020b).

A review of the Oregon Biodiversity Information Center (ORBIC) database on March 12, 2020, revealed records of two tracked rare species within 2 miles of the Management Area: grand redstem (*Ammannia robusta*) and salt heliotrope (*Heliotropium curassavicum*), neither of which is listed under the state or federal ESA (ORBIC, 2020).

The Management Area does not contain suitable habitat for bull trout, Lahontan cutthroat trout, or yellow-billed cuckoo, and according to the ORBIC report, there are no records of these species being within 2 miles of the Management Area. The yellow-billed cuckoo requires large blocks of dense riparian forests. Bull trout require cold water streams and can only be found in Harney County in the headwaters of the Malheur River. In Oregon, Lahontan cutthroat trout is only found in the Coyote Lake and Quinn River Basins in southern Harney and Malheur Counties. The potential improvements is not likely to impact these species.

According to StreamNet, the Snake River is used year-round by redband trout and white sturgeon (StreamNet, 2020). The Snake River runs along the eastern border of the Management Area and is adjacent to the eastern border of the East Idaho Avenue Refinement Area. Depending on the location of project construction, it could have temporary (erosion and sedimentation during construction) or permanent (fill or removal) impacts to the Snake River, therefore having the potential to impact aquatic species. Impacts to aquatic species are anticipated to be minimized by implementing erosion control measures, managing stormwater discharge, preparing a Spill Prevention Plan, and using clean and well-maintained construction equipment. Best management practices (BMPs) are anticipated to be applied to all construction activities. Impacts to the Malheur River, Dork Canal, and other waterways within the Management Area are not anticipated because they are not located near the East Idaho Avenue Refinement Area.

Consultation under Section 7 of the ESA with the USFWS and NMFS may be required if there is a federal nexus (federal permits, federal funding, or federal land).

Hazardous Materials

Environmental records were reviewed for identified hazardous and solid waste sites, cleanup sites, underground storage tanks (USTs), and leaking underground storage tanks (LUSTs) using information on the DEQ's Environmental Cleanup Site Information Database and the DEQ's Facility Profiler (DEQ, 2020). Several environmental records were found within the Management Area.

Seventy-five environmental cleanup sites (54 suspected sites, 12 sites that have no further action required, and nine contaminated sites listed on Confirmed Release List or inventory), 28 hazardous waste generators, 11 UST sites, 42 LUST sites (four regulated LUSTs reported, two non-regulated

LUSTs reported, 33 regulated LUST cleanups completed, and three non-regulated LUST cleanups completed), 17 active air emission permits, eight water quality site permits, and 13 underground injection permits are located within the Management Area. The majority of environmental cleanup sites are located centrally in the Management Area near downtown Ontario, in the northern portion of the Management Area, and in the western portion of the management area near the Ontario Municipal Airport.

Generally, the contaminated sites throughout the Management Area have documented releases of dry-cleaning and petroleum products into soil and groundwater that may have impacted the East Idaho Avenue Refinement Area.

Three UST sites, three LUST sites, four hazardous waste generators, four environmental cleanup sites, two underground injection sites, and one air emission site are located within the East Idaho Avenue Refinement Area (Attachment C, Oregon Department of Environmental Quality Profiler Lite).

The four hazardous waste generators, two underground injection permits, and one air emission permit are unlikely to have development-related impacts in the East Idaho Avenue Refinement Area, as these records are primarily for tracking purposes, not documentation of releases.

The three UST sites, three LUST sites, and four environmental cleanup sites located within the East Idaho Avenue Refinement Area are described below.

- Three USTs are located within the East Idaho Avenue Refinement Area. These USTs belong to Treasure Valley Chevron located on the north side of East Idaho Avenue between Linda Lane and Northeast East Lane. No leaks or spills have been reported for these USTs and they are unlikely to have impacts to the East Idaho Avenue Refinement Area. However, depending on the location of potential project-related excavation additional work may be required to ensure these USTs are not disturbed.

- Three LUSTs are located within the East Idaho Avenue Refinement Area. The first LUST is the former Texaco (Facility ID 27536) located on the corner of Northeast Goodfellow Street and East Idaho Avenue; the second LUST, which belongs to Oregon Department of Transportation (ODOT) (Facility ID 74514), is located on the south side on East Idaho Avenue between Southeast East Lane and Southeast Goodfellow Street; and the third LUST (Facility ID 144083) is the location of Jacksons Food Store on the north side of East Idaho Avenue between Linda Lane and Northeast East Lane. Depending on the location of potential project-related excavation, these historical LUST releases to soil and groundwater may require additional analysis to assess impacts and develop potential mitigation strategies.

- Four environmental cleanup sites are located within the East Idaho Avenue Refinement Area. The first site is listed on the Confirmed Release List or inventory (Facility ID 27536) and is located on the corner of Northeast Goodfellow Street and East Idaho Avenue. This site is the location of a former Texaco Station. When the Texaco station sold and converted to its current use, the USTs were decommissioned without DEQ oversight and no records are available to indicate whether a release occurred. Currently, there is not a significant source of contamination; however, a deed restriction was recorded on the property prohibiting the use of the shallow groundwater aquifer for beneficial use. The second contaminated site is listed as no further action required and is the location of the former Action Chrysler Nissan (Facility ID 2817) located east of Northeast East Lane between East Idaho Avenue and Southeast 5th Avenue where two 1,000-gallon USTs containing gasoline and diesel were removed in 1992. Soil tested during the removal of the tanks indicated that no petroleum had been discharged from the tanks. The last two contaminated sites are listed as suspected sites. One is located on the corner of East Idaho Avenue and Northeast East Lane (Facility ID 118545) where groundwater contamination from a known source was encountered during road work at the intersection and the other site is the Home Depot located north of East Idaho Avenue between Northeast East Lane and Northeast Goodfellow Street (Facility ID 89906) where a former auto salvage yard in the vicinity had a petroleum release from an unknown source. Depending on the location of potential project-related excavation, these four sites and their historical impacts to soil and groundwater may require additional analysis to assess impacts and develop potential mitigation strategies.

Based on the location of the contaminated sites within the East Idaho Avenue Refinement Area, the potential that soil and/or groundwater have been impacted within the East Idaho Avenue Refinement Area exists. Once specific project areas are designed, an ODOT Level 1 Hazardous Materials Corridor Assessment will likely be required along the proposed project corridor to determine potential effects. The results of this assessment may yield additional mitigation or management steps.

Cultural Resources and Historic Properties

While the Snake and Malheur Rivers have historically been heavily utilized by native peoples, the first European Americans to traverse the area were trappers, including Peter Skene Ogden, who named the Malheur River. Gold was discovered in eastern Oregon in the 1860s. Ontario was established in 1883, and the Oregon Short Line Railroad was routed through the area the same year, bringing with it the potential for transportation of goods to and from Ontario. Once Ontario became an important railroad hub in the late 1880s, Malheur County was formed from a portion of Baker County.

The Oregon Archaeological Records Remote Access Database was searched for archaeological sites and isolates and cultural resource surveys conducted within a 1-mile radius of the Management Area. The search resulted in the identification of ten archaeological sites and six isolates within a 1-mile radius of the Management Area; five of the sites and one isolate lie within the Management Area (Oregon Archaeological Records Remote Access Database, 2020). These sites and isolates generally consist of precontact lithic scatters and historic-era refuse scatters as well as a building foundation and a burial. All ten sites in the search radius are unevaluated for inclusion to the National Register of Historic Places (NRHP) (National Park Service, 2020). No known or documented cultural resources are located within the East Idaho Avenue Refinement Area.

Twenty-four cultural resource surveys have been conducted within the search radius; 19 are within the Management Area. Very few cultural resource surveys have been conducted in Ontario relative to the City's size, and surveys in the historic downtown and railroad areas are completely lacking. As such, cultural resources may be present that have not yet been recorded. Both historic refuse scatters and precontact lithic scatters as well as subsurface features may exist in the Management Area. Also, cultural resources are especially prevalent in areas near the Snake and Malheur Rivers and human remains have been identified during construction within the Management Area.

Potential impacts to archaeological resources that may occur as a result of construction include excavation, sediment disturbance, sediment compaction, and other ground-disturbing construction activities. A re-examination of historical maps should occur as specific plans and designs are made to ascertain if such work could potentially impact historical archaeological deposits and to mitigate for such impacts. Additionally, efforts may be required to identify previous areas of disturbance within proposed work areas so undisturbed areas may be avoided or investigated for archaeological (precontact or historic) materials.

According to the Oregon Historic Sites Database, 92 historic structures lie within the Management Area; 60 are eligible for the state register, 31 are not eligible, and one has undetermined eligibility (Oregon Historic Sites Database, 2020). One of the historic properties listed by the Oregon State Historic Preservation Office (SHPO) is also listed on the NRHP. Within the Management Area two structures are listed on the NRHP: the James Rowley and Mary J. Blackaby House at 717 S.W. 2nd Street and the Oregon Short Line Railroad Depot at 300 Depot Lane. No historic structures are located within the East Idaho Avenue Refinement Area. A review of aboveground structures, including contributing features such as stone retaining walls, should be considered before any project is implemented. A review of the ODOT Historic Bridge Field Guide indicates that no known historic bridges are located within the Management Area or the East Idaho Avenue Refinement Area (Burrow et al., 2013).

Topographic Constraints

Potential development within the East Idaho Avenue Refinement Area is limited by the Snake River along with existing roads and developments. The topography within the Management Area is generally flat; therefore, it is not expected to be impacted by elevated topography. Topographic constraints within the Management Area includes the Snake River, which may affect development.

Demographics and Socioeconomic Considerations

Statistical information covering various populations provides insight into the current conditions within the East Idaho Avenue Refinement Area. Demographic data for identified populations were gathered using the 2017 5-Year American Community Survey (ACS) data sources. The ACS data geography is associated with census block groups and does not fit precisely to the East Idaho Avenue Refinement Area boundary. The selected demographic populations are a special focus in transportation planning and project development. These population groups are considered for transportation impact susceptibility, representing those who may rely more heavily on public infrastructure or transit for access to day-to-day needs and jobs. They include minority groups, populations 65 years of age and older, and low-income households. The population within the East Idaho Avenue Refinement Area is 645. Of that population, there is a significantly higher percentage of minorities (64 percent) and people below poverty (51 percent). Conversely, there is a significantly lower percentage of the elderly, defined as persons age 65 or older (4 percent) (United States Census Bureau, 2017). Given the context of the current development adjacent to East Idaho Avenue coupled with the zoning restrictions for residential development, it is likely that the identified populations are located outside the Refinement Area.

Due to the nature of the potential improvements, minorities, the elderly, or households in poverty are not anticipated to be impacted. Funding for this project will likely be through grants and loans, which will offset costs for vulnerable populations.

4(F) and 6(F) Resources

Section 4(F) of the U.S. Department of Transportation Act provides consideration for park and recreational lands, wildlife and waterfoul refuges, and historic sites during project development. The Land and Water Conservation Fund Act (Section 6[F]) was enacted to preserve, develop, and ensure accessibility to outdoor recreation.

Four parks are located within the Management Area, including Alameda Park, Soros Park, Lions Park, and Beck Kiwanis Park. The Ontario State Recreation Site is also partially located within the Management Area. None of these parks and recreational lands occur within the East Idaho Avenue Refinement Area (see Figure 5, 4(F) and 6(F) Resources). If land is converted from current uses, 4(F) and 6(F) consultation mitigation may be required. Municipal, state, and federal laws related to development, zoning, and activity in these areas should be considered as the proposed project is developed.

Permits

The National Environmental Policy Act (NEPA) states that when there is a federal action (i.e., funding, permitting, etc.), the project must comply with NEPA requirements. If work is performed below the ordinary high water elevation (OHWE) or within wetlands, permits will be required from the USACE and the DSL. If a USACE permit is required, it will trigger a federal nexus requiring compliance with Section 401 of the Clean Water Act, Section 7 of the ESA, and Section 106 of the National Historic Preservation Act (NHPA). Compliance with Section 7 will require an analysis of the potential impact on ESA-listed species and consultation with USFWS and NMFS. Consultation may be completed through a programmatic biological opinion such as a Federal-Aid Highway Programmatic, the Standard Local Operating Procedures for Endangered Species, or through formal consultation with a Biological Assessment.

Specific local permits that may be required will depend on the final design of the potential improvements, and may include a Land Use Compatibility Statement, Conditional Use Permit, and Floodplain Development Permit and accompanying No-Rise Certification.

Conclusion

The potential improvements may have temporary or permanent impacts to the Snake River. No known federally listed species are located within the vicinity of the Management Area. Several known historic and archaeological sites are located within the Management Area as well as numerous known hazardous materials and spills where improvements may be located. The Management Area has multiple areas within the 100- and 500-year floodplains. Also, several known wetlands occur within the Management

Area. The Management Area contains many parks and one recreational site. Minorities, the elderly, and households in poverty reside within the Management Area. Based on the environmental review of the Management Area, the following are recommended for the Active Transportation Update.

Goal 5 Resource Mapping

- No Goal 5 Resources are present within the Management Area; the potential improvements are not anticipated to impact Goal 5 Resources.

Federal Emergency Management Agency Floodplain Mapping

- The areas immediately adjacent to the Snake and Malheur Rivers are located within Zone A, areas of 100-year flood. The north and central portions of the Management Area are located within Zone B, areas between limits of the 100- and 500-year flood; or certain areas subject to 100-year flooding with average depths of less than 1-foot or where the contributing drainage area is less than 1 square mile; or areas protected by levees from the base flood. All other areas are located within Zone C, areas of minimal flooding. The East Idaho Avenue Refinement Area is primarily Zone C with small areas of Zones A and B in the southeast corner.

- If the potential improvements were to occur within the 100-year floodplain, FEMA development standards would need to be considered, and a Floodplain Development Permit and accompanying No-Rise Certification would need to be obtained from the City or Malheur County (depending on jurisdiction).

Waterways and Wetlands

- Work below the OHWE of jurisdictional waterways may require state and federal permits.

- Once the specific project areas are determined, a site visit should be conducted to document the occurrence of wetlands and a wetland delineation may be required if wetlands may be impacted by the proposed project.

- Impacts to wetlands may require compensatory mitigation.

- A 1200-C Stormwater Construction Permit would be required if the total disturbed area exceeds 1 acre.

- If the proposed project increases impervious surfaces, a Stormwater Management Plan may be required.

Threatened and Endangered Listed Species

- Consultation with the USFWS and NMFS may be required if there is a federal nexus (federal permits, federal funding, federal land).

- Impacts to aquatic species should be minimized by implementing erosion control measures, managing stormwater discharge, preparing a Spill Prevention Plan, and using clean and well-maintained construction equipment. BMPs should be applied to all construction activities.

Hazardous Materials

- Once the specific project areas are determined, an ODOT Level 1 Hazardous Materials Corridor Assessment may be required along the proposed project corridor. The results of this assessment may yield additional mitigation or management steps.

Cultural Resources and Historic Properties

- Known cultural sites should be avoided so as not to disturb sensitive cultural resources.

- If a federal nexus is anticipated, ODOT will be obligated to meet the requirements of Section 106 of the NHPA.

- SHPO and local tribal historic preservation officers, particularly with the Burns Paiute Tribe, should be consulted to identify any potential concerns or important resources.

- A cultural resource survey may be required for any ground disturbance within the proposed project areas on land that has not been previously surveyed or disturbed.

- Recommendations provided by SHPO and the tribes should be followed.

- If cultural resources are discovered during construction, all work should halt and SHPO should be notified.

Topographic Constraints

- Topographic constraints within the Management Area include the Snake River, which may affect development.

Demographics and Socioeconomic Considerations

- Given the context of the current development adjacent to East Idaho Avenue coupled with the zoning restrictions for residential development, it is likely that the identified populations are located outside the East Idaho Avenue Refinement Area.

- The potential improvements are not anticipated to adversely impact minorities, the elderly, or households in poverty.

- Funding for the potential improvements will likely be through grants and loans, which will offset costs for vulnerable populations.

4(F) and 6(F) Resources

- The potential improvements are not anticipated to impact green spaces or parks. If 4(F) or 6(F) land conversion occurs, consultation and mitigation may be required.

- Zoning and the compatibility of the designed improvements will need to be assessed.

This memo provides general information regarding the Management Area and East Idaho Avenue Refinement Area. When a final design for potential improvements is developed, an additional environmental review would be prudent.

DK/jg

Enclosures

Figures
Figure 1 - Location and Vicinity Maps
Figure 2 - Floodplain Map
Figure 3 - Waterway Map
Figure 4 - Wetland Map
Figure 5 - 4(F) and 6(F) Resources

Attachments
Attachment A - Goal 5 Resources
Attachment B - U.S. Fish and Wildlife Service Species List and National Marine Fisheries Service Species Map
Attachment C - Oregon Department of Environmental Quality Profiler Lite

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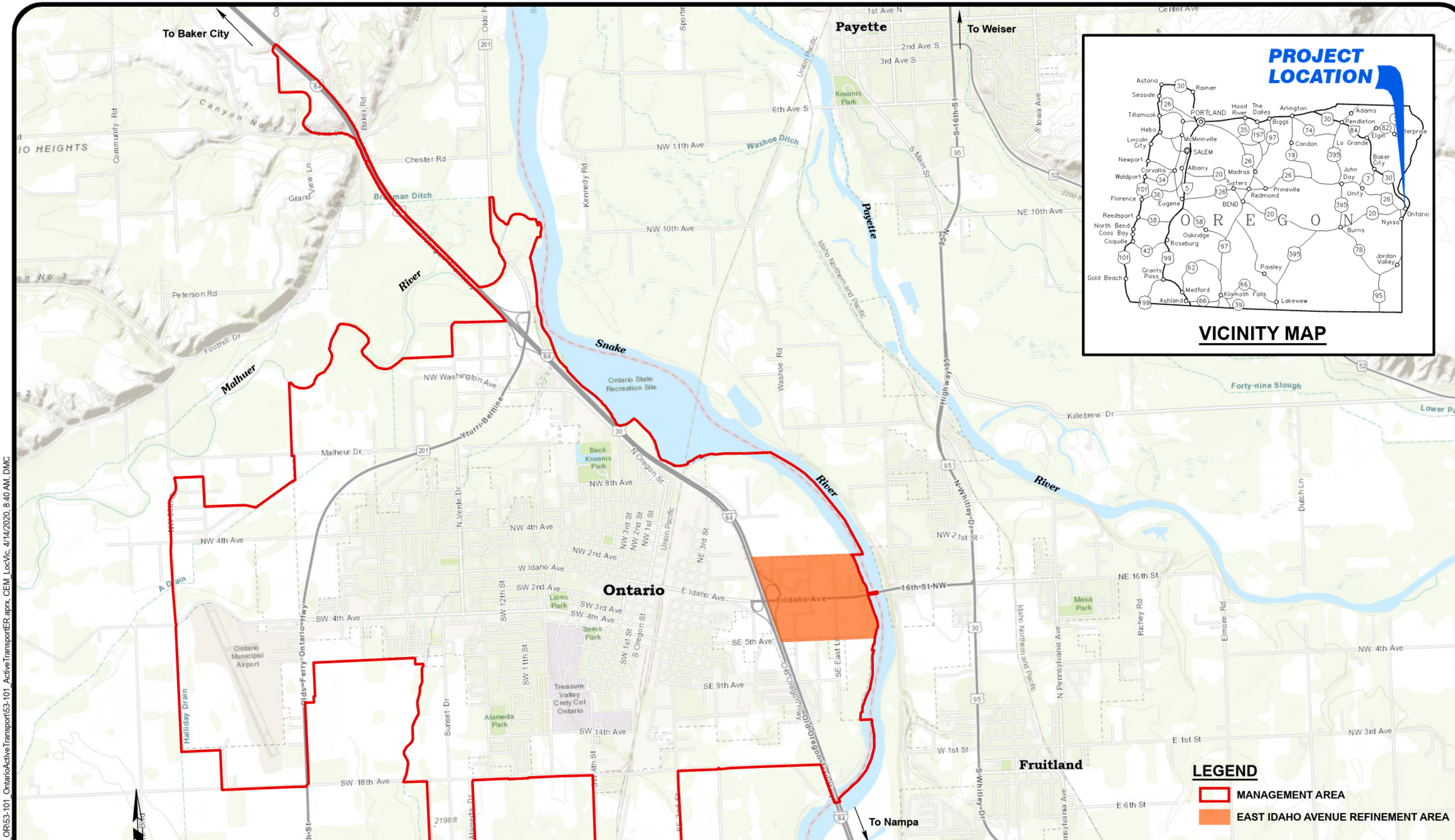
FIGURES



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CITY OF
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ACTIVE TRANSPORTATION UPDATE AND EAST IDAHO AVENUE REFINEMENT AREA PLAN - CURSORY ENVIRONMENTAL MEMO

LOCATION AND VICINITY MAPS

FIGURE 1

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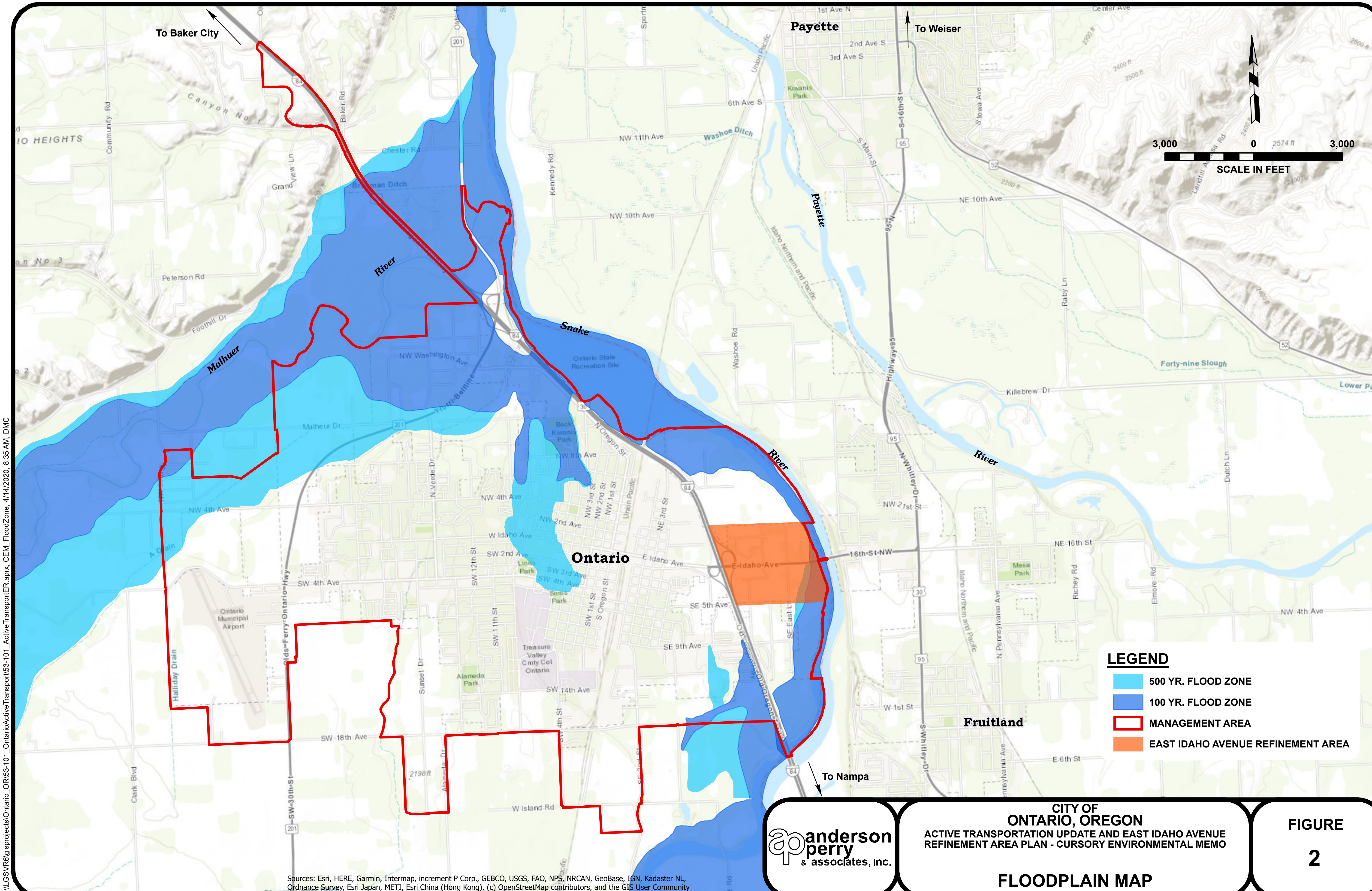

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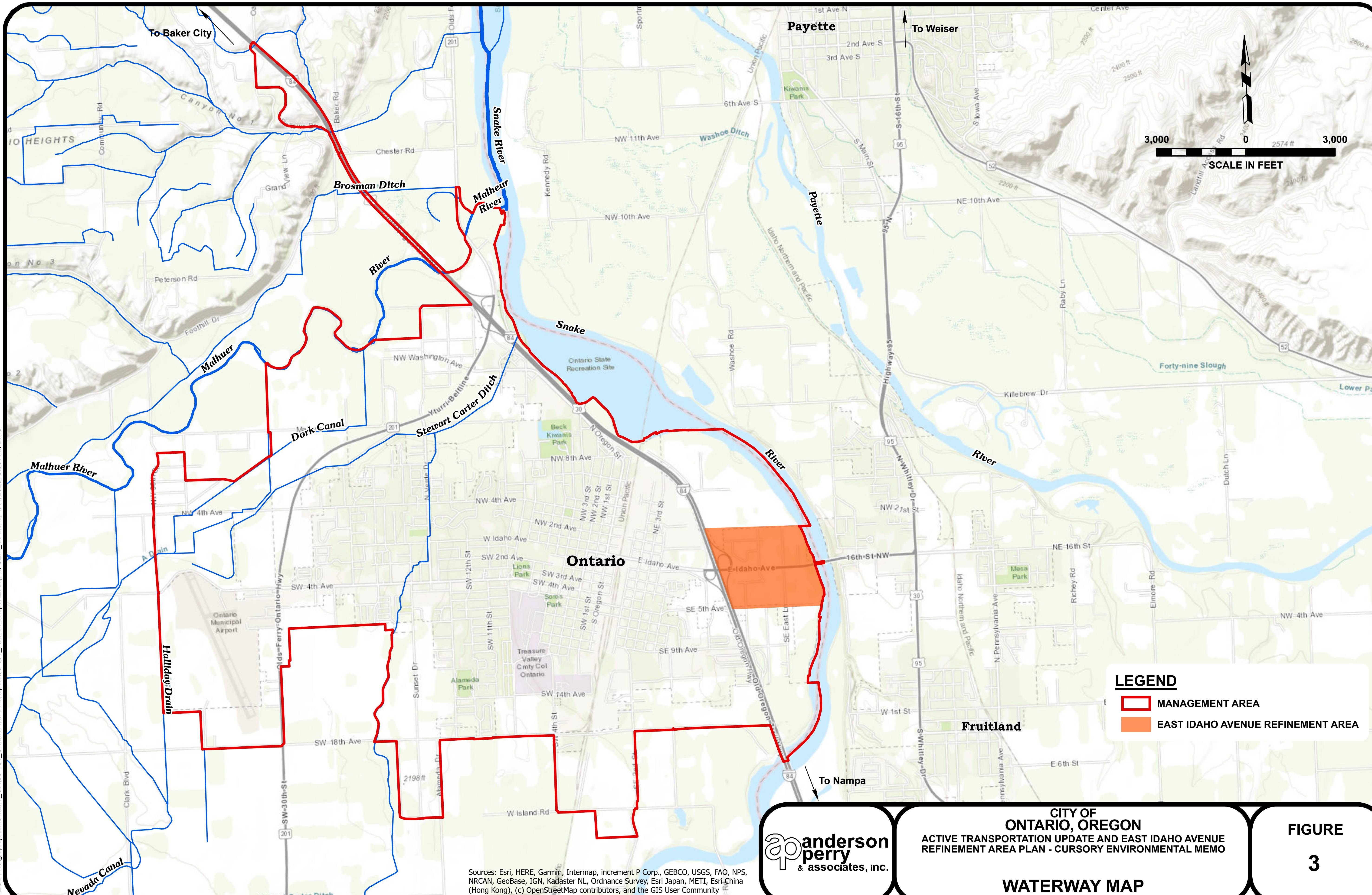

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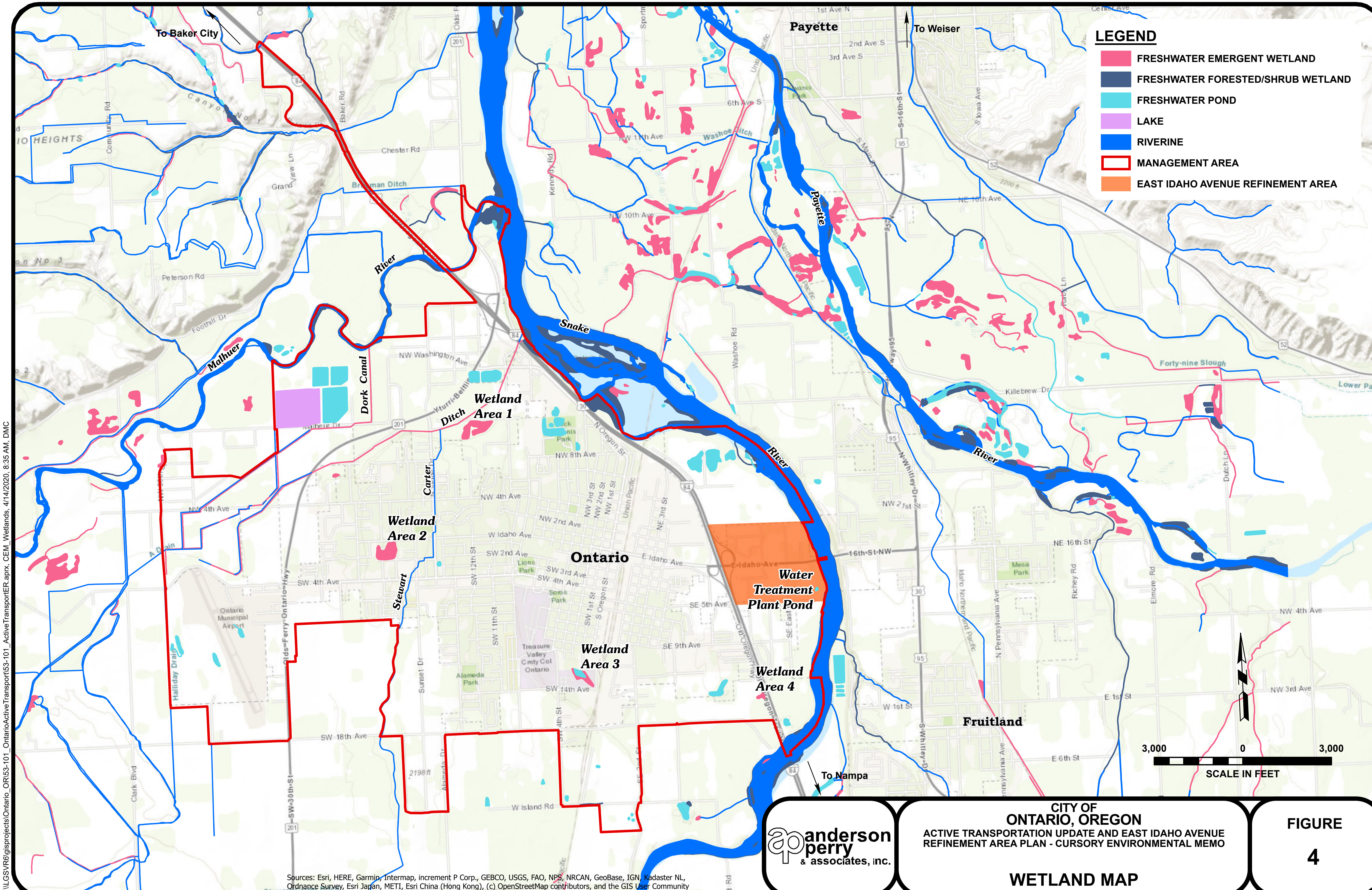

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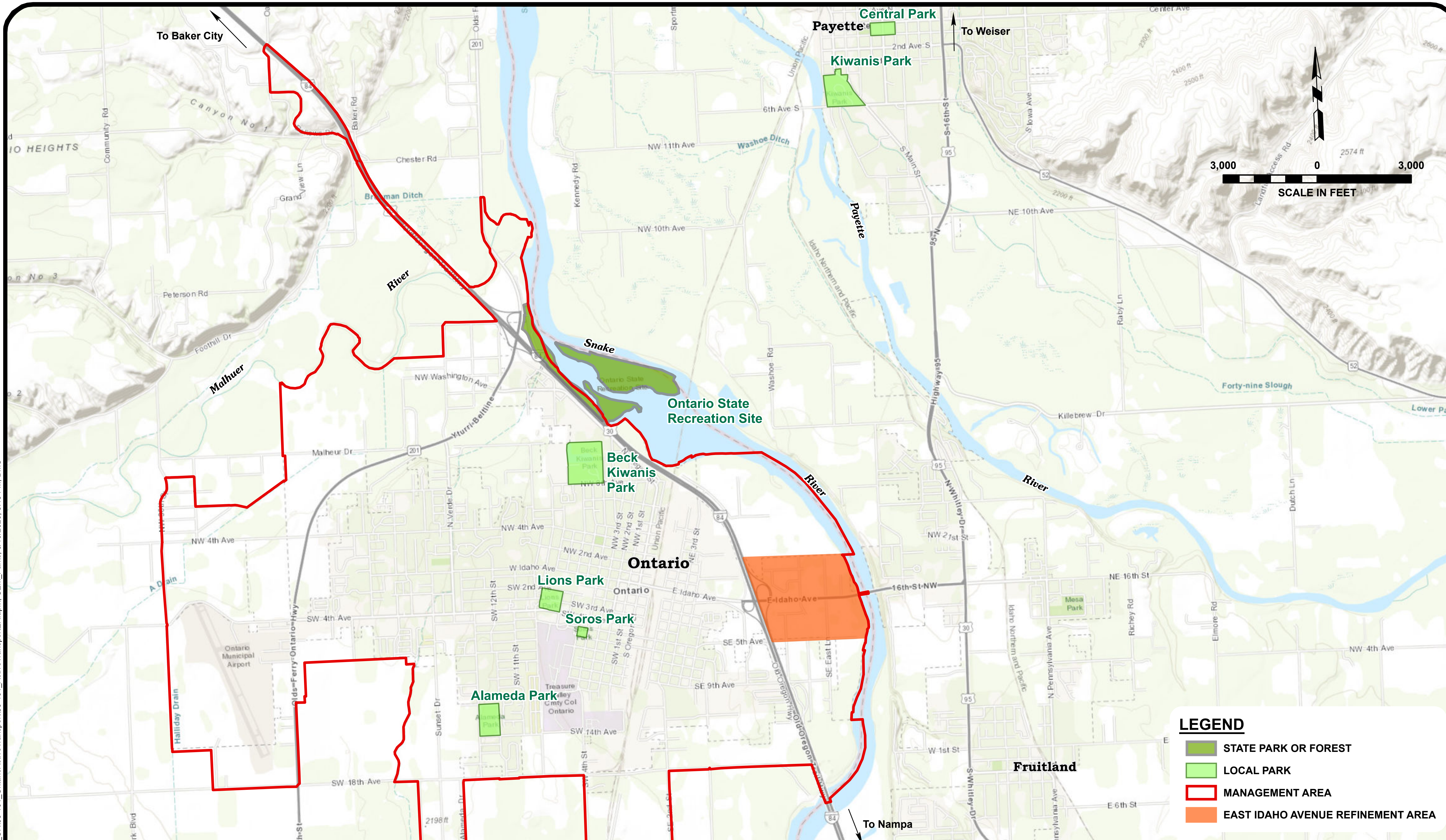

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REFINEMENT AREA PLAN - CURSORY ENVIRONMENTAL MEMO

4(F) AND 6(F) RESOURCES

FIGURE
5

Sources: Esri, HERE, Garmin, Intermap, increment P Corp., GEBCO, USGS, FAO, NPS, NRCAN, GeoBase, IGN, Kadaster NL, Ordnance Survey, Esri Japan, METI, Esri China (Hong Kong), (c) OpenStreetMap contributors, and the GIS User Community

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ATTACHMENT A
Goal 5 Resources

NATIONAL WILD AND SCENIC RIVERS SYSTEM

Designations as of November 2016

The National Wild and Scenic Rivers System

Established by Congress under the Wild and Scenic Rivers Act of 1968, the National Wild and Scenic Rivers System was created to preserve the free-flow, water quality, and outstanding natural, cultural, and recreational values of select rivers for the enjoyment of present and future generations. The Act is notable for safeguarding the special character of these rivers, while also recognizing the potential for their appropriate use and development. It encourages river management that crosses political boundaries and promotes public participation in developing goals for river protection.

More information about the National Wild and Scenic Rivers System or specific designated rivers can be found at the Interagency Wild & Scenic Rivers Coordinating Council's website, www.rivers.gov, or by contacting one of the federal river administering agencies:

U.S. Forest Service
www.fs.fed.us

National Park Service
www.nps.gov/wsr

Bureau of Land Management
www.blm.gov

U.S. Fish and Wildlife Service
www.fws.gov

Names of Numbered Wild and Scenic Rivers

1 Sandy
2 Zig Zag
3 Middle Fork Hood
4 East Fork Hood
5 Fifteenmile Creek
6 White
7 Salmon
8 Clackamas
9 Collawash
10 Fish Creek
11 South Fork Clackamas
12 Roaring and South Fork Roaring
13 Eagle Creek
14 Metolius
15 Deschutes
16 North Fork Crooked
17 Whychus Creek
18 North Fork Smith
19 River Styx
20 Big Marsh
21 Crescent Creek
22 Little Deschutes
23 Crooked
24 North Fork Crooked
25 South Fork John Day
26 North Fork John Day
27 North Powder
28 Joseph Creek
29 Lostine
30 Donner und Blitzen
31 Wildhorse Creek and Kiger Creek
32 North Fork Owyhee
33 Red Canyon
34 South Fork Owyhee
35 Battle Creek
36 Deep Creek
37 Dickshooter Creek
38 Little Jacks Creek
39 Big Jacks Creek
40 Duncan Creek and Wickahoney Creek
41 Cottonwood Creek
42 Sheep Creek

Prepared by the USDA Forest Service
Geospatial Service and Technology Center Salt Lake City, UT 2016.

The USDA Forest Service uses the most current and complete data available. GIS data and product accuracy may vary. Using GIS products for purposes other than those for which they were inteded may yield inaccurate or misleading results.

Oregon Scenic Waterways

1 Chetco River
- Steel Bridge to Alfred A. Loeb State Park (14 mi)

2 Clackamas River
- North Fork (14 mi)
- South Fork (4 mi)
- * Main stem from Ollalie Lake Scenic Area to North Fork Reservoir (49 mi)
- River Mill Dam to Carver Bridge (14 mi)

3 Deschutes River
- * Upper Deschutes: various segments from Little Lava Lake (headwaters) to Lake Billy Chinook (97 mi)
- * Lower Deschutes: Pelton Dam to Columbia River (100 mi)

4 Elk River
- * North Fork (6 mi)
- South Fork (5 mi)
- * Main stem from confluence of North and South Forks to Elk River Fish Hatchery (18 mi)

5 Grand Ronde River
- * Confluence with Wallowa River to Washington border (43 mi)

6 Illinois River
- * Deer Creek to Rogue River (46 mi)

7 John Day River
- * North Fork: North Fork John Day Wilderness boundary to River Mile 20.2 above Monument (57 mi)
- * South Fork: Post-Paulina Road crossing to Murderers' Creek Wildlife Area above Dayville (30 mi)
- Middle Fork: Crawford Creek to confluence with North Fork (73 mi)
- * Main stem: Parrish Creek to Tumwater Falls (158 mi)

8 Klamath River
- * John Boyle Dam powerhouse to California border (11 mi)

9 McKenzie River
- South Fork: Three Sisters Wilderness boundary to main stem, excluding Cougar Reservoir (21 mi)
- * Three segments of the main stem from Clear Lake to Paradise National Forest Service Campground (14 mi)

10 Metolius River
- * Metolius Springs to Candle Creek (12 mi)

11 Minam River
- * Minam Lake to Wallowa River (50 mi)

12 Molalla River
- Confluence of Table Rock Fork to Glen Avon Bridge (13 mi)

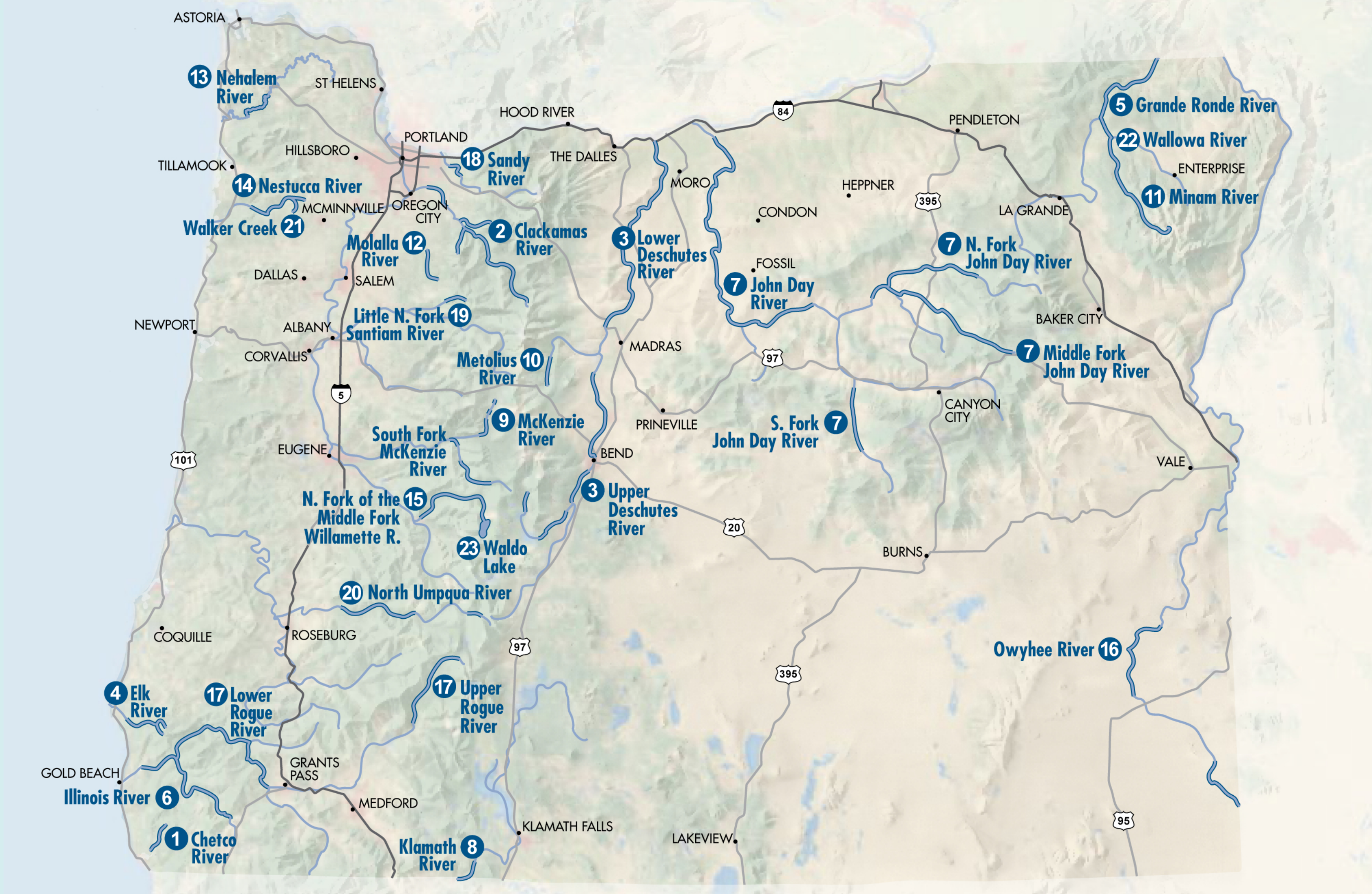
13 Nehalem River
- Henry Rierson Spruce Run Campground to confluence with Cook Creek (17.5 mi)

14 Nestucca River
- Main stem: McGuire Dam to Blaine (27 mi)

15 North Fork of Middle Fork of Willamette River
- * Waldo Lake to River Mile 1.5 near Westfir (42 mi)

16 Owyhee River
- * Crooked Creek to Birch Creek
- * South Fork: Idaho Border to Three Forks (26 mi)

17 Rogue River
- * Upper Rogue: Crater Lake National Park to Rogue River National Forest boundary (44 mi)
- * Lower Rogue: Applegate River to Lobster Creek Bridge (83 mi)



18 Sandy River
- * Bull Run River to Dabney State Park (13 mi)

19 North Santiam River
- Little North Fork: Battle Ax Creek to River Mile 16.7 at Willamette National Forest boundary (9 mi)

20 North Umpqua River
- Mt. Thielsen Wilderness boundary to Lemolo Reservoir (7 mi)
- * Soda Springs Dam powerhouse to Rock Creek (34 mi)

21 Walker Creek
- Source to confluence with Nestucca River (3 mi)

22 Wallowa River
- * Confluence with Minam to confluence with Grande Ronde (10 mi)

23 Waldo Lake
- 6,672 acres, 13 miles north of Oregon Highway 58

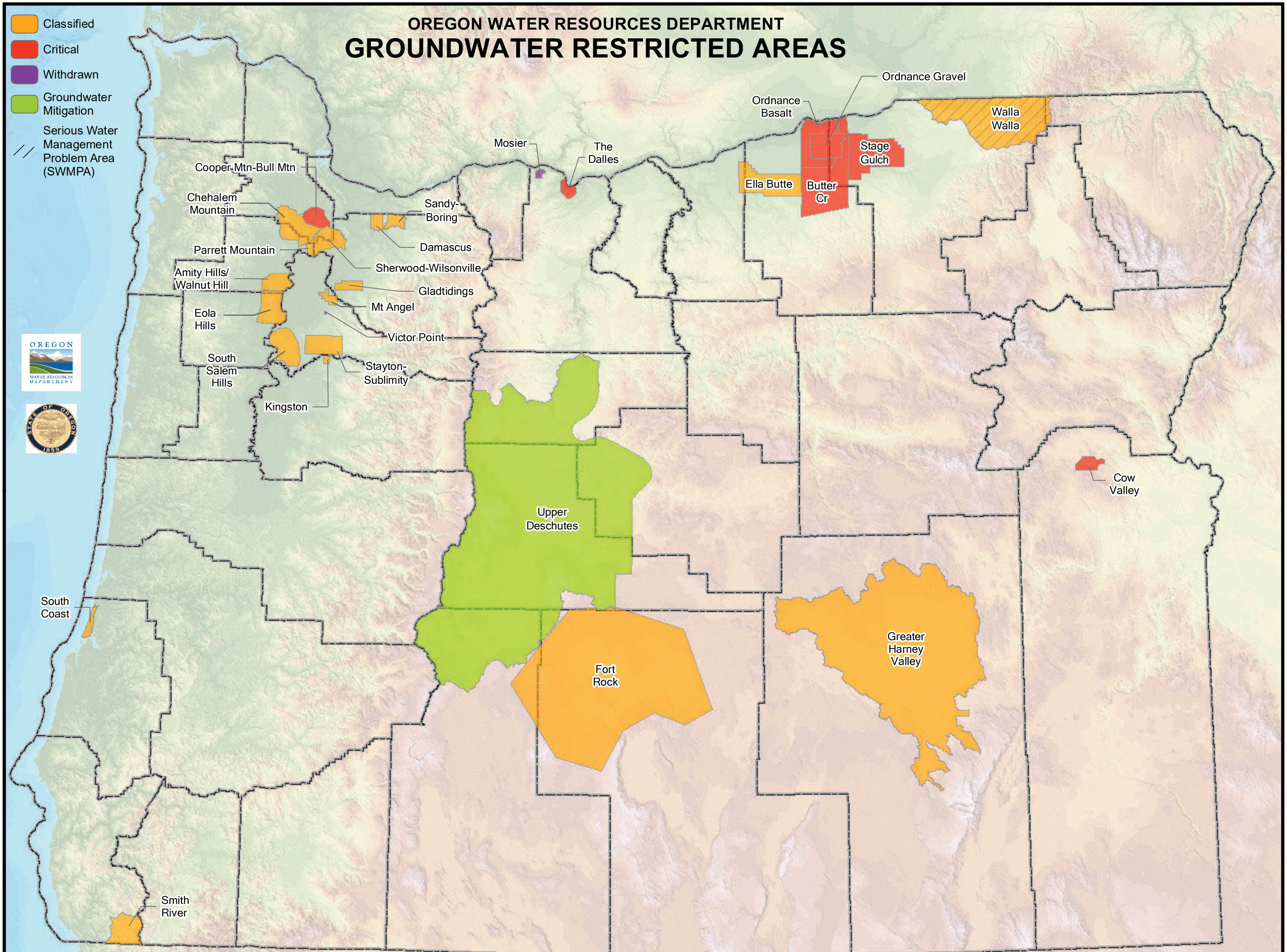
* National Wild and Scenic Rivers

OREGON STATE PARKS ®

Full descriptions are at
bit.ly/scenicwaterways

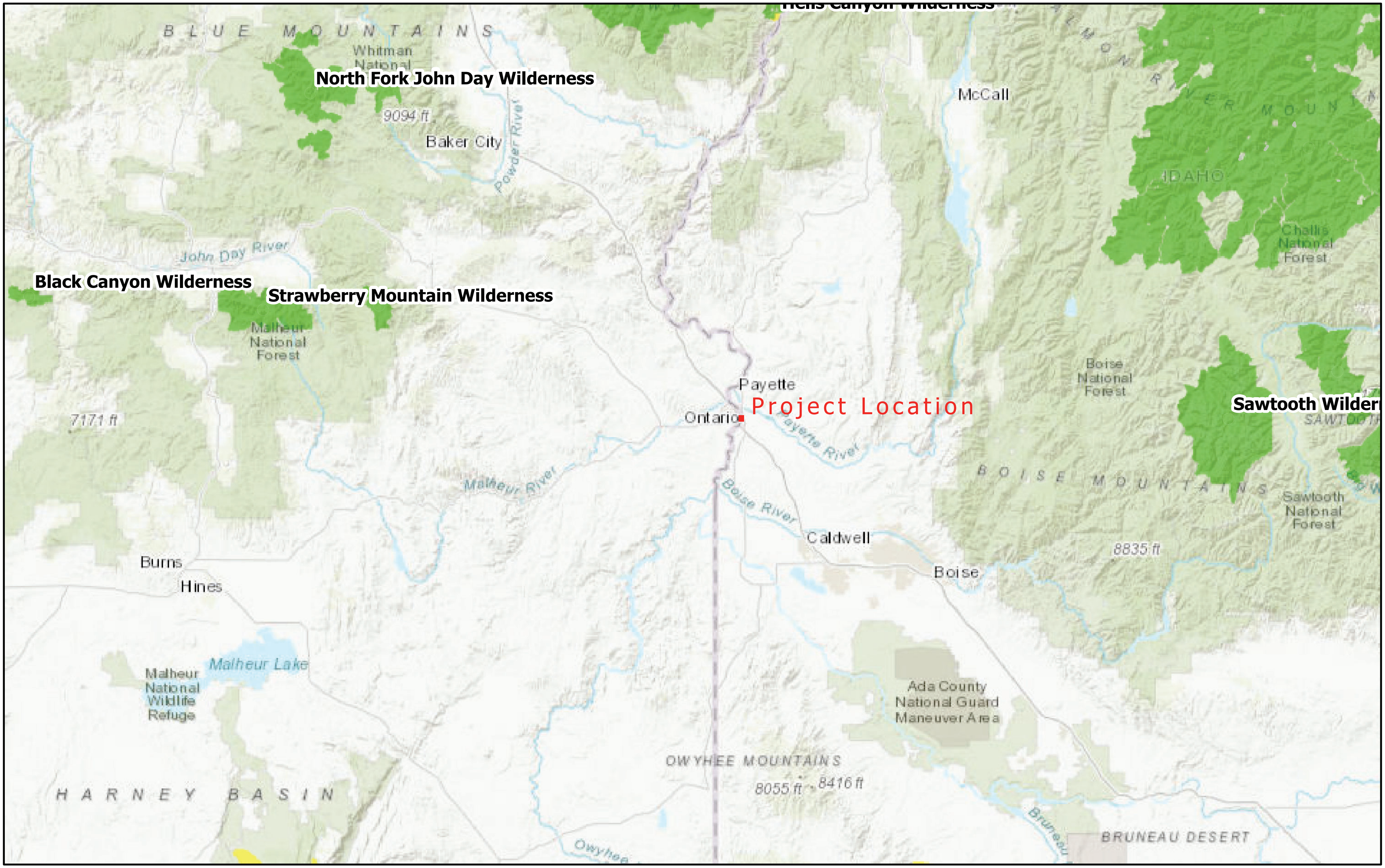
OREGON WATER RESOURCES DEPARTMENT

GROUNDWATER RESTRICTED AREAS



Map prepared by OWRD GIS (rh), 2/23/2018 (G:\dev\arcmap\projects\state\state_2016_GWRAs_letter.mxd)

Wilderness Areas

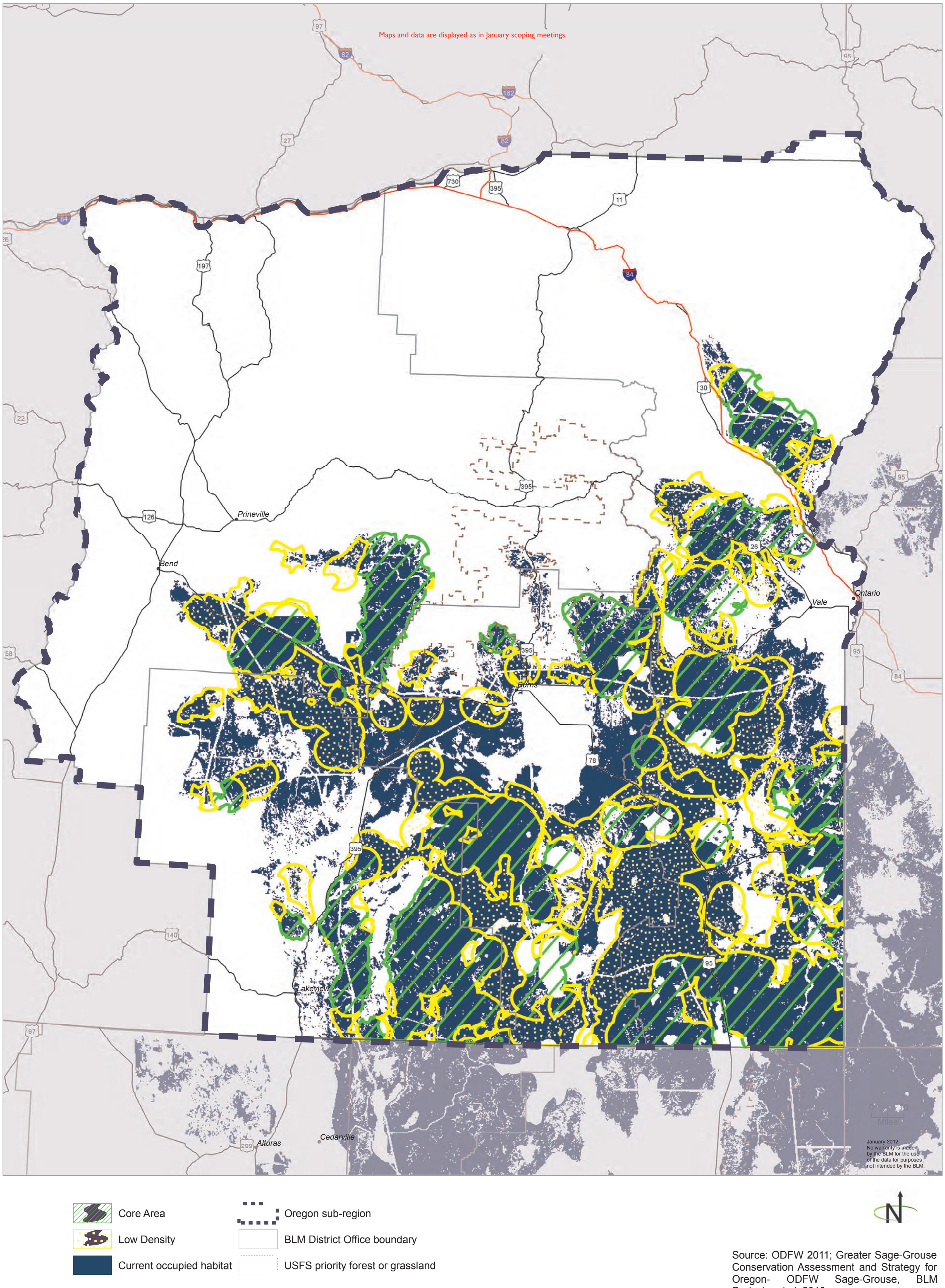


National Greater Sage-Grouse Planning Strategy

Oregon Sage-Grouse Core Areas and Occupied Habitat

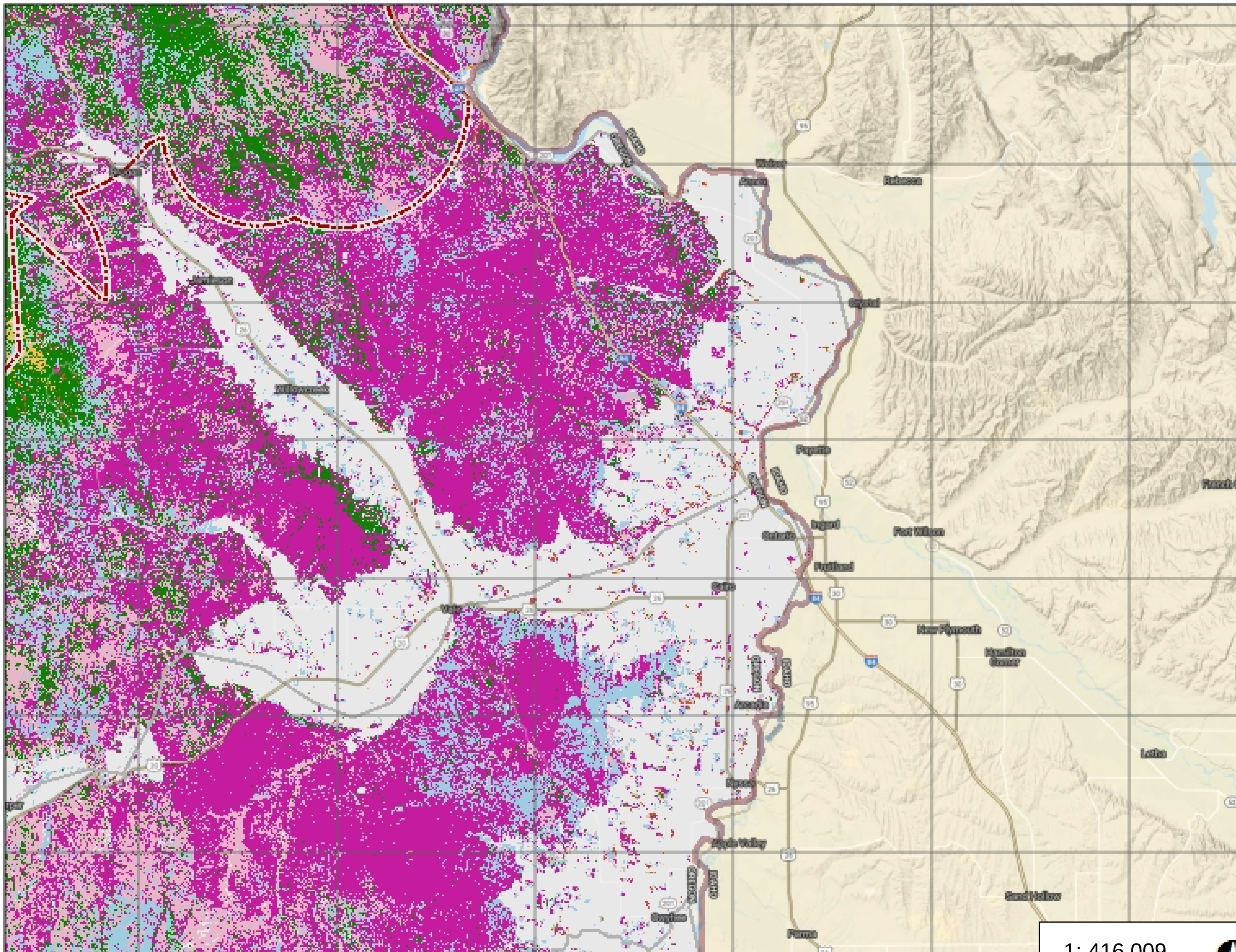
The Oregon Sage-Grouse Core Areas Map was developed by ODFW and BLM in close coordination with the Oregon Sage-grouse Conservation Planning Team and Local Implementation Teams. Core Areas are considered Preliminary Priority Habitat (PPH) in Oregon. Core Areas include over 90% of Oregon's breeding sage-grouse populations and 84% of occupied leks.

Low Density Areas reflect lek density strata, connectivity corridors and winter use areas. Low Density Areas combined with the remaining Occupied Habitat outside of Core Areas are considered Preliminary General Habitat (PGH) in Oregon.



Source: ODFW 2011; Greater Sage-Grouse Conservation Assessment and Strategy for Oregon- ODFW Sage-Grouse, BLM Durtsche et al. 2010

Map



Legend

States & Provinces
- Other States and Provinces
- Oregon

Sage-Grouse Priority Areas for Conservation (PACs)

Oregon Sagebrush Reporting Units (SRUs)

Vegetation Condition (Ecological State)
- A: Good Condition Sagebrush
- B: Good Condition Grassland
- C: Poor Condition Sagebrush
- C: Juniper Encroachment
- D: Poor Condition Grassland
- D: Juniper Encroachment With Poor Condition
- Non-Rangeland (Forest, Playa, Water)

1: 416,009

Notes

Add your notes here

13.1 0 6.57 13.1 Miles

WGS_1984_Web_Mercator_Auxiliary_Sphere

This map is a user generated static output from the Oregon Explorer Map Viewer (http://tools.oregonexplorer.info/oe_map_viewer/Viewer.html?Viewer=OE) and is for reference only. Data layers that appear on this map may or may not be accurate, current, or otherwise reliable.

THIS MAP IS NOT TO BE USED FOR NAVIGATION

ATTACHMENT B

U.S. Fish and Wildlife Service Species List and National Marine Fisheries Service Species Map

United States Department of the Interior

FISH AND WILDLIFE SERVICE
Oregon Fish And Wildlife Office
2600 Southeast 98th Avenue, Suite 100
Portland, OR 97266-1398
Phone: (503) 231-6179 Fax: (503) 231-6195
https://www.fws.gov/oregonfwo/articles.cfm?id=149489416

In Reply Refer To: March 09, 2020
Consultation Code: 01EOFW00-2020-SLI-0286
Event Code: 01EOFW00-2020-E-00541
Project Name: ontario oregon

Subject: List of threatened and endangered species that may occur in your proposed project location, and/or may be affected by your proposed project

To Whom It May Concern:

The enclosed species list identifies threatened, endangered, proposed and candidate species, as well as proposed and final designated critical habitat, that may occur within the boundary of your proposed project and/or may be affected by your proposed project. The species list fulfills the requirements of the U.S. Fish and Wildlife Service (Service) under section 7(c) of the Endangered Species Act (Act) of 1973, as amended (16 U.S.C. 1531 *et seq.*).

New information based on updated surveys, changes in the abundance and distribution of species, changed habitat conditions, or other factors could change this list. Please feel free to contact us if you need more current information or assistance regarding the potential impacts to federally proposed, listed, and candidate species and federally designated and proposed critical habitat. Please note that under 50 CFR 402.12(e) of the regulations implementing section 7 of the Act, the accuracy of this species list should be verified after 90 days. This verification can be completed formally or informally as desired. The Service recommends that verification be completed by visiting the ECOS-IPaC website at regular intervals during project planning and implementation for updates to species lists and information. An updated list may be requested through the ECOS-IPaC system by completing the same process used to receive the enclosed list.

The purpose of the Act is to provide a means whereby threatened and endangered species and the ecosystems upon which they depend may be conserved. Under sections 7(a)(1) and 7(a)(2) of the Act and its implementing regulations (50 CFR 402 *et seq.*), Federal agencies are required to utilize their authorities to carry out programs for the conservation of threatened and endangered species and to determine whether projects may affect threatened and endangered species and/or designated critical habitat.

A Biological Assessment is required for construction projects (or other undertakings having similar physical impacts) that are major Federal actions significantly affecting the quality of the human environment as defined in the National Environmental Policy Act (42 U.S.C. 4332(2)(c)). For projects other than major construction activities, the Service suggests that a biological evaluation similar to a Biological Assessment be prepared to determine whether the project may affect listed or proposed species and/or designated or proposed critical habitat. Recommended contents of a Biological Assessment are described at 50 CFR 402.12.

If a Federal agency determines, based on the Biological Assessment or biological evaluation, that listed species and/or designated critical habitat may be affected by the proposed project, the agency is required to consult with the Service pursuant to 50 CFR 402. In addition, the Service recommends that candidate species, proposed species and proposed critical habitat be addressed within the consultation. More information on the regulations and procedures for section 7 consultation, including the role of permit or license applicants, can be found in the "Endangered Species Consultation Handbook" at:

http://www.fws.gov/endangered/esa-library/pdf/TOC-GLOS.PDF

Please be aware that bald and golden eagles are protected under the Bald and Golden Eagle Protection Act (16 U.S.C. 668 *et seq.*), and projects affecting these species may require development of an eagle conservation plan (http://www.fws.gov/windenergy/eagle_guidance.html). Additionally, wind energy projects should follow the wind energy guidelines (http://www.fws.gov/windenergy/) for minimizing impacts to migratory birds and bats.

Guidance for minimizing impacts to migratory birds for projects including communications towers (e.g., cellular, digital television, radio, and emergency broadcast) can be found at: http://www.fws.gov/migratorybirds/CurrentBirdIssues/Hazards/towers/towers.htm; http://www.towerkill.com; and http://www.fws.gov/migratorybirds/CurrentBirdIssues/Hazards/towers/comtow.html.

We appreciate your concern for threatened and endangered species. The Service encourages Federal agencies to investigate opportunities for incorporating conservation of threatened and endangered species into project planning processes as a means of complying with the Act. If you have questions regarding your responsibilities under the Act, please contact the Endangered Species Division at the Service's Oregon Fish and Wildlife Office at (503) 231-6179. For information regarding listed marine and anadromous species under the jurisdiction of NOAA Fisheries Service, please see their website (http://www.nwr.noaa.gov/habitat/habitat_conservation_in_the_nw/habitat_conservation_in_the_nw.html).

Please include the Consultation Tracking Number in the header of this letter with any request for consultation or correspondence about your project that you submit to our office.

Attachment(s):

- Official Species List

Official Species List

This list is provided pursuant to Section 7 of the Endangered Species Act, and fulfills the requirement for Federal agencies to "request of the Secretary of the Interior information whether any species which is listed or proposed to be listed may be present in the area of a proposed action".

This species list is provided by:

Oregon Fish And Wildlife Office
2600 Southeast 98th Avenue, Suite 100
Portland, OR 97266-1398
(503) 231-6179

This project's location is within the jurisdiction of multiple offices. Expect additional species list documents from the following office, and expect that the species and critical habitats in each document reflect only those that fall in the office's jurisdiction:

Idaho Fish And Wildlife Office
1387 South Vinnell Way, Suite 368
Boise, ID 83709-1657
(208) 378-5243

Project Summary

Consultation Code: 01EOFW00-2020-SLI-0286

Event Code: 01EOFW00-2020-E-00541

Project Name: ontario oregon

Project Type: ** OTHER **

Project Description: ontario oregon

Project Location:

Approximate location of the project can be viewed in Google Maps: https://www.google.com/maps/place/43.25820918558277N117.61151570533471W

Counties: Canyon, ID | Owyhee, ID | Payette, ID | Washington, ID | Baker, OR | Malheur, OR

Endangered Species Act Species

There is a total of 4 threatened, endangered, or candidate species on this species list.

Species on this list should be considered in an effects analysis for your project and could include species that exist in another geographic area. For example, certain fish may appear on the species list because a project could affect downstream species.

IPaC does not display listed species or critical habitats under the sole jurisdiction of NOAA Fisheries[1], as USFWS does not have the authority to speak on behalf of NOAA and the Department of Commerce.

See the "Critical habitats" section below for those critical habitats that lie wholly or partially within your project area under this office's jurisdiction. Please contact the designated FWS office if you have questions.

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1. NOAA Fisheries, also known as the National Marine Fisheries Service (NMFS), is an office of the National Oceanic and Atmospheric Administration within the Department of Commerce.

Mammals

NAME	STATUS
Gray Wolf *Canis lupus* Population: U.S.A.: All of AL, AR, CA, CO, CT, DE, FL, GA, IA, IN, IL, KS, KY, LA, MA, MD, ME, MI, MO, MS, NC, ND, NE, NH, NJ, NV, NY, OH, OK, PA, RI, SC, SD, TN, TX, VA, VT, WI, and WV; and portions of AZ, NM, OR, UT, and WA. Mexico. There is **final** critical habitat for this species. The location of the critical habitat is not available. Species profile: https://ecos.fws.gov/ecp/species/4488	Endangered

Birds

NAME	STATUS
Yellow-billed Cuckoo *Coccyzus americanus* Population: Western U.S. DPS There is **proposed** critical habitat for this species. Your location is outside the critical habitat. Species profile: https://ecos.fws.gov/ecp/species/3911	Threatened

Fishes

NAME	STATUS
Bull Trout *Salvelinus confluentus* Population: U.S.A., conterminous, lower 48 states There is **final** critical habitat for this species. Your location overlaps the critical habitat. Species profile: https://ecos.fws.gov/ecp/species/8212	Threatened
Lahontan Cutthroat Trout *Oncorhynchus clarkii henshawi* No critical habitat has been designated for this species. Species profile: https://ecos.fws.gov/ecp/species/3964	Threatened

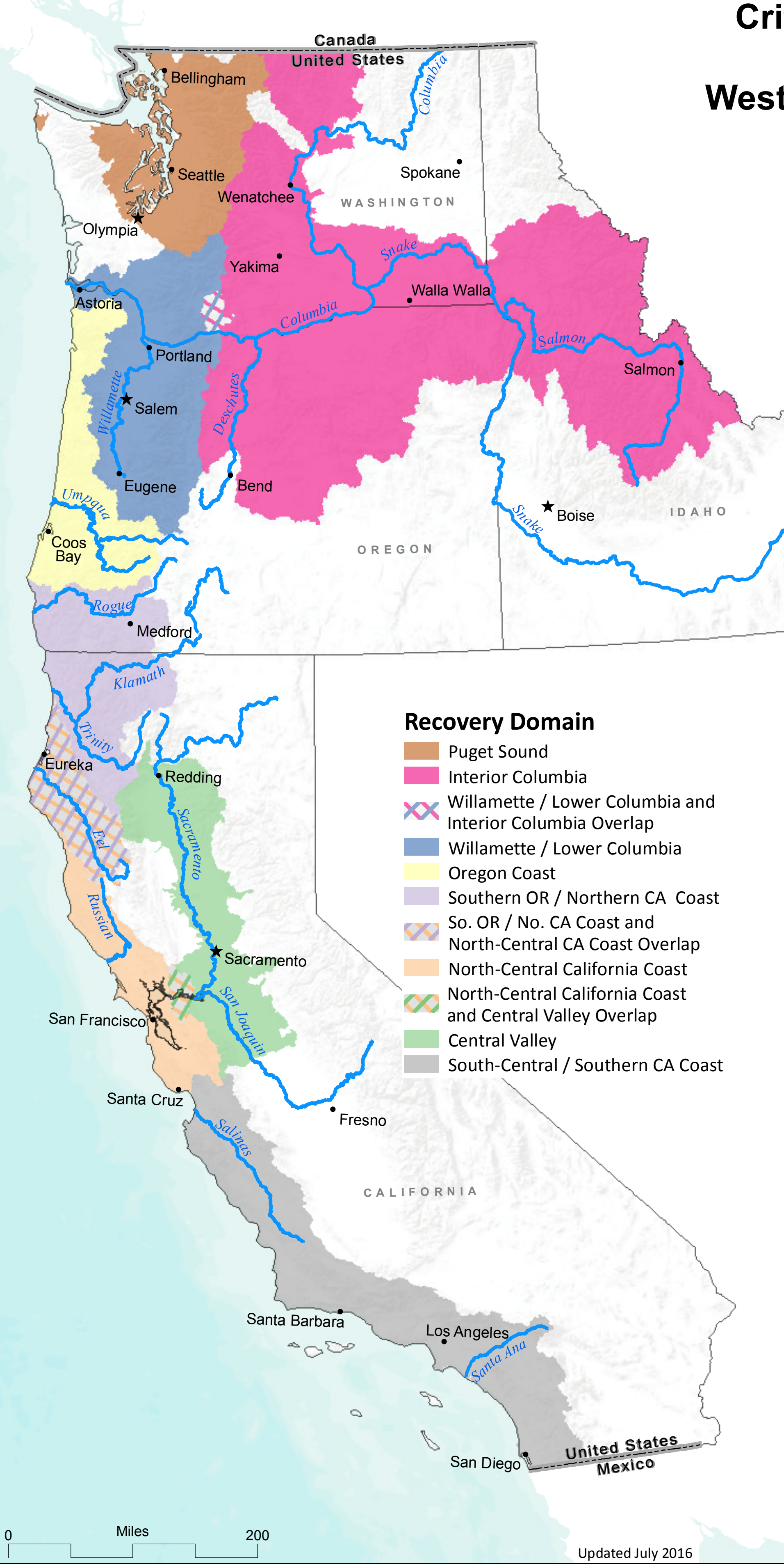
Critical habitats

There is 1 critical habitat wholly or partially within your project area under this office's jurisdiction.

NAME	STATUS
Bull Trout *Salvelinus confluentus* https://ecos.fws.gov/ecp/species/8212#crithab	Final

Status of ESA Listings & Critical Habitat Designations for West Coast Salmon & Steelhead

NOAA FISHERIES



Updated July 2016

Evolutionarily Significant Unit / Distinct Population Segment	ESA Status	Date of ESA Listing	Date of CH Designation
Puget Sound Recovery Domain			
Hood Canal Summer-run Chum Salmon	T	3/25/1999	9/2/2005
Ozette Lake Sockeye Salmon	T	3/25/1999	9/2/2005
Puget Sound Chinook Salmon	T	3/24/1999	9/2/2005
Puget Sound Steelhead	T	5/11/2007	2/24/2016
Interior Columbia Recovery Domain			
Middle Columbia River Steelhead	T	3/25/1999 1/5/2006	9/2/2005
Snake River Fall-run Chinook Salmon	T	4/22/1992	12/28/1993
Snake River Spring / Summer-run Chinook Salmon	T	4/22/1992	10/25/1999
Snake River Sockeye Salmon	E	11/20/1991	12/28/1993
Snake River Steelhead	T	8/18/1997 1/5/2006	9/2/2005
Upper Columbia River Spring-run Chinook Salmon	E	3/24/1999	9/2/2005
Upper Columbia River Steelhead	T	8/18/1997 1/5/2006	9/2/2005
Willamette / Lower Columbia Recovery Domain			
Columbia River Chum Salmon	T	3/25/1999	9/2/2005
Lower Columbia River Chinook Salmon	T	3/24/1999	9/2/2005
Lower Columbia River Coho Salmon	T	6/28/2005	2/24/2016
Lower Columbia River Steelhead	T	3/19/1998 1/5/2006	9/2/2005
Upper Willamette River Chinook Salmon	T	3/24/1999	9/2/2005
Upper Willamette River Steelhead	T	3/25/1999 1/5/2006	9/2/2005
Oregon Coast Recovery Domain			
Oregon Coast Coho Salmon	T	2/11/2008	2/11/2008
Southern Oregon / Northern California Coast Recovery Domain			
Southern OR / Northern CA Coasts Coho Salmon	T	5/6/1997	5/5/1999
North-Central California Coast Recovery Domain			
California Coastal Chinook Salmon	T	9/16/1999	9/2/2005
Central California Coast Coho Salmon	E	10/31/1996 (T) 6/28/2005 (E) 4/2/2012 (RE)	5/5/1999
Central California Coast Steelhead	T	8/18/1997 1/5/2006	9/2/2005
Northern California Steelhead	T	6/7/2000 1/5/2006	9/2/2005
Central Valley Recovery Domain			
California Central Valley Steelhead	T	3/19/1998 1/5/2006	9/2/2005
Central Valley Spring-run Chinook Salmon	T	9/16/1999	9/2/2005
Sacramento River Winter-run Chinook Salmon	E	11/5/1990 (T) 1/4/1994 (E)	6/16/1993
South-Central / Southern California Coast Recovery Domain			
South-Central California Coast Steelhead	T	8/18/1997 1/5/2006	9/2/2005
Southern California Steelhead	E	8/18/1997 5/1/2002 (RE) 1/5/2006	9/2/2005

ESA = Endangered Species Act, CH = Critical Habitat, RE = Range Extension
E = Endangered, T = Threatened,

Critical Habitat Rules Cited

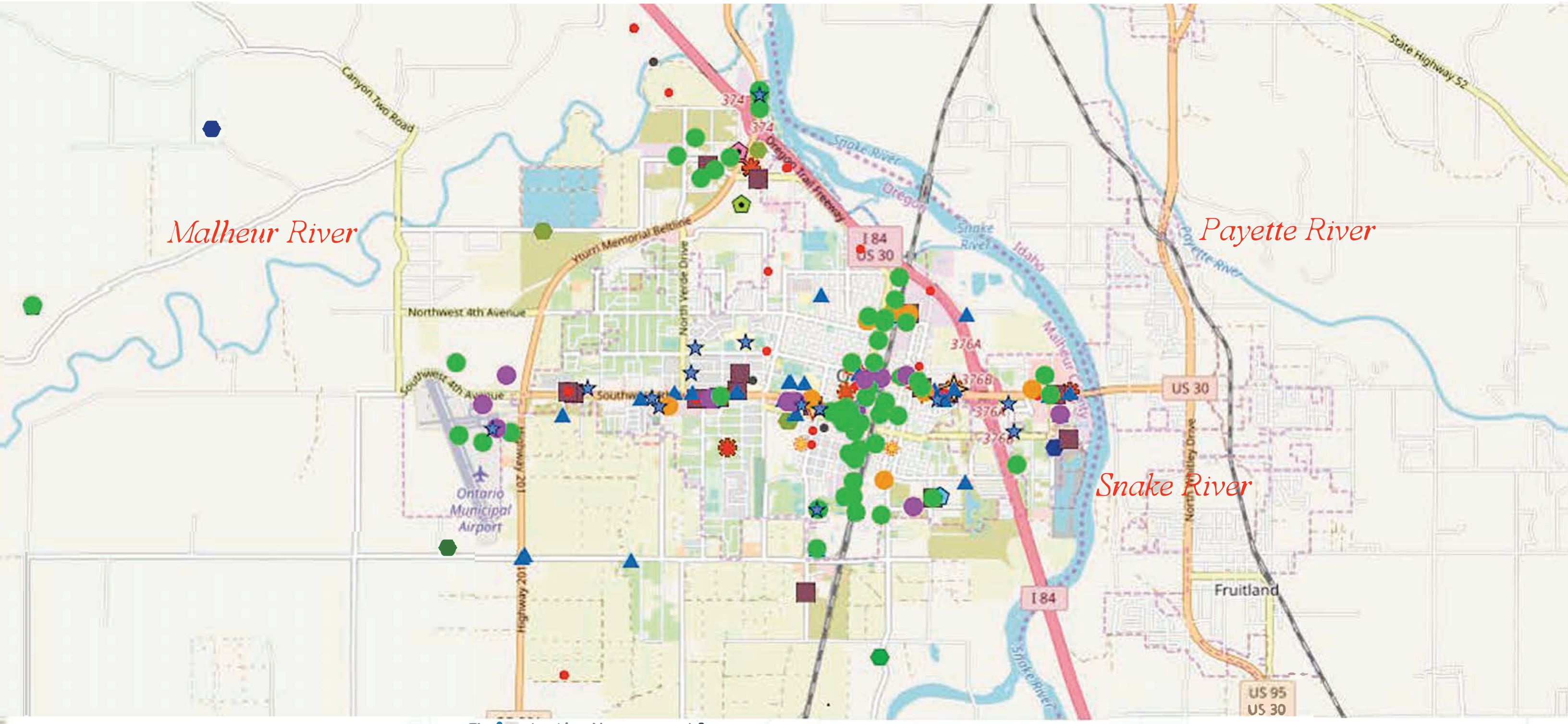
- 2/24/2016 (81 FR 9252) Final Critical Habitat Designation for Puget Sound Steelhead and Lower Columbia River Coho Salmon
- 2/11/2008 (73 FR 7816) Final Critical Habitat Designation for Oregon Coast Coho Salmon
- 9/2/2005 (70 FR 52630) Final Critical Habitat Designation for 12 ESU's of Salmon and Steelhead in WA, OR, and ID
- 9/2/2005 (70 FR 52488) Final Critical Habitat Designation for 7 ESU's of Salmon and Steelhead in CA
- 10/25/1999 (64 FR 57399) Revised Critical Habitat Designation for Snake River Spring/Summer-run Chinook Salmon
- 5/5/1999 (64 FR 24049) Final Critical Habitat Designation for Central CA Coast and Southern OR/Northern CA Coast Coho Salmon
- 12/28/1993 (58 FR 68543) Final Critical Habitat Designation for Snake River Chinook and Sockeye Salmon
- 6/16/1993 (58 FR 33212) Final Critical Habitat Designation for Sacramento River Winter-run Chinook Salmon

ESA Listing Rules Cited

- 4/2/2012 (77 FR 19552) Final Range Extension for Endangered Central California Coast Coho Salmon
- 2/11/2008 (73 FR 7816) Final ESA Listing for Oregon Coast Coho Salmon
- 5/11/2007 (72 FR 26722) Final ESA Listing for Puget Sound Steelhead
- 1/5/2006 (71 FR 5248) Final Listing Determinations for 10 Distinct Population Segments of West Coast Steelhead
- 6/28/2005 (70 FR 37160) Final ESA Listing for 16 ESU's of West Coast Salmon
- 5/1/2002 (67 FR 21586) Range Extension for Endangered Steelhead in Southern California
- 6/7/2000 (65 FR 36074) Final ESA Listing for Northern California Steelhead
- 9/16/1999 (64 FR 50394) Final ESA Listing for Two Chinook Salmon ESUs in California
- 3/25/1999 (64 FR 14508) Final ESA Listing for Hood River Canal Summer-run and Columbia River Chum Salmon
- 3/25/1999 (64 FR 14517) Final ESA Listing for Middle Columbia River and Upper Willamette River Steelhead
- 3/25/1999 (64 FR 14528) Final ESA Listing for Ozette Lake Sockeye Salmon
- 3/24/1999 (64 FR 14308) Final ESA Listing for 4 ESU's of Chinook Salmon
- 3/19/1998 (63 FR 13347) Final ESA Listing for Lower Columbia River and Central Valley Steelhead
- 8/18/1997 (62 FR 43937) Final ESA Listing for 5 ESU's of Steelhead
- 5/6/1997 (62 FR 24588) Final ESA Listing for Southern Oregon / Northern California Coast Coho Salmon
- 10/31/1996 (61 FR 56138) Final ESA Listing for Central California Coast Coho Salmon
- 1/4/1994 (59 FR 222) Final ESA Listing for Sacramento River Winter-run Chinook Salmon
- 4/22/1992 (57 FR 14653) Final ESA Listing for Snake River Spring/summer-run and Snake River Fall Chinook Salmon
- 11/20/1991 (56 FR 58619) Final ESA Listing for Snake River Sockeye Salmon
- 11/5/1990 (55 FR 46515) Final ESA Listing for Sacramento River Winter-run Chinook Salmon

ATTACHMENT C

Oregon Department of Environmental Quality Profiler Lite



- WQ Underground Injection Control (WQUIC) Sites
  - Water Quality Underground Injection Control (WQUIC)
- Facility Profiler-Lite Sites
  - Environmental Cleanup Site Information (ECSI)
    - Contaminated Site, Listed on CRL or Inventory
    - Contaminated Site, No further action required
    - Contaminated Site, Suspect site requiring further investigation
    - Study Area, Listed on CRL or Inventory
    - Study Area, Suspect site requiring further investigation
  - Hazardous Waste (HAZWASTE)
    - Generator
    - TSD
  - Leaking Underground Storage Tanks (LUST)
    - Regulated LUST - Cleanup started
    - Regulated LUST - Reported
    - Regulated LUST - Cleanup completed
    - Non-regulated LUST - Cleanup started
    - Non-regulated LUST - Reported
    - Non-regulated LUST - Cleanup completed
  - Solid Waste Information Facility Tracking (SWIFT)
    - Compost
    - Industrial
    - Municipal
    - SWLA
    - Sludge
    - Waste Tire
  - Water Quality Site Information System (WQSIS)
    - Individual NPDES - Domestic wastewater treatment facilities
    - Individual NPDES - Industrial storm water Discharges
    - Individual NPDES - Industrial wastewater discharges
    - Individual WPCF - Domestic on-site sewage system
    - Individual WPCF - Domestic wastewater treatment facilities
    - Individual WPCF - Industrial storm water Discharges
    - Individual WPCF - Industrial wastewater discharges
    - NPDES General Permit - Domestic wastewater discharges
    - NPDES General Permit - Industrial storm water discharges
    - NPDES General Permit - Industrial wastewater discharges
    - WPCF General Permit - Domestic on-site sewage system
    - WPCF General Permit - Industrial
  - Tracking, Reporting & Admin. of Air Contaminated Sources (TRAACS)
    - ACDP, Active
    - ACDP, Closed
    - ACDP, Temporarily Closed
    - ASR, Active
    - Title V, Active
    - Title V, Temporarily Closed
  - Underground Storage Tanks (UST)

WQ Underground Injection Control (WQUIC) Sites

- Water Quality Underground Injection Control (WQUIC)

Facility Profiler-Lite Sites

- Environmental Cleanup Site Information (ECSI)
  - Contaminated Site, Listed on CRL or Inventory
  - Contaminated Site, No further action required
  - Contaminated Site, Suspect site requiring further investigation
  - Study Area, Listed on CRL or Inventory
  - Study Area, Suspect site requiring further investigation
- Hazardous Waste (HAZWASTE)
  - Generator
  - TSD
- Leaking Underground Storage Tanks (LUST)
  - Regulated LUST - Cleanup started
  - Regulated LUST - Reported
  - Regulated LUST - Cleanup completed
  - Non-regulated LUST - Cleanup started
  - Non-regulated LUST - Reported
  - Non-regulated LUST - Cleanup completed
- Solid Waste Information Facility Tracking (SWIFT)
  - Compost
  - Industrial
  - Municipal
  - SWLA
  - Sludge
  - Waste Tire
- Tracking, Reporting & Admin. of Air Contaminated Sources (TRAACS)
  - ACDP, Active
  - ACDP, Closed
  - ACDP, Temporarily Closed
  - ASR, Active
  - Title V, Active
  - Title V, Temporarily Closed
- Underground Storage Tanks (UST)
- Water Quality Site Information System (WQSIS)
  - Individual NPDES - Domestic wastewater treatment facilities
  - Individual NPDES - Industrial storm water Discharges
  - Individual NPDES - Industrial wastewater discharges
  - Individual WPCF - Domestic on-site sewage system
  - Individual WPCF - Domestic wastewater treatment facilities
  - Individual WPCF - Industrial storm water Discharges
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  - NPDES General Permit - Domestic wastewater discharges
  - NPDES General Permit - Industrial storm water discharges
  - NPDES General Permit - Industrial wastewater discharges
  - WPCF General Permit - Domestic on-site sewage system
  - WPCF General Permit - Industrial wastewater discharges