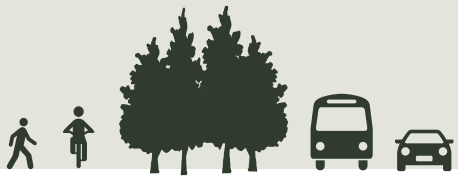


BATTLE GROUND TRANSPORTATION SYSTEM PLAN

November 2021



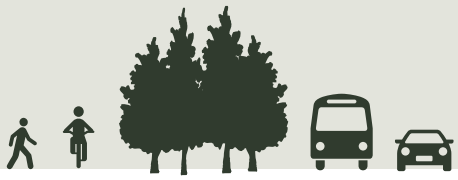


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PLAN INTRODUCTION

Guiding Transportation in Battle Ground for the Next 20 Years

In 2005, the City of Battle Ground adopted the *Battle Ground Transportation System Plan*. Updates to this plan were completed and adopted in 2009 and 2015 to reflect the growth and the need for updated transportation infrastructure projects.



In 2018, Battle Ground oversaw the Roadmap outreach and engagement process which adopted a vision to enhance the city's assets by developing neighborhoods and districts, addressing parks and green spaces, creating community gathering spaces, boosting employment, and focusing on redevelopment opportunities. As a result of this effort, an updated Land Use Master Plan was developed for the city, resulting in modifications to the Urban Growth Area (UGA) and various land use modifications throughout the city. The Land Use Master Plan was adopted in June 2021, and guides the city's periodic review requirements for the Comprehensive Plan Update consistent with the Growth Management Act. The following Transportation System Plan was subsequently prepared to better reflect the vision and growth potential associated with the new Land Use Master Plan and provide a refreshed transportation system plan reflective of recent growth and infrastructure changes.

The Battle Ground Transportation System Plan is organized into the following three sections:

1. Planning Context
2. Multimodal System Plan
3. Implementation Plan

The City of Battle Ground intends to regularly update the content of the TSP to reflect changing transportation policies, growth, and multimodal improvement projects.



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City of Battle Ground
Battle Ground, WA

0 0.5 1 Miles

NE 249th St
NW 25th St
NE 142nd Ave
NE 132nd Ave
NE 112th Ave
NE 239th St
NW 19th St
NE 5th Ave
NE 20th St
NW 15th St
NW Onsdorff Blvd
NW 16th Ave
NW 6th Ave
NW 12th St
NW 25th Ave
NW 35th Ave
NE 92nd Ave
NE 229th St
NW 9th St
NE 9th St
NE Grace Ave
NE 10th St
N Parkway Ave
NW 15th Ave
NW 20th Ave
NW 29th Ave
NW 5th Ave
NE 6th St
NW 4th St
NE 72nd Ave
NE 77th Ave
NW 5th St
NE 82nd Ave
NE 87th Ave
NE 3rd Ave
NE 1st St
NE Clark Ave
W Main St
E Main St
SE 1st St
NE 219th St
502
SW 6th St
SW 15th Ave
SW 8th Ave
SW 34th Ave
SW 24th Ave
SE Rasmussen Blvd
SE 20th Ave
SW 11th St
SW 20th Ave
SE 34th Ave
SE Commerce Ave
SE 13th St
NE 157th Ave
SW Scotton Way
SW 25th Ave
S Parkway Ave
SE 17th St
NE 199th St
SW Eaton Blvd
SE Eaton Blvd
SE 5th Ave
SE Grace Ave
SE 30th St
SW 30th St
SW 6th Ave
SE 35th St
NE 181st St
SE 40th St
NE 152nd Ave
503

Parks
City Boundary
UGA

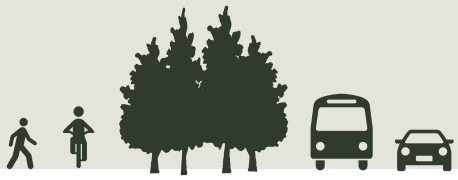
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1

PLANNING CONTEXT



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PLANNING CONTEXT

Meeting Battle Ground's Multimodal Needs

The City of Battle Ground's TSP is a long-range plan to meet the multimodal transportation needs of the community. It has been developed to address existing deficiencies and anticipated growth over the next 20 years. Like all planning efforts, the TSP is fundamentally rooted in the community's transportation system vision and the legislation that governs its existence. This section of the TSP summarizes the city's transportation goals and objectives and the overall regulatory setting that guided its development.

Transportation Goals and Objectives

The goals and objectives for the TSP update are outlined below. The goals provide direction for where the city would like to go. The objectives provide a detailed breakdown of the goals with specific outcomes the city desires to achieve. Each is rooted in the existing goals and objectives in the 2005 Battle Ground TSP and 2015-2-35 Comprehensive Plan. Each goal/objective was subsequently updated to reflect current priorities and provide guidance for modern transportation infrastructure decision-making and implementation of capital improvements.

Goal 1: The City will encourage the construction of a transportation system that enhances the city's livability.

- The City will use multimodal transportation improvements to help implement the Comprehensive Land Use Plan.
- The City will work to preserve the gateways identified in the Comprehensive Land Use Plan through transportation improvements.
- The City will consider a system of arterials and collectors that provide both transportation and open space.
- The City will strive to build a transportation system that supports the City’s design objectives.
- The City will strive to build a transportation system that supports the City’s livability design objectives.
- Where possible, the City will build a transportation system that will also provide recreation opportunities for the residents of Battle Ground.
- The City will strive to create a transportation system that includes right-of-way areas as public gathering spaces.

Goal 2: A transportation system that is safe.

- The City will work to enhance the safety of the pedestrian system.
- The City will work to enhance the safety of the bicycle system.
- The City will work to enhance the safety of the motor vehicle system.

Goal 3: A transportation system with a variety of transportation options.

- The City will strive to provide increasing amounts of transit service.
- The City will work to provide a complete pedestrian network.
- The City will work to provide a complete bicycle network.
- The City will strive to develop a transportation demand management program to reduce the number of single-occupancy vehicles.
- The City will seek alternative means of meeting travel demand.

Goal 4: A transportation system that provides for the efficient movement of goods and services.

- The City will work to provide access to industrial and employment access in the City.
- The City will work to balance parking and loading needs with other City goals.
- The City will work with property owners surrounding the Cedars North Airpark and with the appropriate state and federal agencies to develop a plan for the airstrip area.
- The City will work to implement the transportation system improvements identified in the Transportation System Plan (TSP).

Goal 5: A transportation system that balances accessibility and mobility.

- The City will work to reduce the negative impacts of transportation improvements on the community.
- The City will strive to improve circulation throughout the City.
- The City will strive to give access priority to schools and other civic uses.
- The City will work to improve access management along major city streets to improve mobility.
- The City will work to protect future transportation routes.
- The City will strive to minimize travel time between Battle Ground and the I-5 freeway.
- The City will work to decrease intersection conflicts that increase travel time and prohibit accessibility.

- The City will seek to balance motor vehicle mobility with pedestrian, bicycle and transit accessibility.

Goal 6: A transportation system that is affordable and durable.

- The City will work to improve the durability of transportation improvements.
- The City will work to identify multiple funding sources for new projects and maintenance.
- The City will strive to provide an equitable Balance of funding for transportation improvements.

Goal 7: The concurrent provision of transportation facilities.

- The City will strive to establish a transportation concurrency system that is equitable and maintain the City's ability to grow.

Goal 8: A sustainable transportation system to minimize adverse environmental impacts and encourage environmentally appropriate design and practices.

- The City will strive to reduce the impacts of the transportation system on water quality and quantity.
- The City will strive to reduce the impacts of the transportation system on wildlife and aquatic habitat.
- The City will strive to reduce air quality impacts caused by the transportation system.
- The City will strive to reduce the energy consumed in the transportation system.
- The City will strive to reduce noise impacts caused by the transportation system.

Regulatory Setting

The Battle Ground TSP has been prepared to address the regulatory requirements of the Washington State Growth Management Act (GMA) and several other applicable legislative elements.

Plan Consistency

Growth Management Act and Concurrency

The GMA under RCW 36.70A.070 requires local jurisdictions to prepare a transportation plan as part of the overall Comprehensive Plan. The Transportation Plan is required to be consistent with and help implement the local land use plan by identifying and planning for the applicable transportation infrastructure needs. Specific requirements include:



- Inventory of applicable transportation facilities and services;
- Level of service standards of all locally owned arterials and state-owned highways;
- Identification of state and local system needs to meet current and future demands;
- Specific actions and requirements for bringing into compliance locally-owned transportation facilities;
- Ten-year traffic forecasts based on the adopted land use plan;
- Pedestrian and bicycle components to include collaborative efforts to identify and designate planned improvements for pedestrian and bicycle facilities and corridors that address and encourage enhanced community access and promote healthy lifestyles;
- Transportation demand management strategies; and
- A multiyear financing plan based on the needs identified in the comprehensive plan.

Level of Service Standards

As noted under the GMA, the Transportation Plan must identify the operations standards for all local facilities and state-owned highways within the planning area.

Battle Ground Level of Service Standards

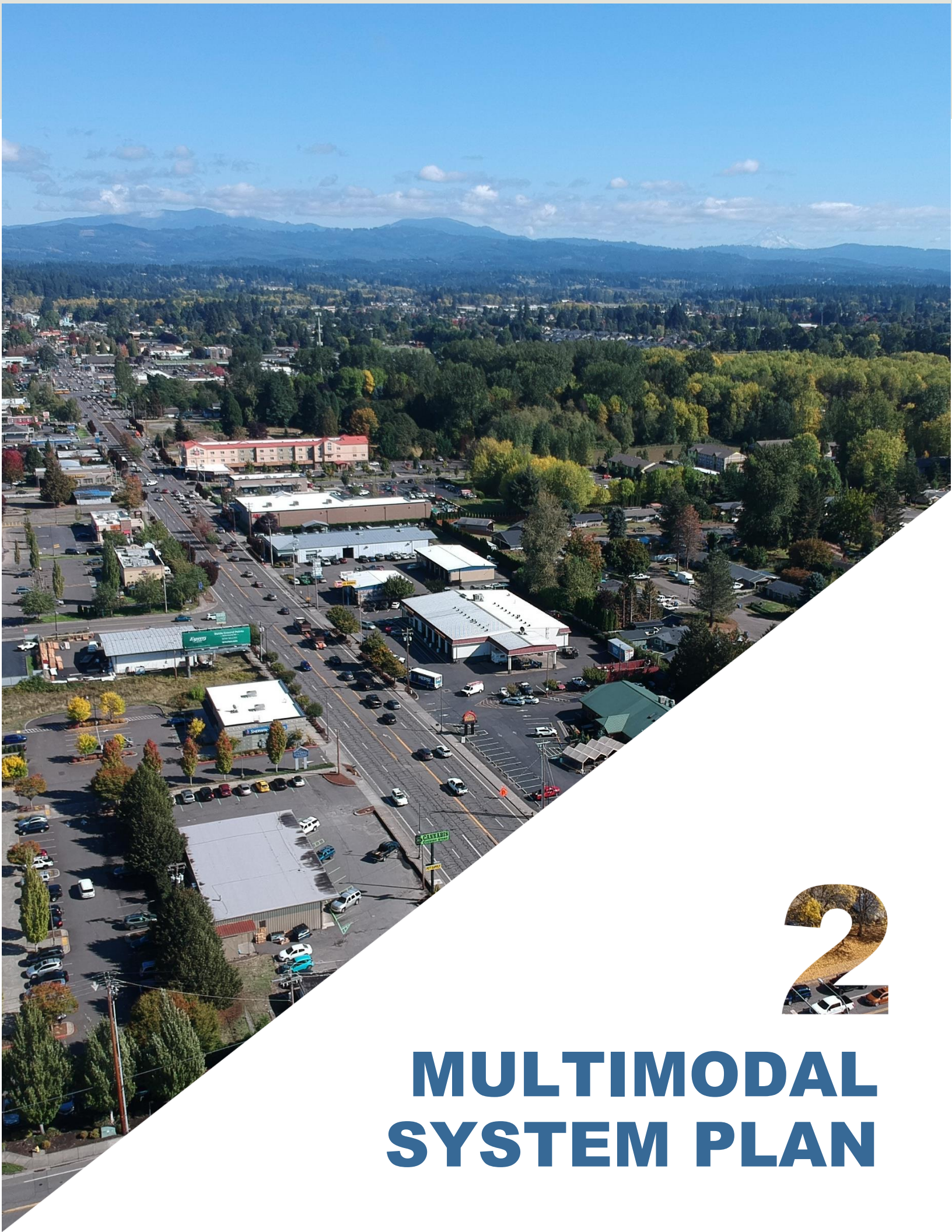
To assess intersection operations, the city uses a maximum Level of Service (LOS) of "D" for signalized intersections. Unsignalized intersections that don't meet signal warrants are expected to operate at a maximum LOS of "E". Where unsignalized intersections meet signal warrants, the city uses a maximum LOS of "D."

State Level of Service Standards

WSDOT, in coordination with the Southwest Washington Regional Transportation Council (RTC), requires a LOS E or better for non-HSS (Highways of Statewide Significance) in urban areas such as Battle Ground. SR 502 and SR 503 are considered non-HSS facilities.



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MULTIMODAL SYSTEM PLAN



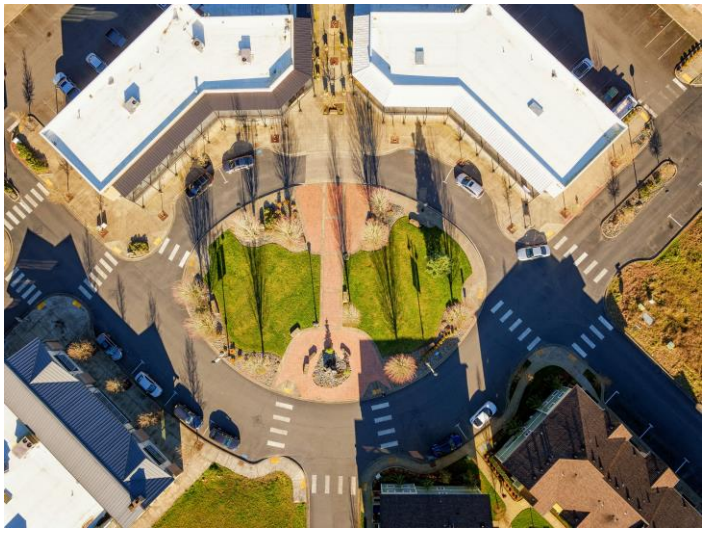
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MULTIMODAL SYSTEM PLAN

Safe, Accessible, and Equitable Transportation for Everyone

The multimodal transportation system was developed to be consistent with the transportation goals and to focus on creating a balanced system able to provide travel options for a wide variety of needs and users.

The Multimodal System Plan is organized into the following elements:



- Roadway System Management
  - Roadway Functional Classification Plan
  - Access Management
  - Local Street Connectivity Plan
  - Motorized Freight Route Plan
- Bicycle System
- Pedestrian System
- Public Transportation System
- Multimodal Transportation Improvement Projects
- Transportation Demand Management

Roadway System Management

The roadway infrastructure in Battle Ground includes private streets, city streets, Clark County roads, Washington Department of Transportation (WSDOT) state highways, sidewalks, bicycle lanes, and multimodal pathways. These facilities allow residents to access retail, commercial, recreational, and other land uses within Battle Ground.

Roadway Functional Classification

A fundamental implementation tool of the Battle Ground TSP is a formal hierarchy of the existing and planned roadway network, known as the Functional Classification. A street's functional classification defines its role in the transportation system. It reflects desired operational and design characteristics such as right-of-way requirements, pavement widths, pedestrian and bicycle features, and landscaping/buffer requirements. Functional classification is determined by several factors, including how the facility connects with the rest of the system, the volume of local or through traffic it is expected to carry, and the different types of trips it is expected to support. The public right-of-way for different functional classifications should provide sufficient space for utilities to serve adjacent land uses. Functional classifications help Battle Ground reserve future rights-of-way, determine street design, and develop future street improvement projects. Definitions of the functional classifications recognized by the City of Battle Ground are described below.

State Highway

State Highways link Battle Ground to other major regional destinations. They are owned and operated by the Washington State Department of Transportation (WSDOT) and are subject to state design and operational standards.

Principal Arterials

Principal arterials are intended to serve multimodal travel through the larger urban area. Principal arterials typically carry a higher volume of through vehicular traffic on a minimum of roadway mileage. They have more restrictive access controls, although direct access to major land use developments such as shopping centers can be allowed when determined to be safe and efficient. Traffic signals are generally used for intersection traffic control at major intersections.

Minor Arterials

Minor arterials carry multimodal travel between principal arterials and lesser classified streets or directly to commercial and industrial areas. Direct access to land use development is generally permitted. Traffic control is commonly a mix of signalized intersections and stop control. Minor arterials in urban areas are usually separated by less than two miles.

Major Collectors

Major Collectors often balance land access and multimodal circulation within residential neighborhoods and commercial and industrial areas. They typically form the link between the arterial street system and lesser-classified streets. There is often a mix of signalized intersections and stop sign control used on intersecting roads.

Neighborhood Collectors

Neighborhood Collectors collect traffic from local streets or large parcels and funnel it to the major collector and/or arterial street system. Neighborhood collectors are typically stop-controlled at intersections, have lower speeds, and often provide a significant degree of direct property access. They usually do not handle through trips and are often not continuous for any great length.

Local Streets

Local Streets provide direct access to adjacent property and to higher classified facilities. They offer the lowest degree of mobility and highest degree and accessibility. They are not intended to carry through travel but make up a significant percentage of total roadway mileage within the city.

The following figure illustrates Battle Ground's roadway functional classification plan for all existing and future arterial and collector streets within the UGA. The alignment for future streets should be considered conceptual: the endpoints of the streets are fixed, but the alignments between intersections may vary depending on design requirements at the time the streets are designed and constructed.

Roadway Design Standards

Roadway design standards identify the design characteristics for each roadway type, such as the number of travel lanes, travel lane widths, and the presence/size of active transportation facilities. These design characteristics are outlined in the Transportation section of the City of Battle Ground's Standard Details & Construction Requirements. For ease of potential future changes and updates, the roadway design standards are not recreated in the TSP but are included by reference.

SR 503

Although owned and operated by WSDOT, a conceptual reimagining of the SR 503 corridor was completed by the City of Battle Ground. This reimagining consisted of different bicycle and pedestrian treatments along the heavily traveled corridor. The resulting conceptual graphics are included in Appendix B.



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Functional Classification
Battle Ground, WA

0 0.5 1 Miles

- State Highway
- Principal Arterial
- Minor Arterial
- (Future Minor Arterial)
- Major Collector
- (Future Major Collector)
- Neighborhood Collector
- (Future Neighborhood Collector)
- Multiuse Trails
- Future Multiuse Trails
- Parks
- City Boundary
- UGA
- UGA Expansion Area
- UGA Removal Area

Coordinate System: NAD 1983 StatePlane Washington South FIPS 4602 Feet
Data Source: Clark County Opendata
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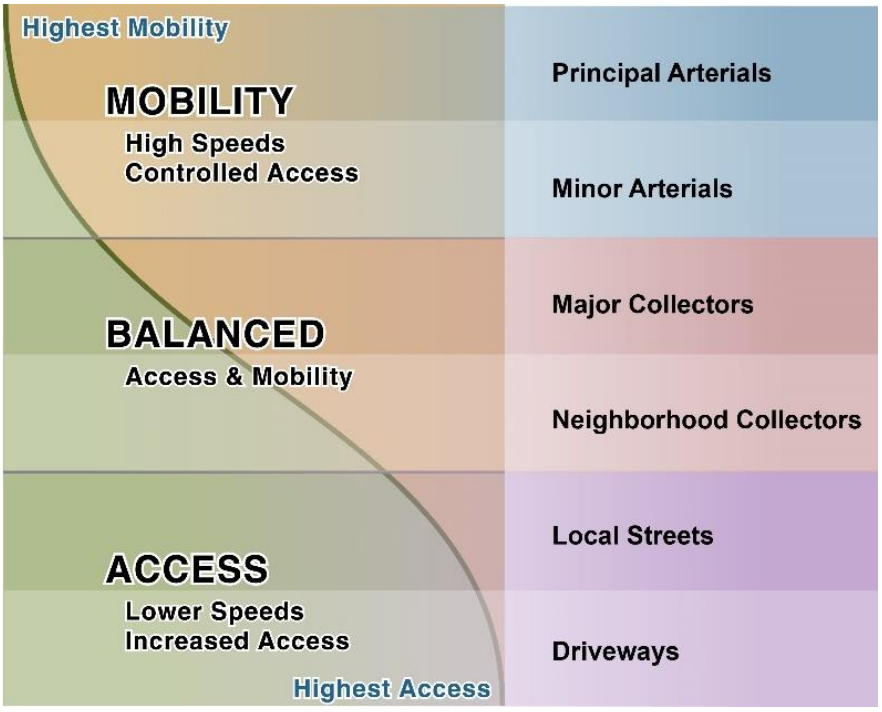
Access Management

The number and spacing of access points, such as driveways and street intersections, along a roadway can affect its overall function, capacity, and safety. Access management refers to balancing the need for access to land parcels with the need to provide safe and efficient movement of multimodal through travel on the roadway. The City of Battle Ground carries out access management in a variety of ways, including:

- Medians: raised channelization, barriers
- Driveway spacing standards
- Driveway consolidation as part of redevelopment projects
- Requiring driveways be placed on lower order streets where a parcel abuts both higher and lower order streets

Access management is one of the tools that implement the roadway functional classification plan. When access controls are in place, the frequency of driveways and intersecting streets is more restrictive along state highways, principal arterials, and minor arterials. Access controls are less restrictive along collector streets where there is a greater balance between access and mobility. Access controls are restricted only by safety considerations along local streets where property access is the primary function of the street.

The Battle Ground Municipal Code provides direction on intersection spacing, driveway location and access design, intersection design, specification of shared driveways between parcels, internal vehicle circulation, and the use of medians or other physical barriers to limit vehicle movements at driveways or intersecting streets. The access management standards are kept and maintained in the Battle Ground Municipal Code for ease of potential future changes and updates.



Local Street Connectivity

Local street connections have been identified for the City of Battle Ground. The following Figure illustrates the location and general orientation of the connections. Roadway alignments and cost estimates are not provided as they are anticipated to be determined as part of future development. However, the city will refer to the local street connections shown in the figure during development review. This will help establish improved local street access and circulation within the city.



Motorized Freight Route Plan

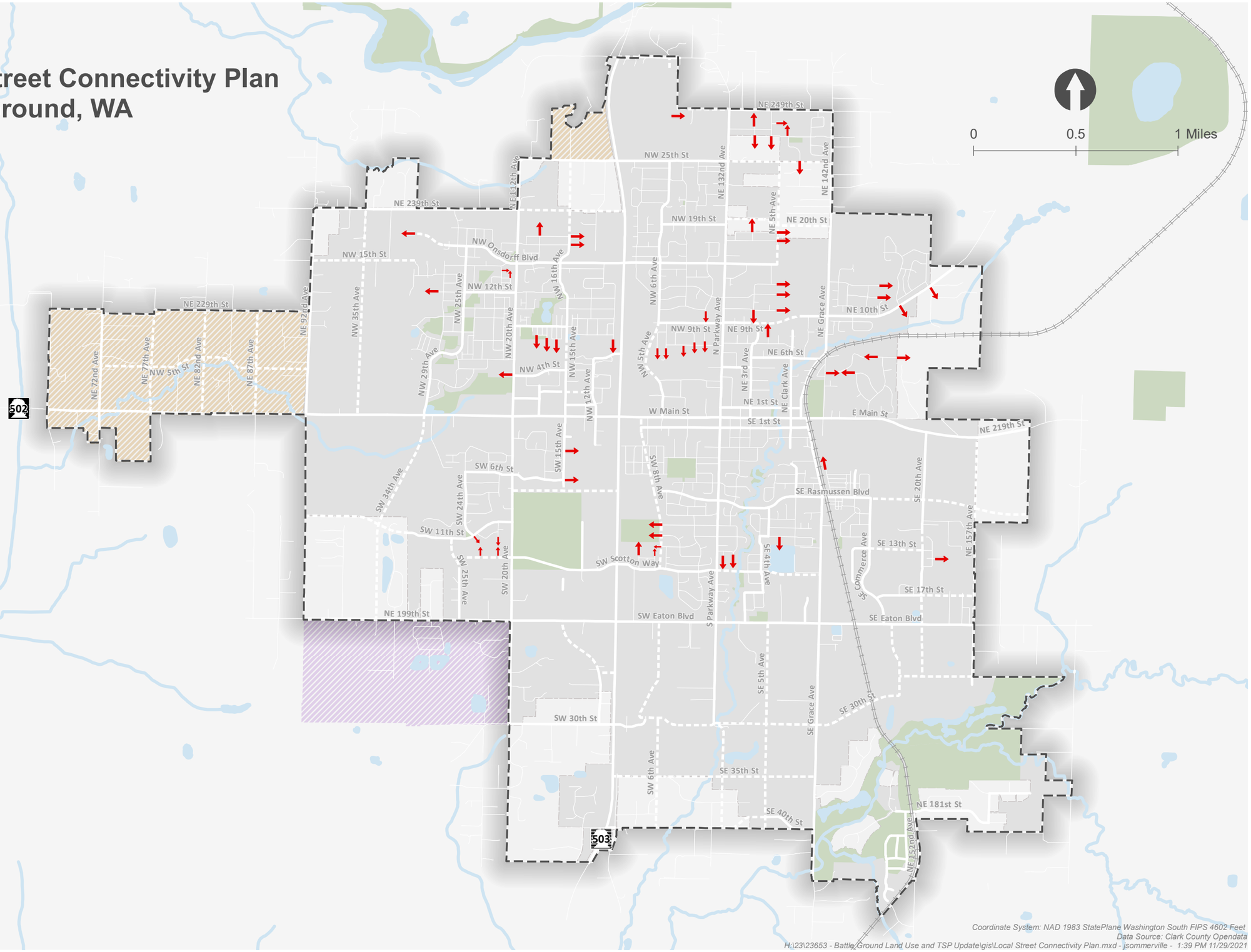
The Battle Ground TSP has identified and designated specific roadways to help ensure motorized freight traffic can effectively travel through and access key destinations in the city. The following figure illustrates the motorized freight route plan for the City of Battle Ground. It is consistent with the roadway functional classification plan. As indicated in the graphic, urban routing for through truck movement is typically focused on the city's arterial street system, including:

- SR 503
- SR 502/W Main Street
- NE 92nd Avenue
- NE 239th Street
- NW 25th Street
- NE 249th Street
- NE/SE Grace Avenue
- SW/SE Eaton Boulevard
- SE Rasmussen Boulevard/Commerce Avenue

The rural truck routes shown in the figure largely include extensions of the urban system outside of the UGA, including NE 249th Street, NE 10th Street, NE 219th Street, and NE 199th Street.

It should be noted that the designated truck routes are intended to address restrictions on the movement of large, through-moving vehicles and not locally-oriented truck traffic which can travel on any available and appropriate street necessary to reach a destination.

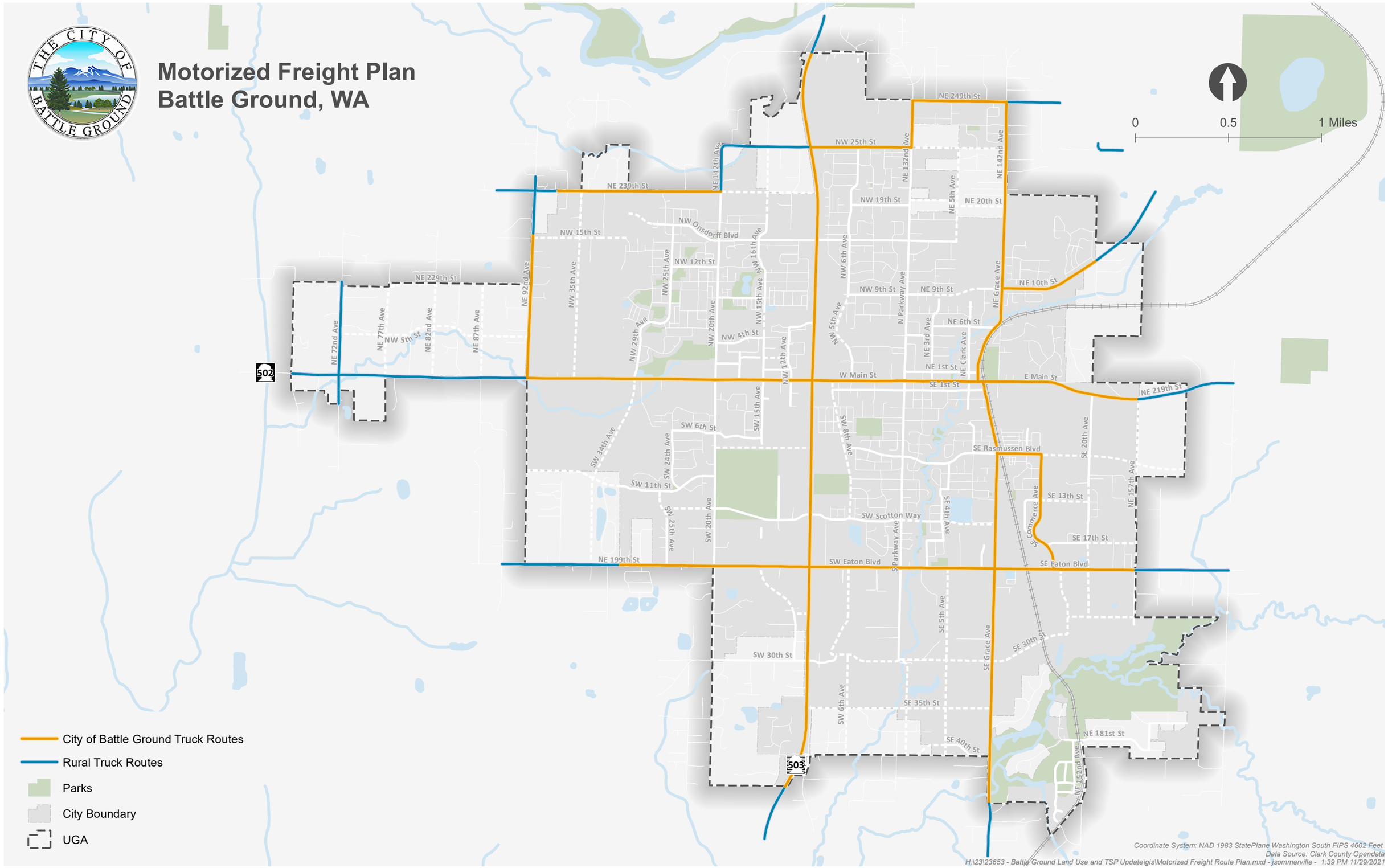
Local Street Connectivity Plan
Battle Ground, WA



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Motorized Freight Plan
Battle Ground, WA



Coordinate System: NAD 1983 StatePlane Washington South FIPS 4602 Feet
Data Source: Clark County Opendata
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Bicycle System

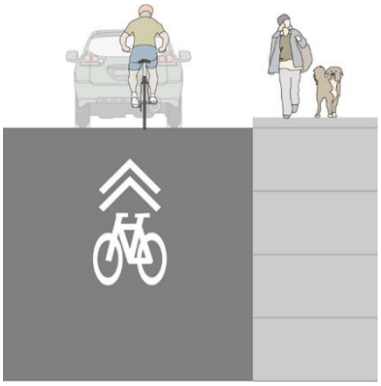
Bicycle facilities in Battle Ground consist of on-street bike lanes, shoulder bikeways, and unmarked shared roadways, as well as off-street shared-use paths and trails. These facilities allow residents to travel to/from residential areas, schools, parks, retail/commercial centers, and other activity centers by bike.

Bicycle Facilities



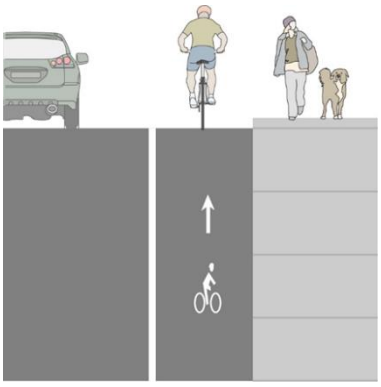
Bicycle facilities are the elements of the transportation system that enable people to travel safely and efficiently by bicycle. These include facilities along key roadways (e.g., shared lane pavement markings, on-street bike lanes, and separated bike facilities) and at key crossing locations (e.g., enhanced bike crossings). Each facility plays an important role in developing a comprehensive bicycle system. This section summarizes the bicycle facilities determined to best address gaps and deficiencies in the bicycle network and future needs.

Shared Lanes



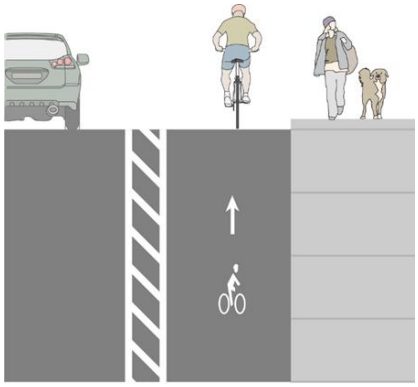
A shared roadway is one in which a bicyclist and a motorist share the same travel lane. Shared lane pavement markings (often called "sharrows") can be included as a wayfinding tool to navigate bicyclists along low-stress roadways with low vehicular volume and speeds. Sharrows may also accommodate bicyclists on roads where bike lanes are desirable but infeasible to construct. Bicyclists are expected to share the roadway on all Neighborhood Collectors and Local Streets.

Bicycle Lanes



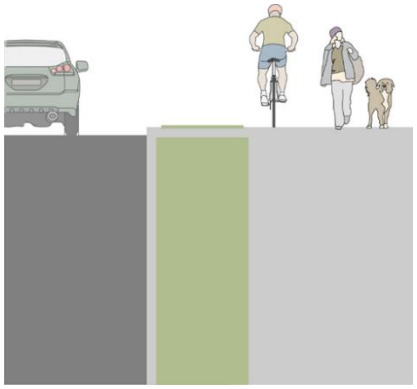
Bicycle lanes are striped lanes, including a bicycle stencil on the roadway dedicated to cyclists' exclusive use. Bike lanes are typically placed at the outer edge of pavement (but \ inside of right-turn lanes and/or on-street parking). Bicycle lanes can improve the safety and security of cyclists and (if comprehensive) can provide direct connections between origins and destinations. Bicycle lanes are most appropriate on collector and arterial roadways to provide a dedicated space for bicycling separate from the motor vehicle lane. Bicycle lanes are included in the Principal Arterial, Minor Arterial, and Major Collector roadway design standards.

Buffered Bike Lanes



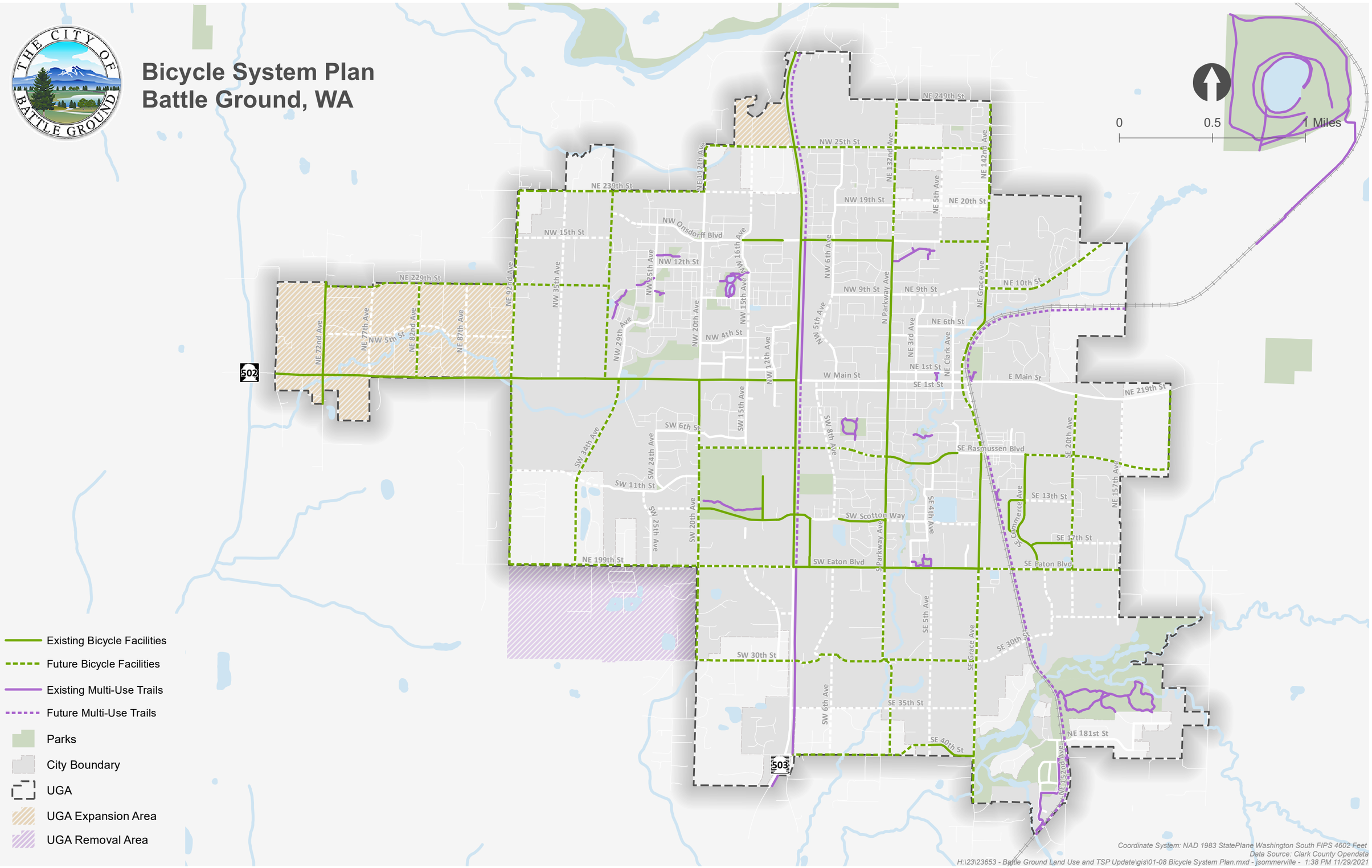
Buffered bike lanes are enhanced versions of conventional on-street bike lanes. This includes an additional striped buffer of typically 2-3 feet between the bicycle lane and the vehicle travel lane and/or between the bicycle lane and the vehicle parking lane. While buffered bicycle lanes are not incorporated into the roadway design standards, they can be considered in potential future roadway lane reallocation plans/striping modification plans where appropriate.

Multi-Use Paths



Multi-use paths are paved, bi-directional trails that can serve both pedestrians and bicyclists. Multi-use paths and trails can be constructed adjacent to roadways where the topography, right-of-way, or other issues don't allow construction of sidewalks and bicycle facilities. Multi-use paths can be used to create longer-distance links within and between communities and provide regional connections. In addition, they play an integral role in recreation, commuting, and accessibility due to their appeal to users of all ages and skill levels.

Bicycle System Plan
Battle Ground, WA



Coordinate System: NAD 1983 StatePlane Washington South FIPS 4602 Feet
Data Source: Clark County Opendata
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Pedestrian System

The pedestrian system in Battle Ground consists of sidewalks, multi-use paths, marked and unmarked, signalized, and unsignalized pedestrian crossings. These facilities provide residents the ability to access local retail/commercial centers, recreational areas, and other land uses by foot. A safe, convenient, and continuous network of pedestrian facilities is essential to establishing a vibrant and healthy community while supporting the local economy.

Pedestrian Facilities

Pedestrian facilities are the elements of the transportation system that enable people to walk safely and efficiently between neighborhoods, retail centers, employment areas, schools, parks, and transit stops. These include facilities for pedestrian movement along key roadways (e.g., sidewalks, multi-use paths, and off-street trails) and for safe roadway crossings (e.g., crosswalks, crossing beacons, pedestrian refuge islands). Each facility plays an important role in developing a comprehensive pedestrian system.



This section summarizes the pedestrian facilities that were determined to best address gaps and deficiencies in the pedestrian system and future needs. As indicated below, the most common overall need is to provide a safe and interconnected pedestrian system that encourages people to walk, especially for trips less than one-half mile in length.

Sidewalks

Sidewalks are the fundamental building blocks of the pedestrian system. They enable people to walk comfortably, conveniently, and safely from place to place. They also provide an important means of mobility for people with disabilities, families with strollers, and others who may not be able to travel on an unimproved roadside surface. Sidewalks are usually 5 to 8-feet wide and constructed from concrete. They are also frequently separated from the roadway by a curb, landscaping, and/or on-street parking.

Multi-use Paths

Multi-use paths are paved, bi-directional, trails that can serve both pedestrians and bicyclists. Multi-use paths and trails can be constructed adjacent to roadways where the topography, right-of-way, or other issues don't allow for the construction of sidewalks and bicycle facilities. 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.



Enhanced Pedestrian Crossings

Pedestrian crossing facilities enable pedestrians to safely and efficiently cross streets and other transportation facilities. Planning for appropriate pedestrian crossings requires the community to balance vehicular needs with providing crossing locations at desired routes for people walking. Enhanced pedestrian crossing treatments include:

- Median refuge islands
- High visibility pavement markings and signs
- Rapid rectangular flashing beacons (RRFB)
- Curb extensions
- Pedestrian signals
- Pedestrian countdown heads
- Leading Pedestrian interval



Pedestrian System Plan
Battle Ground, WA

0 0.5 1 Miles

Existing Pedestrain Facilities
Future Pedestrian Facilities
Existing Multi-Use Trails
Future Multi-Use Trails
Parks
City Boundary
UGA
UGA Expansion Area
UGA Removal Area

Coordinate System: NAD 1983 StatePlane Washington South FIPS 4602 Feet
Data Source: Clark County Opendata
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Public Transportation System

The public transportation system in Battle Ground consists of fixed-route and deviated fixed-route service provided as part of the C-TRAN Regional system. There are no other public bus or passenger rail services in the city. C-TRAN operates the regional routes, providing transportation options to greater Clark County destinations.



Public Transportation Plan

In addition to coordinating with regional transit agencies to help implement their planned service enhancements, the City of Battle Ground will support the development of a more efficient transit service by:

- Allowing C-TRAN to provide amenities, such as shelters and benches, at transit stops;
- Providing comfortable and safe walking and bicycling connections between key roadways, neighborhoods, and local destinations;
- Encouraging an appropriate mix and density of uses that support public transit; and
- Providing and planning for regional park-and-ride locations.
- Installing ADA compliant pedestrian ramps leading to bus stops.
- Install street lighting at bus stops.

These types of enhancements can encourage increased transit ridership consistent with Goal 3.



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Multimodal Transportation Improvement Projects

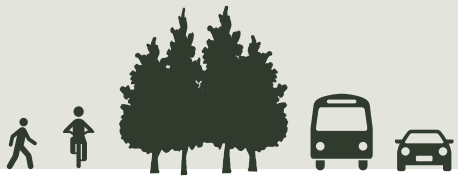
The City of Battle Ground has developed a complete list of multimodal improvement projects to address existing and future transportation infrastructure needs. Table 1 identifies the major street intersection capacity and multimodal connectivity projects followed by corresponding project maps. Improvements focus on new corridors, existing roadways that are unimproved, are currently serving or projected to serve multimodal travel demands, or are not meeting modern roadway design standards that could create safety and operational issues. The project list is composed of two main categories:



- **Near-Term Projects** - The highest priority projects that could potentially be constructed with anticipated funding within the next five years[1].
- **Longer-Term Projects** – Projects that have measurable transportation value but are most likely to be constructed as part of future development/redevelopment efforts and within a longer five to twenty-year period.

A planning-level cost estimate has been prepared for each near- and long-term project. These cost estimates are reported in 2021 dollars and are based on material unit costs, right-of-way acquisition, and design/engineering/construction costs. The final costs will likely deviate from the planning level estimates, but the planning level estimates provide a reasonable basis for the Implementation Plan section of the TSP.

[1] Depending on the availability of funding and time needed for environmental review, project design, and coordination with affected property owners, some of these projects may take longer. Other projects not identified on this list also may be implemented at an earlier date depending on overall City priorities and/or opportunities related to development or redevelopment of specific properties.



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Table 1 – Roadway Intersection and Travel Way Segment Projects

MAP ID	PROJECT LOCATION	PROJECT DESCRIPTION	PLANNING COST ESTIMATE	TIME FRAME
A	SR 503 and NW Onsdorff Boulevard	Add second lane to SR 503 southbound 500 feet north and south of the intersection, add necessary tapers and revise existing signal heads, add eastbound right turn lane, and second westbound left turn lane	$2.0 M	Near-Term
B	SR 503 and NW 5th St	Add east-west right-in right-out on east side of SR 503	$0.3 M	Near-Term
C	SR 503 and SR 502	Add right turn lane channelization on east, west, and north legs and Add dual left turns northbound and southbound	$3.6 M	Near-Term
D	SR 503 and SW Rasmussen Blvd	Add east and west legs of intersection and signalize (ties to project 12)	$1.5 M	Near-Term
E	SR 503 and SW Eaton Blvd	Add second eastbound through and westbound left turn lanes	$1.4 M	Near-Term
F	SR 503 and SW 25th St	Add east-west right-in right-out on both sides of SR 503	$1.1 M	Near-Term
G	SR 503 and SW 35th St	Add east-west right-in right-out on east side of SR 503	$0.3 M	Near-Term
H	SR 502 and NE 92nd Ave	Add south leg of intersection, and modify signal	$1.1 M	Near-Term
I	SR 502 and W 15th Ave	Add eastbound and wesbound left turn storage and add dual southbound left turn lane	$0.3 M	Near-Term
J	NW 12th Ave and NW 1st St	Convert to All-way Stop control	$0.0 M	Near-Term
K	Parkway Ave and Main St	Replace signal controller and related equipment	$1.0 M	Near-Term
L	E Main St and NE Grace Ave	Realign the south leg of SE Grace Ave with NE Grace Ave and signalize	$1.8 M	Near-Term
M	SW Eaton Blvd and SW 20th Ave	Signalize and add left turn lanes on north, south, and east legs	$1.3 M	Near-Term
1	NW Onsdorff Blvd from NW 20th Ave to SR 503	Complete roadway at the Major Collector standard	$1.7 M	Near-Term
2	NE Onsdorff Blvd from N Parkway Ave to NE Grace Ave	Complete roadway and construct the missing segments at the Major Collector standard	$2.3 M	Near-Term
3	NE Clark Avenue from NE Onsdorff Blvd to northern terminus	Extend roadway at the Neighborhood Collector standard	$2.0 M	Near-Term
4	NW 9th St from NE 92nd Ave to NW 30th Ave	Construct new road at the Major Collector standard	$4.0 M	Near-Term
5	NW 4th St from NE 92nd Ave to NW 30th Ave	Construct new road at the Neighborhood Collector standard	$2.9 M	Near-Term
6	NW 30th Ave from NE 239th St to SR 502	Construct new road at the Major Collector standard	$8.1 M	Near-Term
7	NW 5th St from SR 503 to N Parkway Ave	Construct new road at the Neighborhood Collector standard	$3.7 M	Near-Term
8	NW 1st St from NW 12th Ave to NW 15th Ave	Complete roadway at the Neighborhood Collector standard	$0.4 M	Near-Term
9	SW 1st Way from SW 12th Ave to SW 15th Ave	Construct new road at the Neighborhood Collector standard	$0.9 M	Near-Term



MAP ID	PROJECT LOCATION	PROJECT DESCRIPTION	PLANNING COST ESTIMATE	TIME FRAME
10	SE Clark Avenue from E Main St to northern terminus	Complete roadway and construct the missing segments at the Neighborhood Collector standard	$0.6 M	Near-Term
11	NE 92nd Ave from SR 502 to SE Eaton Blvd	Construct new road at the Major Collector standard	$8.0 M	Near-Term
12	SW Rasmussen Blvd from SR 503 to SW 4th Ave	Extend roadway at the Major Collector standard	$1.6 M	Near-Term
13	SE Grace Ave from E Main St to SE Rasmussen Blvd	Reconstruct roadway at the Minor Arterial standard (also related to project L)	$4.9 M	Near-Term
14	SW Eaton Blvd from SW 20th Ave to SR 503	Reconstruct the unimproved segment at the Minor Arterial standard	$5.4 M	Near-Term
15	SW 15th/13th Ave from SW 6th St to SW Eaton Blvd	Complete roadway and construct the missing segments at the Neighborhood Collector standard	$2.4 M	Near-Term
16	SW 6th Ave from SW Scotton Way to SW Eaton Blvd	Construct new road at the Neighborhood Collector standard (also related to project 72 and 73)	$1.5 M	Near-Term
17	SW/SE 25th St from SR 503 to SE Grace Ave	Construct new road at the Neighborhood Collector standard	$5.8 M	Near-Term
18	NE 183rd St from eastern terminus to NE 167th Ave	Construct new road at the Neighborhood Collector standard	$1.4 M	Near-Term
19	Chelatchie Prairie Rail Trail from E Main St to SE Rasmussen Blvd	Construct new multimodal path	$0.2 M	Near-Term
		Near-Term Summary	**$73.5 M**	
N	SR 503 and NE 239th St	Add east-west right-in right-out on west side of SR 503	$1.2 M	Long-Term
O	SW Eaton Boulevard at SR 503	Add 2nd eastbound through lane 500-feet west and east of intersection	$1.6 M	Long-Term
P	SR 503 and SW 30th St	Extend westbound left turn lane as needed	$0.8 M	Long-Term
Q	SR 503 and SW 40th St	Add northbound right turn lane	$0.4 M	Long-Term
R	SR 502 and W 29th Ave	Add south leg of intersection and signalize	$1.4 M	Long-Term
S	S Parkway Ave and S Eaton Blvd	Install northbound and southbound left turn phasing and add eastbound right and northbound left turn lanes	$1.3 M	Long-Term
T	SE Grace Ave and SE Eaton Blvd	Install northbound and southbound left turn phasing	$0.3 M	Long-Term
U	N Parkway Ave and N Onsdorff Blvd	Install intersection traffic control improvements	$1.0 M	Long-Term
V	S Parkway Ave and S Rasmussen Blvd	Signalize intersection	$1.0 M	Long-Term
20	NE 254th Street from just east of SR 503 to east city limits	Reconstruct roadway at the Neighborhood Collector standard	$2.1 M	Long-Term
21	NW 6th Avenue from NE 254th St to northern terminus	Construct new road at the Neighborhood Collector standard	$1.4 M	Long-Term
22	NE 249th Street from NW 6th Ave to N Parkway Ave	Reconstruct roadway at the Neighborhood Collector standard	$1.6 M	Long-Term



MAP ID	PROJECT LOCATION	PROJECT DESCRIPTION	PLANNING COST ESTIMATE	TIME FRAME
23	NE 249th St from N Parkway Ave to NE Grace Ave	Complete roadway and construct the missing segments at the Neighborhood Collector standard	$1.5 M	Long-Term
24	NE 244th St from NW 20th Ave to SR 503	Reconstruct roadway with at the Major Collector standard	$3.7 M	Long-Term
25	NW 15th Avenue from NE 244th St to northern UGB	Extend roadway at the Neighborhood Collector standard	$0.9 M	Long-Term
26	SR 503 from SR 502/Main St to north City limit	Reconstruct roadway at the State Highway standard	$11.6 M	Long-Term
27	NW 25th St from SR 503 to N Parkway Ave	Reconstruct the unimproved segment at the Major Collector standard	$4.2 M	Long-Term
28	N Parkway Ave from NE 249th St to N 25th St	Reconstruct roadway at the the Minor Arterial standard	$2.2 M	Long-Term
29	NE 25th St from N Parkway Ave to NE Grace Ave	Construct roadway at the Major Collector standard	$4.0 M	Long-Term
30	NE 239th St from NE 92nd Ave to NW 30th Ave	Reconstruct roadway at the Major Collector standard	$4.0 M	Long-Term
31	NE 239th St from NW 30th Ave to NW 20th Ave	Reconstruct roadway at the the Neighborhood Collector standard	$2.9 M	Long-Term
32	NW 20th Avenue from NW Onsdorff Blvd to NE 244th St	Complete roadway and construct the missing segments at the Major Collector standard	$2.3 M	Long-Term
33	NE 239th St from NW 20th Ave to SR 503	Construct new road at the Neighborhood Collector standard	$3.0 M	Long-Term
34	NW 15th/16th Ave from NE 244th St to NW Onsdorff Blvd	Complete roadway and construct the missing segments at the Neighborhood Collector standard	$2.3 M	Long-Term
35	N Parkway Ave from N 25th St to N Onsdorff Blvd	Reconstruct roadway at the Minor Arterial standard	$4.4 M	Long-Term
36	NE 5th Ave from NE 25th St to NE Onsdorff Blvd	Complete roadway and construct the missing segments at the Neighborhood Collector standard	$2.9 M	Long-Term
37	NE 20th St from N Parkway Ave to NE Grace Ave	Construct roadway at the Neighborhood Collector standard	$3.0 M	Long-Term
38	NE Grace Ave from NE 249th St to NE 10th St	Reconstruct roadway at the the Minor Arterial standard	$9.0 M	Long-Term
39	NE 92nd Ave from NE 239th St to SR 502	Reconstruct roadway at the Major Collector standard	$8.1 M	Long-Term
40	NW 15th St from NE 92nd Ave to NW 30th Ave	Construct new road at the Neighborhood Collector standard	$2.9 M	Long-Term
41	NW 35th Ave from NE 239th St to SR 502	Construct new road at the Neighborhood Collector standard	$5.9 M	Long-Term
42	NW Onsdorff Blvd from NW 30th Ave to western terminus	Extend roadway at the Major Collector standard	$0.5 M	Long-Term
43	NE 229th St from NE 72nd Ave to NE 92nd Ave	Construct new road at the Major Collector standard	$8.1 M	Long-Term
44	NE 72nd Ave from NE 229th St to South UGB	Reconstruct roadway at the Minor Arterial standard	$6.1 M	Long-Term
45	NW 4th St from NE 72nd Ave to NE 92nd Ave	Construct new road at the Neighborhood Collector standard	$6.5 M	Long-Term
46	NE 77th Ave from NE 229th St to SR 502	Construct new road at the Neighborhood Collector standard	$2.9 M	Long-Term
47	NE 82nd Ave from NE 229th St to SR 502	Construct new road at the Major Collector standard	$4.0 M	Long-Term

MAP ID	PROJECT LOCATION	PROJECT DESCRIPTION	PLANNING COST ESTIMATE	TIME FRAME
48	NE 87th Ave from NE 229th St to SR 502	Construct new road at the Neighborhood Collector standard	$2.9 M	Long-Term
49	NW 20th Avenue from NW Onsdorff Blvd to SR 502	Complete roadway and construct the missing segments at the Major Collector standard	$1.2 M	Long-Term
50	NW 15th Ave from NW 9th St to NW 4th St	Construct the missing segment at the Neighborhood Collector standard	$0.8 M	Long-Term
51	NW 2nd St from NW 12th Ave to NW 18th Ave	Complete roadway and construct the missing segments at the Neighborhood Collector standard	$1.1 M	Long-Term
52	NW 12th Avenue from SR 502 to southern terminus	Reconstruct roadway at the Neighborhood Collector standard	$0.7 M	Long-Term
53	NW 5th Ave from NW 3rd Way to NW 9th St	Complete roadway and construct the missing segments at the Neighborhood Collector standard	$1.8 M	Long-Term
54	NE 5th St from N Parkway Ave to NE 3rd Ave	Reconstruct roadway at the Neighborhood Collector standard	$0.8 M	Long-Term
55	NE 1st St from N Parkway Ave to NE Grace Ave	Reconstruct roadway at the Major Collector standard	$3.1 M	Long-Term
56	NE 9th/10th St from N Parkway Ave to NE Grace Ave	Complete roadway and construct the missing segments at the Neighborhood Collector standard	$2.7 M	Long-Term
57	NE 3rd Ave from NE 9th St to E Main St	Reconstruct roadway at the Neighborhood Collector standard	$2.8 M	Long-Term
58	NE 6th St from NE 3rd Ave to NE Grace Ave	Reconstruct roadway at the Neighborhood Collector standard	$1.9 M	Long-Term
59	NE Clark Avenue from E Main St to northern terminus	Reconstruct roadway at the Neighborhood Collector standard	$2.5 M	Long-Term
60	NE Grace Ave from NE 10th St to E Main St	Reconstruct roadway at the Minor Arterial standard	$4.7 M	Long-Term
61	NE 10th St from NE Grace Ave to east city limits	Reconstruct roadway at the Minor Arterial standard	$6.2 M	Long-Term
62	SE 1st St from S Parkway Ave to SE Grace Ave	Reconstruct roadway at the Major Collector standard	$3.4 M	Long-Term
63	E Main St from NE Grace Ave to east UGB limits	Reconstruct roadway at the Minor Arterial standard	$9.7 M	Long-Term
64	SW 11th St from NW 30th Ave to NE 92nd Ave	Extend roadway at the Neighborhood Collector standard	$3.1 M	Long-Term
65	SW 34th/29th Ave from SR 502 to SE Eaton Blvd	Construct new road at the Major Collector standard	$8.3 M	Long-Term
66	SE Eaton Blvd from NE 92nd Ave to SW 20th Ave	Reconstruct roadway at the Minor Arterial standard	$9.0 M	Long-Term
67	SW 25th Ave from SW 11th to SE Eaton Blvd	Complete roadway and construct the missing segments at the Neighborhood Collector standard	$1.4 M	Long-Term
68	SW Scotton Way from SW 25th Ave to SW 20th Ave	Construct new road at the Neighborhood Collector standard	$1.6 M	Long-Term
69	SW 20th Ave from SW Rasmussen Blvd to SW Eaton Blvd	Reconstruct roadway at the Minor Arterial standard	$5.6 M	Long-Term
70	SW 15th Ave from SW 1st Way to SW 6th St	Complete roadway at the Neighborhood Collector standard	$0.5 M	Long-Term
71	SW Rasmussen Blvd from SR 503 to SW 20th Ave	Construct new road at the Major Collector standard	$4.1 M	Long-Term

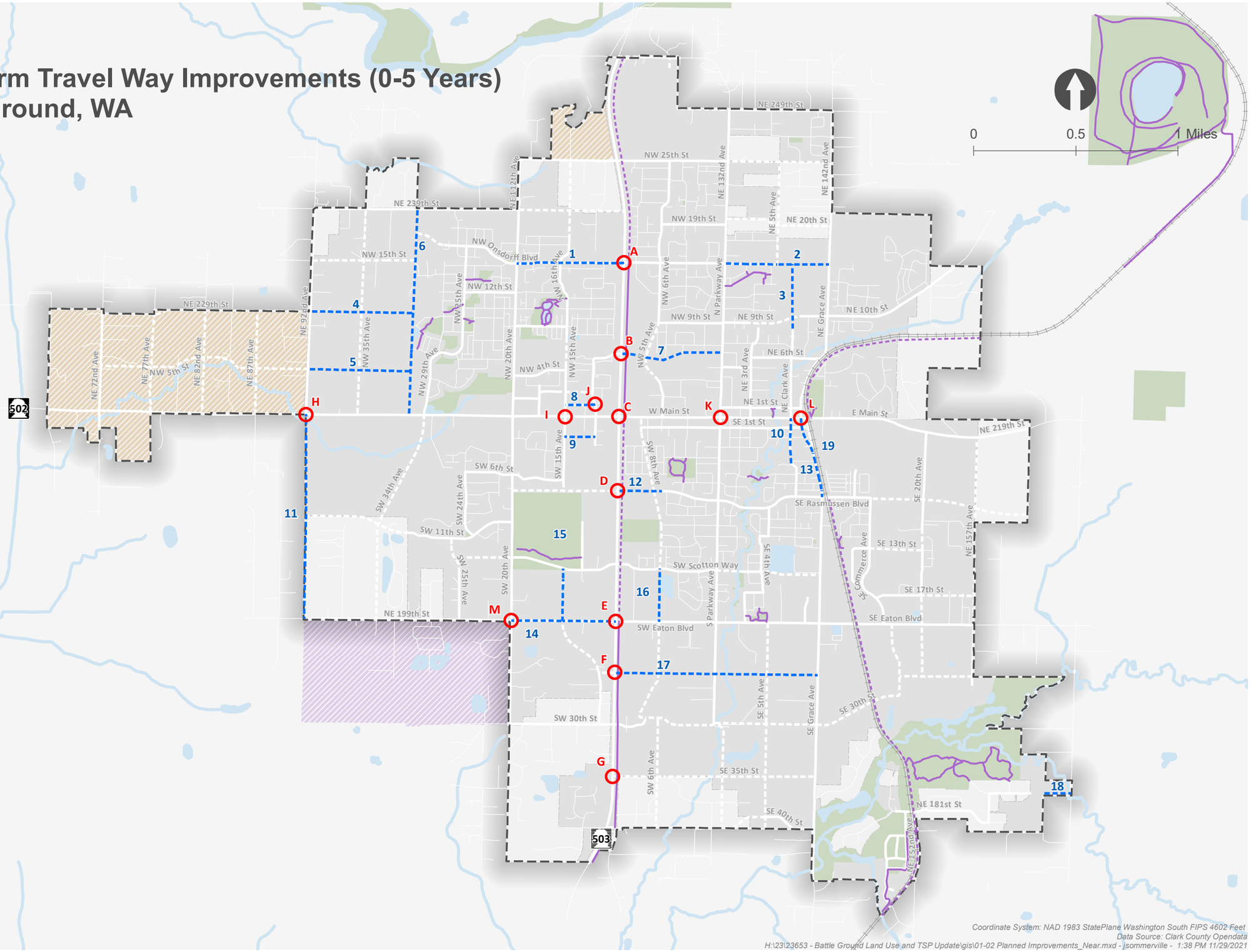


MAP ID	PROJECT LOCATION	PROJECT DESCRIPTION	PLANNING COST ESTIMATE	TIME FRAME
72	SW 8th Ave from W Main St to SW Rasmussen Blvd	Construct new road at the Neighborhood Collector standard (related to projects 16 and 73)	$2.2 M	Long-Term
73	SW 7th Ave from SW Rasmussen Blvd to SW Scotton Way	Construct new road at the Neighborhood Collector standard (related to projects 16 and 72)	$2.1 M	Long-Term
74	SW Scotton Way from S Parkway Ave to SE Grace Ave	Construct the missing segments at the Neighborhood Collector standard	$2.2 M	Long-Term
75	SE Rasmussen Blvd from SE Commerce Ave to NE 162nd Ave	Construct new road at the Major Collector standard	$6.3 M	Long-Term
76	SE 13th St from SE Commerce Ave to SE 20th Ave	Construct new road at the Neighborhood Collector standard	$1.4 M	Long-Term
77	SE Eaton Blvd from SE Grace Ave to east city limits	Reconstruct roadway at the Minor Arterial standard	$6.6 M	Long-Term
78	SE 20th Ave from SE Eaton Blvd to E Main St	Complete roadway and construct the missing segments at the Major Collector standard	$5.7 M	Long-Term
79	SE 17th Street from SE 20th Ave to NE 157th Ave	Construct new road at the Neighborhood Collector standard	$1.4 M	Long-Term
80	NE 157th Avenue from E Main St to SE Eaton Blvd	Construct new road at the Neighborhood Collector standard	$5.4 M	Long-Term
81	NE 162nd Avenue from E Main St to SE Rasmussen Blvd	Construct new road at the Major Collector standard	$3.4 M	Long-Term
82	SE Commerce Ave from SE Eaton Blvd to SE 28th St	Construct new road at the Neighborhood Collector standard	$2.2 M	Long-Term
83	SE 20th Ave from SE Eaton Blvd to SE 25th St	Construct new road at the Neighborhood Collector standard	$1.4 M	Long-Term
84	SE 25th St from SE Commerce Ave to NE 157th Ave	Construct new road at the Neighborhood Collector standard	$2.2 M	Long-Term
85	NE 157th Avenue from SE Eaton Blvd to NW 24th St	Complete roadway at the Neighborhood Collector standard	$0.4 M	Long-Term
86	NE 167th Avenue from north city limits to south city limits	Reconstruct roadway at the Minor Arterial standard	$1.7 M	Long-Term
87	SW 20th Ave from SW Eaton Blvd to SW 30th St	Reconstruct roadway at the Minor Arterial standard	$4.4 M	Long-Term
88	SW 15th/11th Ave from SW Eaton Blvd to SW 25th St	Construct new road at the Neighborhood Collector standard	$1.7 M	Long-Term
89	SW 11th Avenue from SW 25th St to SW 30th St	Reconstruct roadway at the Neighborhood Collector standard	$1.5 M	Long-Term
90	SW 30th St from SW 20th Ave to SR 503	Reconstruct roadway at the Minor Arterial standard	$4.4 M	Long-Term
91	SW 25th St from SW 11th Ave to SR 503	Construct new road at the Neighborhood Collector standard	$0.4 M	Long-Term
92	SW 6th Ave from SW Eaton Blvd to SW 30th St	Complete roadway and construct the missing segments at the Neighborhood Collector standard	$2.8 M	Long-Term
93	SW/SE 35th St from SR 503 to SE Grace Ave	Construct new road at the Neighborhood Collector standard	$5.7 M	Long-Term
94	SW 30th St from SR 503 to S Parkway Ave	Complete roadway and construct the missing segments at the Major Collector standard	$3.7 M	Long-Term



MAP ID	PROJECT LOCATION	PROJECT DESCRIPTION	PLANNING COST ESTIMATE	TIME FRAME
95	SW 6th Ave from SW 30th St to SW 40th St	Construct new road at the Neighborhood Collector standard	$3.2 M	Long-Term
96	SW/SE 40th St from SR 503 to SE Grace Ave	Complete roadway and construct the missing segments at the Major Collector standard	$8.5 M	Long-Term
97	S Parkway Ave from SE Eaton Blvd to SE 40th St	Reconstruct roadway at the Major Collector standard	$8.3 M	Long-Term
98	SE 5th Ave from SE Eaton Blvd to SE 30th St	Construct new road at the Neighborhood Collector standard	$2.9 M	Long-Term
99	SE 30th St from S Parkway Ave to SE Grace Ave	Construct new road at the Major Collector standard	$4.0 M	Long-Term
100	SE 5th Ave from SE 30th St to SE 40th St	Complete roadway and construct the missing segments at the Neighborhood Collector standard	$2.9 M	Long-Term
101	SE Grace Ave from SE Eaton Blvd to South city limits	Reconstruct roadway at the the Major Collector standard	$9.9 M	Long-Term
102	SE 30th St from SE Grace Ave to SE Commerce Ave	Construct new road at the Neighborhood Collector standard	$2.5 M	Long-Term
103	NE 152nd Ave from NE 181st St to south city limits	Reconstruct roadway at the Major Collector standard	$2.7 M	Long-Term
104	Chelatchie Prairie Rail Trail from Northeast UGB limits to South UGB limits	Construct new multimodal path	$1.3 M	Long-Term
105	SR 503 Pathway from SW Eaton Blvd to North City limits	Construct new multimodal path	$1.2 M	Long-Term
106	E Main Street/1st Street (north and south) from Parkway Ave to SE Grace Ave	Prepare a study that investigates the potential for a couplet and other affiliated projects (parking, circulation, multi-modal improvements, etc.)	$0.1 M	Long-Term
		Long-Term Summary	**$317.5 M**	

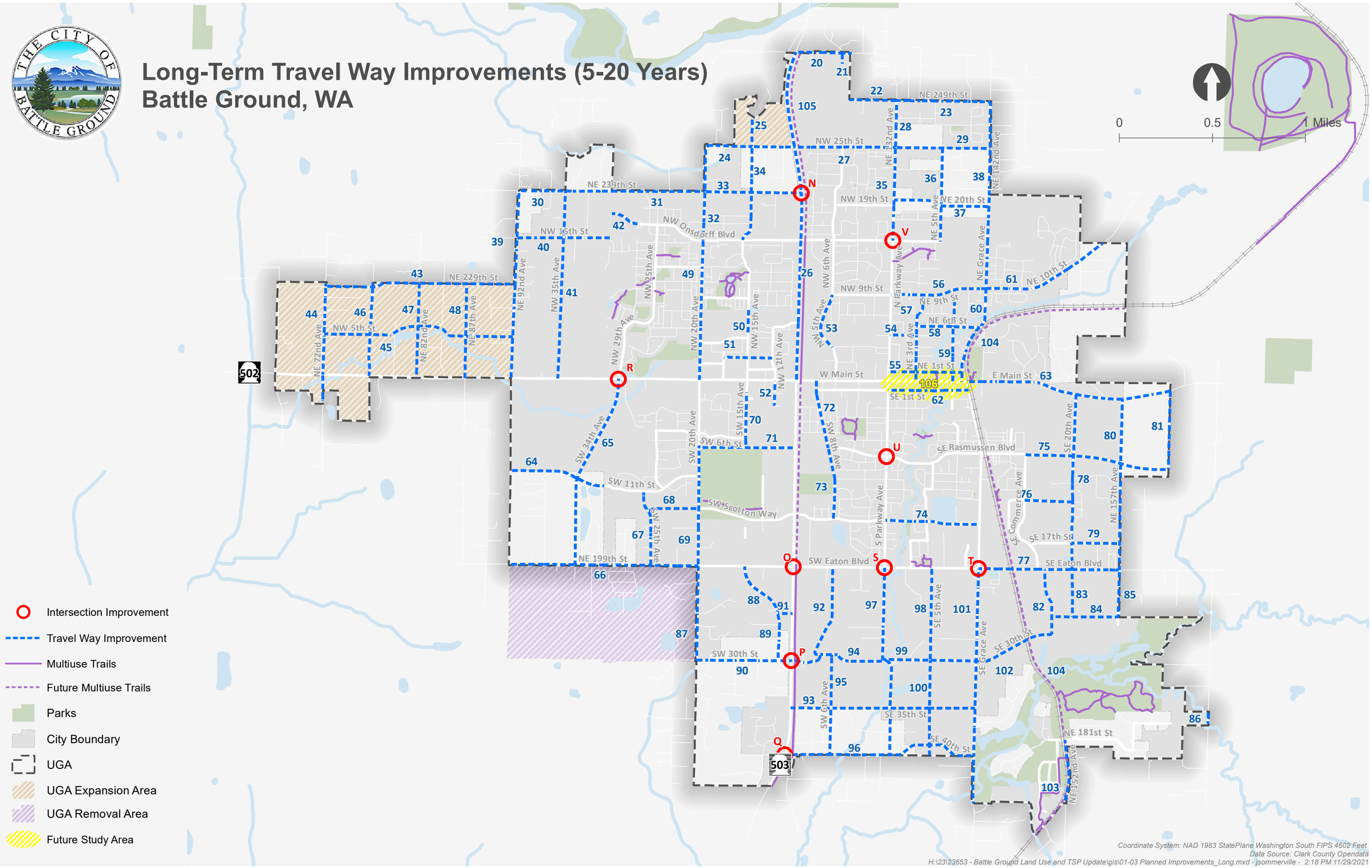
Near-Term Travel Way Improvements (0-5 Years)
Battle Ground, WA



- Intersection Improvement
- Travel Way Improvement
- Multiuse Trails
- Future Multiuse Trails
- Parks
- City Boundary
- UGA
- UGA Expansion Area
- UGA Removal Area

Coordinate System: NAD 1983 StatePlane Washington South FIPS 4602 Feet
Data Source: Clark County Opendata
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Long-Term Travel Way Improvements (5-20 Years)
Battle Ground, WA



Transportation Demand Management

Transportation Demand Management (TDM) works to reduce single occupancy vehicle (SOV) trips from the transportation system during peak time periods. As growth in the city occurs, the number of trips will also increase. The ability to change travel behavior and provide alternative modes will help accommodate the growth in trips without less need and urgency for significant investments in new infrastructure. There are many things the city does to support TDM implementation. This includes providing sidewalks and bike lanes that allow people to travel safely and efficiently on foot or by bike; accommodating local transit allowing people to travel by bus, and establishing development patterns that encourage non-auto-oriented travel.

Transportation Demand Management Strategies

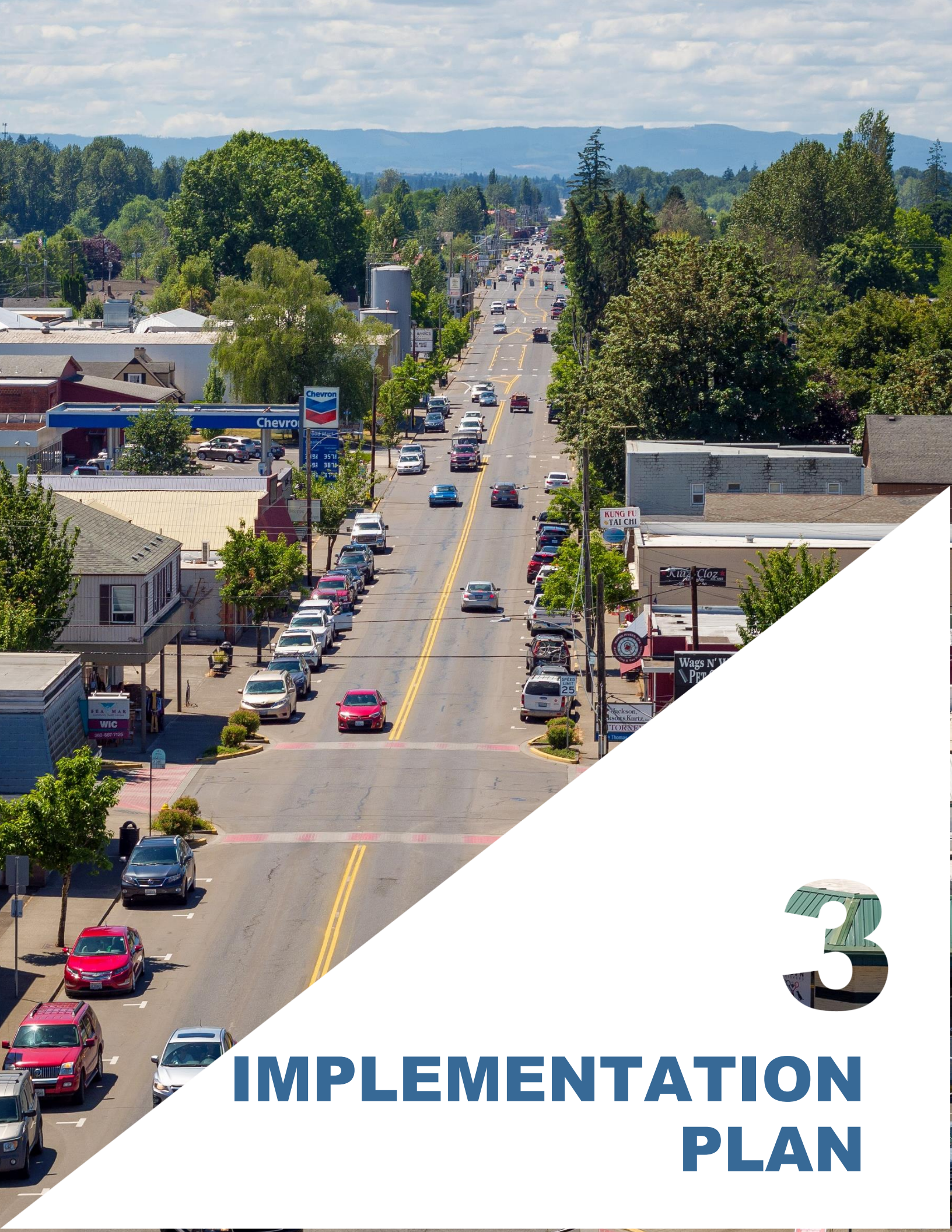
There are several additional strategies that the City of Battle Ground will employ to better manage travel demand going forward. Table 2 summarizes the strategies that best meet the goals and objectives of the TSP.

Table 2 – Transportation Demand Management Strategies

Strategy	Description
Parking Management	Various management strategies that result in more efficient use of parking
Connectivity Improvements	Improved roadway and pathway connectivity
Bicycle Improvements	Improved design and maintenance of shared streets, bike lanes, and paths
Pedestrian Improvements	Improved design and maintenance of sidewalks, crosswalks, paths, and amenities
Bicycle Parking	Improved bicycle parking, storage, and changing facilities
Transit Improvements	Improve transit facilities and service (stop amenities, hours, frequency, coverage)
Bike/Walk Encouragement	Promotion campaigns, events, educational programs, guides and user info
Traffic Calming	Roadway design features intended to reduce traffic speeds and volume
Ridesharing	Carpool/vanpool programs and services
Wayfinding	Provide wayfinding improvements and other multimodal navigation tools
Park-and-ride	Park-and-rides can support ridesharing and public transit use
Retail Centers	Creating vibrant downtowns mixed-use activity centers

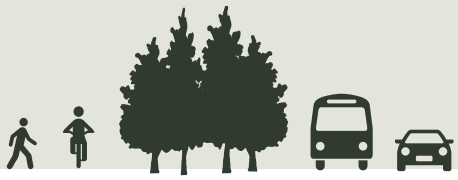


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3

IMPLEMENTATION PLAN



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IMPLEMENTATION PLAN

The Battle Ground TSP identifies the goals, plans, projects, and programs needed to address the city's gaps, deficiencies, and needs over the next 20 years. The near-term plan consists of all projects likely to be funded and implemented within one to five years. The longer-term plan consists of projects the city anticipates being constructed as part of future development or long-term capital projects within five to twenty years. The amount of local funds available for capital projects in the TSP is estimated to be approximately $52million or roughly $2.6 million per year.

Transportation Revenue Forecast

The City of Battle Ground has historically relied upon different revenue sources to fund transportation-related maintenance and make capital improvements. These revenue sources include taxes, inter-governmental sources, and miscellaneous funds such as system development changes.

- **State Motor Vehicle Fuel Tax** - This revenue is primarily used for transportation repairs and maintenance, not capital improvement programs. Maintenance includes street repairs, roadway restriping, sidewalk repairs, traffic signal maintenance, street lighting, and landscaping.

  - **Transportation Impact Fees (TIF)** - This fund accounts for traffic impact fees assessed and collected at the time of development per RCW 36.70.A, Battle Ground Municipal Chapter 3.60, and the city's approved Impact Fee Schedule. Revenue is contingent upon permits issued for new construction and is primarily used to build new transportation infrastructure or expand the capacity of the existing infrastructure.

  - **Federal Grants** - Federal transportation grants are funded through the federal portion of the Fuel Excise Tax and can be used for a variety of transportation infrastructure expansions and improvements.

  - **State Grants** - Grants are a significant funding source for transportation capital projects. State grants are largely funded through a portion of the motor vehicle fuel tax revenue and can be used for a variety of transportation infrastructure expansions and improvements.

  - **Transportation Improvement Board (TIB)** – This special State Grant funds transportation improvement projects in local communities from revenue generated by the state motor vehicle fuel tax. These funds are administered through several grant programs based on a competitive application process. They can be used for arterial enhancement/preservation, sidewalk enhancements, street lighting, and complete streets.

  - **Transfers** – Includes transfers from the General Fund when needed.

  - **Miscellaneous** - Miscellaneous revenue includes various funds received throughout the year from activities, including local payments, investment interest, and miscellaneous revenue.

Revenue estimates from each historical revenue source were combined and projected over the next 5, 10, and 20-year periods to determine the total estimated revenue through the 20-year planning horizon. Table 3 provides a summary of the potential future funding through.

Table 3. Future Transportation Funding Projections

Revenue Source	5-Year Forecast	10-Year Forecast	20-Year Forecast
Taxes/TIF	$3M	$6M	$12M
Federal/State Grants	$5M	$10M	$20M
TIB	$4M	$8M	$16M
Misc. Revenue	$1M	$2M	$4M
Total	**$13M**	**$26M**	**$52M**

Transportation Expenditure Forecast

The city organizes expenditures into three main categories, including Materials & Supplies, Services, and Capital Projects.

- **Materials & Supplies** – Materials and Services expenditures consist of items that need to be purchased and one-time expenses, including fuel, operating supplies/tools, uniforms/clothing.
- **Services** – Services expenditures are primarily used for training/travel, insurance, repairs/maintenance, street trees, street lights, and utilities.
- **Capital Projects** – Expenditures incurred for acquiring or constructing capital projects, such as city streets, public safety, and parks projects.

Given that the Capital Projects expenditures will be the primary funding source for the majority of transportation projects identified in the TSP, 5-, 10-, and 20-year expenditure forecasts are only provided for categories summarized in Table 4.

Table 4 – Future Transportation Expenditure Projections

Expenditure Source	5-Year Forecast	10-Year Forecast	20-Year Forecast
Taxes/TIF	$3M	$6M	$12M
Federal/State Grants	$5M	$10M	$20M
TIB	$4M	$8M	$16M
Misc. Revenue	$1M	$2M	$4M
Total	**$13M**	**$26M**	**$52M**

As shown in Tables 3 and 4, the projected funding revenue for capital projects for the next 20 years is approximately $52M and the projected expenditures are approximately $52M.

Planned Transportation Cost Summary

Table 5 provides a summary of the full cost of the planned transportation system projects. The costs are summarized by the Near-Term (0-5 years) and Long-Term (6-20 years) time periods. As shown, the full cost of the planned system is approximately $391M over the 20-year planning period.

Table 5 Planned Transportation Cost Summary

Projects	Near-Term Projects	Long-Term Projects	Total
Intersection Improvements	$15.7M	$9M	$24.7M
Roadway Segment/Multimodal Improvements	$57.8M	$308.5M	$366.3M
Total	**$74.3M**	**$317.5M**	**$391M**

Potential Funding Sources

The projected transportation funding analysis shows that the City of Battle Ground will have a limited source of funds that can solely be dedicated to transportation-related capital improvement projects over the next twenty years. As such, Battle Ground will need to seek additional funds via transportation improvement grants, partnerships with regional and state agencies, and other funding sources to help implement future transportation-related improvements.

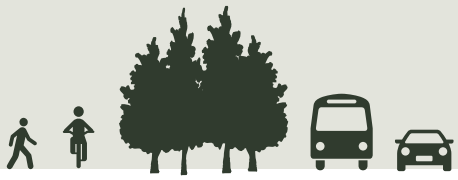
Table 6 – Potential New Funding Sources for Future Consideration

Funding Source	Description	Potential Facility Benefit
Local Improvement District	LIDs are most often used to construct projects such as streets, sidewalks, or bikeways	Roadway, pedestrian, and bicycle facilities
Transportation Benefit District	A transportation benefit district (TBD) would impose a vehicle license fee, sales and use tax, development fees, or vehicle tolls for construction and operation of improvements to roadways. The city previously had TBD that was eliminated in 2021.	Used for the reconstruction and upgrade of existing facilities, pedestrian and bicycle enhancements, or other local/regional projects. Funds may also be used on the local roadway system for maintenance purposes.
Local Bond Measures	Local bond measures, or levies, are usually initiated by voter-approved general obligation bonds for specific projects.	Roadway facilities
Local Fuel Tax	A local tax assessed on fuel purchased within the jurisdiction that has assessed the tax	Roadway facilities
Parking District Assessments	Taxes applied to businesses/property owners in areas where special parking districts are established. The funds generated by the taxes would go to the operation and maintenance of the parking district. Useful in areas where parking is a premium.	On-street parking



4

APPENDICES



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Appendix A: Existing Inventory

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MEMORANDUM

Date: June 24, 2019 Project #: 23653

To: Mark Herceg, PE, City of Battle Ground
Erika Rhett, AICP, BERK

From: Matt Hughart, AICP; Ali Razmpa – Kittelson & Associates, Inc.

Project: Battle Ground Transportation System Plan (TSP) Update

Subject: Technical Memorandum #2: Existing Conditions Inventory

This memorandum documents the existing transportation facilities and services within the City of Battle Ground. The information presented in this memorandum will be used to as a basis to help determine the future transportation system needs for the Battle Ground Transportation System Plan (TSP) update.

EXISTING STREET NETWORK

The street network is the essential component to the transportation system within Battle Ground. Motor vehicle, bicycle, pedestrian, transit, and freight transportation all rely on the street network for mobility purposes. The following section describes the jurisdictional ownership, general characteristics, and classifications of this network. Table 1 summarizes the existing street network characteristics including number of travel lanes, pavement type/condition, and rail crossing and on-street parking locations within Battle Ground for Collector Streets and above.

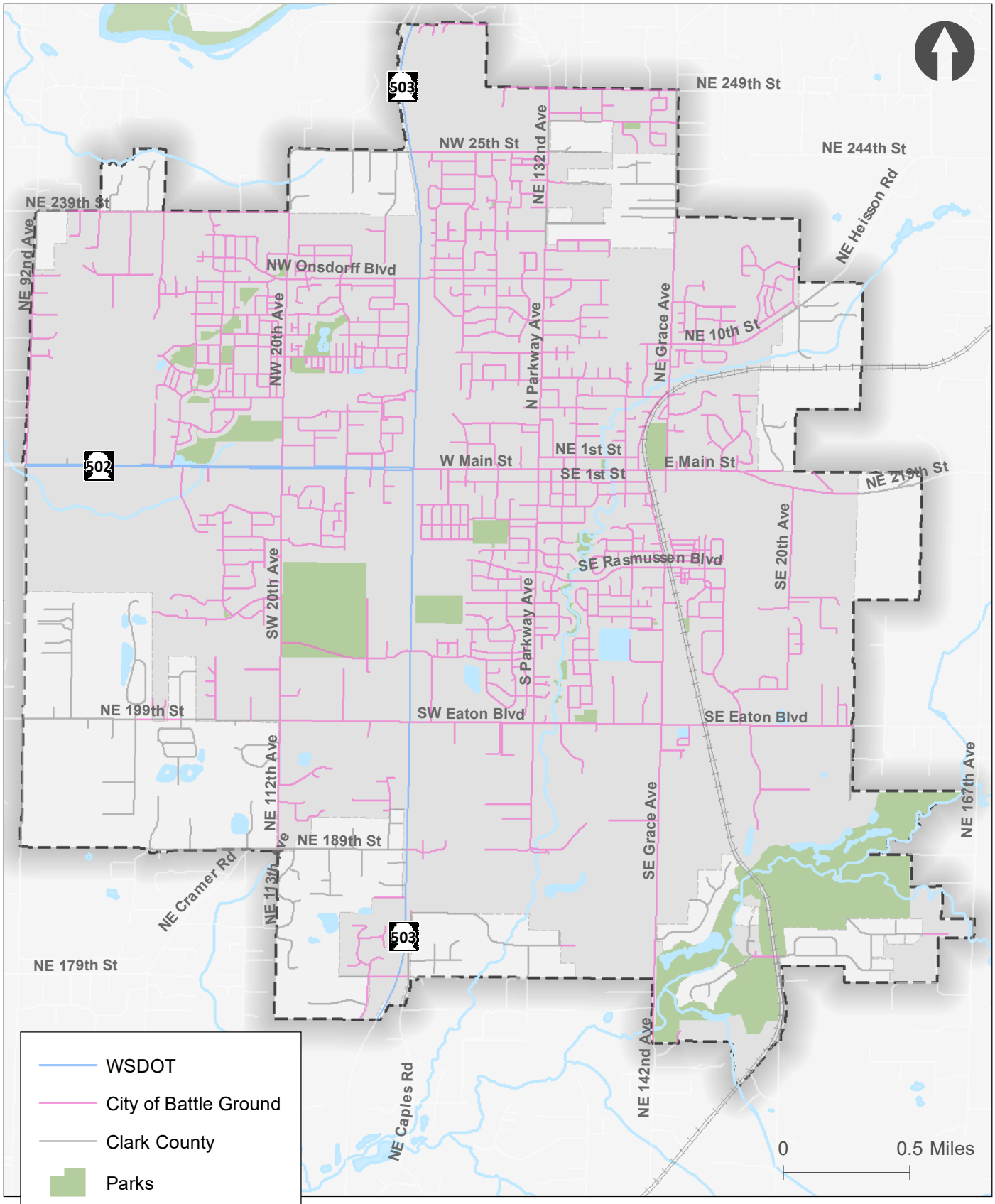
Table 1: Existing Street Network Characteristics

Roadway[1]	From	To	Number of Travel Lanes	Payment Type and Condition	On-Street Parking	Rail Crossing
SR 502	Western City Limits	SR 503	4	Good	No	No
W Main Street	SR 503	Parkway Avenue	4/5	Good	No	No
	Parkway Avenue	NE 3rd Avenue	2/3	Fair	Partial[1]	No
	NE 3rd Avenue	NE Grace Avenue	2	Fair	Yes	No
	NE Grace Avenue	NE Fairground Avenue	2/3	Fair	No	Yes (unsignalized)
	NE Fairground Avenue	Eastern City Limits	2	Good	No	No
SR 503	Southern City Limits	SW Eaton Boulevard	4/5	Good	No	No
	SW Eaton Boulevard	W Main Street	4/5	Good	No	No
	W Main Street	NW Onsdorff Boulevard	2	Good	No	No
	NW Onsdorff Boulevard	NE 244th/ NW 25th Street	2	Good	No	No

Roadway[1]	From	To	Number of Travel Lanes	Payment Type and Condition	On-Street Parking	Rail Crossing
	NE 244th/ NW 25th Street	Northern City Limits	3	Good	No	No
Eaton Boulevard	Western City Limits	SR 503	2	Fair	No	No
	SR 503	SE Grace Avenue	2/3	Good	No	No
	SE Grace Avenue	Eastern City Limits	2	Good	No	Yes (signalized)
20th Avenue	NE 189th Street	SW Eaton Boulevard	2	Good	No	No
	SW Eaton Boulevard	SW 6th Street	2	Good	No	No
	SW 6th Street	NW 1st Avenue	2/3	Good	No	No
	NW 1st Avenue	Northern City Limits	2/3	Good	No	No
NE 132nd Avenue	SW 30th Street	SW Eaton Boulevard	2	Good	No	No
Parkway Avenue	Eaton Boulevard	Rasmussen Boulevard	2/3	Good	No	No
	Rasmussen Boulevard	Onsdorff Boulevard	3	Good	No	No
	Onsdorff Boulevard	Northern City Limits	2	Good	No	No
NE 142nd Avenue	South City Limits	Eaton Boulevard	2	Good	No	No
SE Grace Avenue	Eaton Boulevard	Rasmussen Boulevard	3	Good	No	No
	Rasmussen Boulevard	Main Street	2	Fair	No	No
	Main Street	NE 6th Street	2	Good	Partial[1]	No
	NE 6th Street	Northern City Limits	2	Good	No	No
Rasmussen Boulevard	SW 4th Avenue	Parkway Avenue	2/3	Good	No	No
	Parkway Avenue	SE Grace Avenue	2	Fair	No	No
	SE Grace Avenue	SE Commerce Avenue	2/3	Good	Partial[1]	Yes (signalized)
SW 1st Street	SW 7th Avenue	S Parkway Avenue	2	Fair	Yes	No
SE 1st Street	S Parkway Avenue	SE Grace Avenue	2	Fair	Partial[1]	No
NE 1st Street	N Parkway Avenue	NE Grace Avenue	2	Fair	Yes	No
Onsdorff Boulevard	NW 25th Avenue	NE 112th Avenue	2/3	Good	No	No
	NE 112th Avenue	NW 16th Avenue	3	Good	No	No
	NW 16th Avenue	SR 503	2	Good	No	No
	SR 503	N Parkway Avenue	3	Good	No	No
NE 92nd Avenue	SR 502	NE 239th Street	2	Fair	No	No
NE 239th Street	NE 92nd Avenue	NW 20th Avenue	2	Good	No	No
NE 244th	NE 112th Avenue	SR 503	2	Good	No	No
NW 25th Street	SR 503	NE 132nd Avenue	2	Good	No	No
NE 249th Street	NE 132nd Avenue	NE 142nd Avenue	2	Good	No	No

Roadway Jurisdiction

Streets in Battle Ground are owned and maintained by three separate jurisdictions, including the City of Battle Ground, Clark County, and the Washington Department of Transportation (WSDOT). Each jurisdiction is responsible for determining the street's functional classification, defining its major design and multimodal features, and approving construction and access permits. Figure 1 illustrates the Existing Roadway Jurisdiction for all roadways within Battle Ground.



Existing Road Jurisdiction
City of Battle Ground, Washington

Figure
1

H:\23\23653 - Battle Ground Land Use and TSP Update\gis\Road Location and Jurisdiction.mxd - arazmpa - 4:50 PM 6/24/2019

KITTELSON & ASSOCIATES

Coordinate System: NAD 1983 StatePlane Washington South FIPS 4602 Feet

Functional Classification

Figure 2 illustrates the Roadway Functional Classification within Battle Ground for Collector Streets and above.

Functional Classification

A street's functional classification defines its role in the transportation system and reflects desired operational and design characteristics such as right-of-way requirements, pavement widths, pedestrian and bicycle features, and driveway (access) spacing standards. Functional classification is determined by several factors, including how the facility connects with the rest of the system, the volume of local or through traffic it is expected to carry, and the different types of trips it is expected to support. The public right-of-way for different functional classifications should provide sufficient space for utilities to serve adjacent land uses. Functional classifications help Battle Ground to reserve future rights-of-way, determine street design, and develop future street improvement projects. Functional classifications typically include arterials, collectors, and local roadways.

Principal Arterials

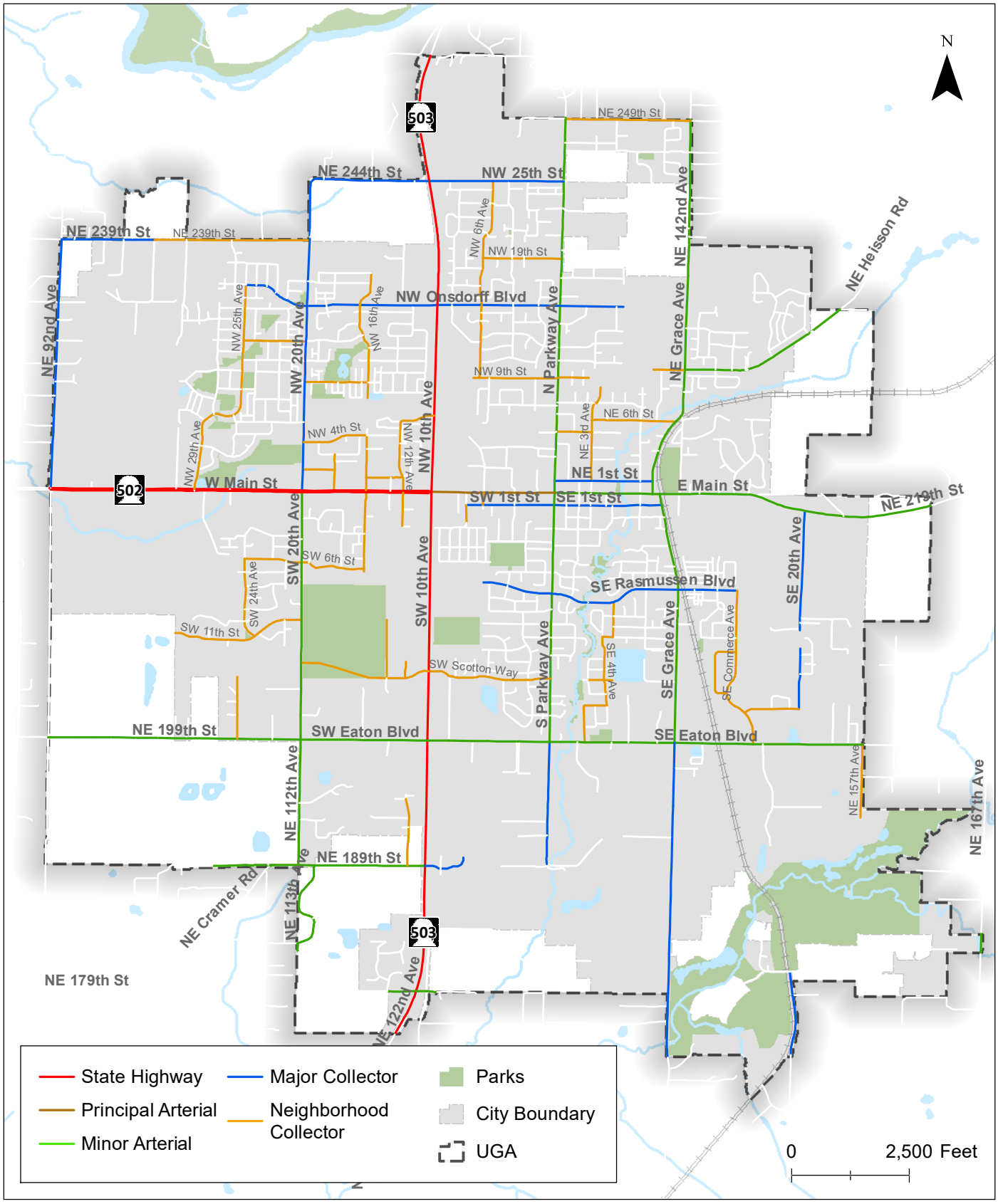
Principal arterials carry traffic through an urban area and connect major elements of the area including central business districts, regional shopping centers and other major traffic generators. Principal arterials typically carry a high degree of through traffic on a minimum of roadway mileage. They frequently have some degree of access control, although direct access to major land use developments such as shopping centers may be allowed. Traffic signals are generally used for intersection traffic control at major intersections.

Minor Arterials

Minor arterials carry traffic between principal arterials and lesser classified streets or directly to commercial and industrial areas, with direct access to land use development generally permitted. Traffic control is commonly a mix of signalized intersections and stop sign control used on intersecting streets of lesser classification. Minor arterials in urban areas are usually separated by less than two miles.

Major Collectors

Major Collectors often balance land access and traffic circulation within residential neighborhoods and commercial and industrial areas. They typically form the link between the arterial street system and lesser-classified streets that provide primarily for property access and localized circulation. Major collectors may be used to handle through trips within small communities or between small communities in rural areas, but usually do not serve trips that link these communities to the regional transportation system. There is often a mix of signalized intersections and stop sign control used on intersecting streets.



Existing Functional Classification
City of Battle Ground, Washington

Figure
2

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Coordinate System: NAD 1983 StatePlane Washington South FIPS 4602 Feet
Data Source: Delete if there isn't one.

Neighborhood Collectors

Neighborhood Collectors usually do not handle through trips and are often not continuous for any great length. Their function is to collect traffic from local streets or large parcels and funnel it to the major collector and/or arterial street system. Neighborhood collectors are typically stop sign controlled at intersections, have lower speeds, and often provide a significant degree of property access.

Local Street

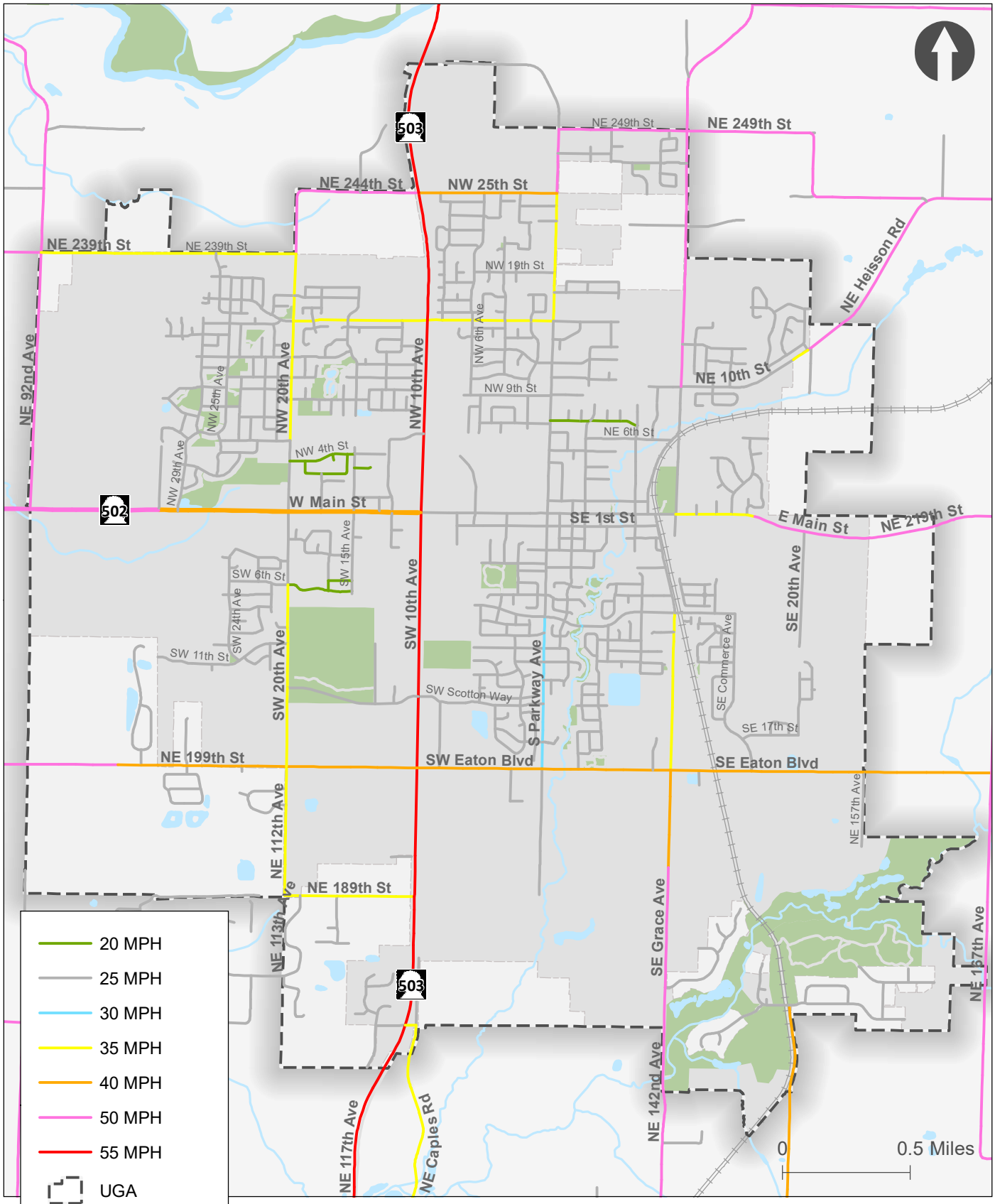
Local Streets provide direct access to adjacent property and to higher classified facilities. They offer the lowest degree of mobility and highest degree and accessibility. They are not intended to carry through traffic but make up a significant percentage of total roadway mileage within the city.

Posted Speed Limits

Figure 3 illustrates the existing posted speed limits within Battle Ground for Collector Streets and above.

Stop Control Devices

Figure 4 shows three types of intersection control devices including signalized, all-way stop control, and roundabout intersections within Battle Ground.



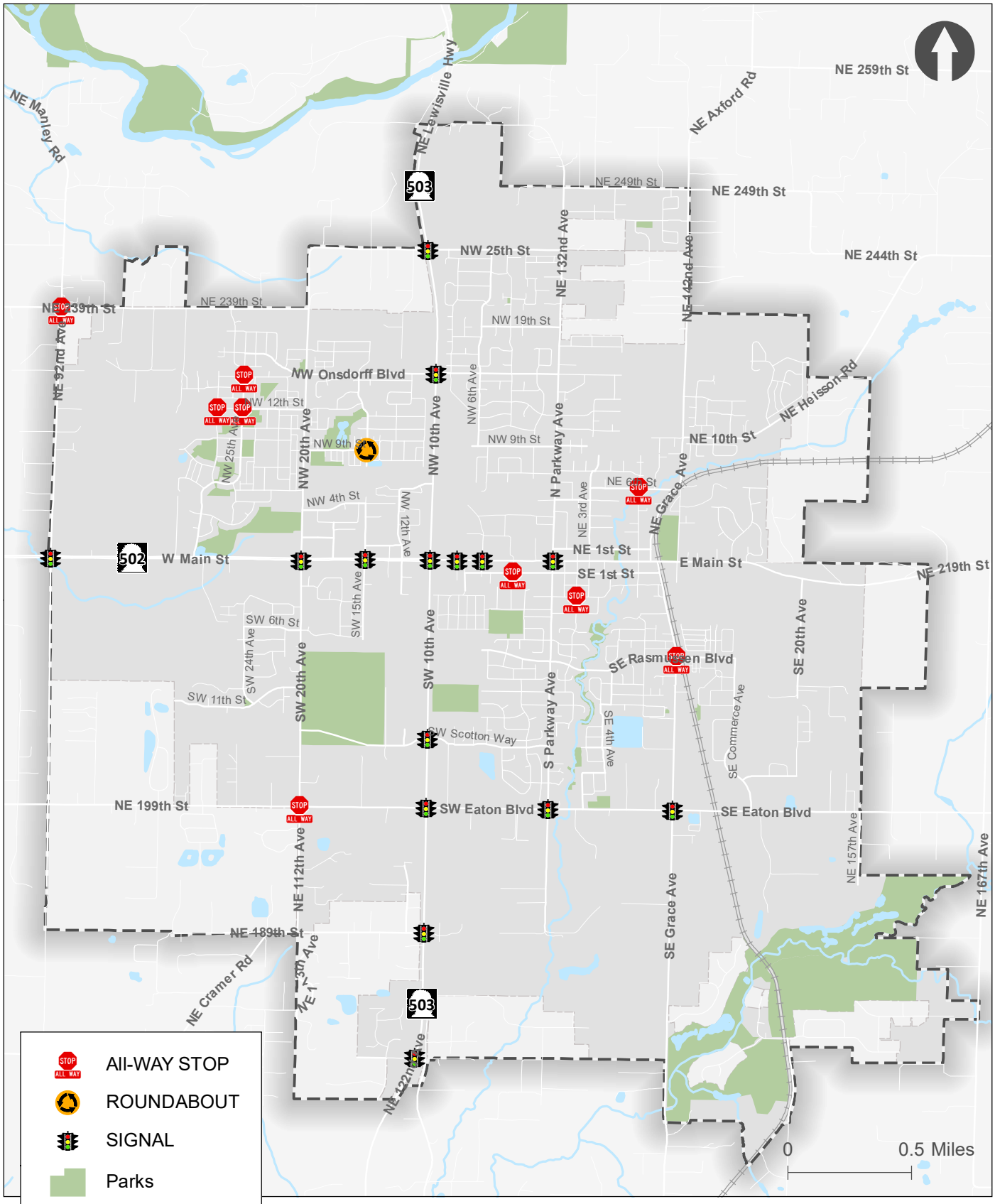
Existing Posted Speed Limits
City of Battle Ground, Washington

Figure
3

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Coordinate System: NAD 1983 StatePlane Washington South FIPS 4602 Feet



Existing Traffic Control Devices
City of Battle Ground

Figure
4

H:\23\23653 - Battle Ground Land Use and TSP Update\gis\Traffic Control Devices.mxd - arazmpa - 4:54 PM 6/24/2019

KITTELSON & ASSOCIATES

Coordinate System: NAD 1983 StatePlane Washington South FIPS 4602 Feet
Data Source: Clark County Opendata

Access Management System

Washington Administrative Code 468, Chapter 52 establishes a process and associated fees for permitting access onto state highways from private property, and identifies a set of five highway classifications for non-limited access highways. In all cases, if reasonable access is available from the general street system, then primary property access should be provided from the general street system rather than from the state highway system. Following are several access management strategies that the city could implement to minimize disruptions to through traffic flow and improve safety.

- Reducing the number of driveways,
- Providing adequate space between driveways,
- Establishing minimum spacing for traffic signals and intersections,
- Managing turn movements, and
- Managing the highway median.

State highways have designated access management classifications based on factors such as traffic volumes, speed limit, adjacent land use, functional classification, existing access density and accident history. The current Battle Ground TSP identified minimum spacing standards based on the access management classifications for state highways shown in Table 3.

Table 2: Access Management Spacing Standards for State Highways

Highway	Segment	Class	Posted Speed (MPH)	Planned Intersection Spacing	Minimum Private Connection Spacing
SR 502	Dollars Corner to Battle Ground west city limits (MP 5.45 to 6.85)	3	50	0.5 mile	330 feet, one per parcel
SR 502	Battle Ground west city limits to west of SR 503 (MP 6.85 to 7.53)	5	40	0.25 mile	125 feet, one per parcel
SR 502	West of SR 503 to SR 503 (MP 7.53 to 7.56)	Limited Access	40	No specific standard	No specific standard
SR 503	Brush Prairie to Battle Ground (MP 4.26 to 9.4)	Limited Access	35-50	No specific standard	No specific standard
SR 503	Battle Ground to Amboy (MP 9.40 to 20.28)	3	55	0.5 mile	330 feet, one per parcel

Source: Current Battle Ground TSP, 2005

The current Battle Ground TSP also identified minimum spacing street standards for each roadway classification shown in Table 4.

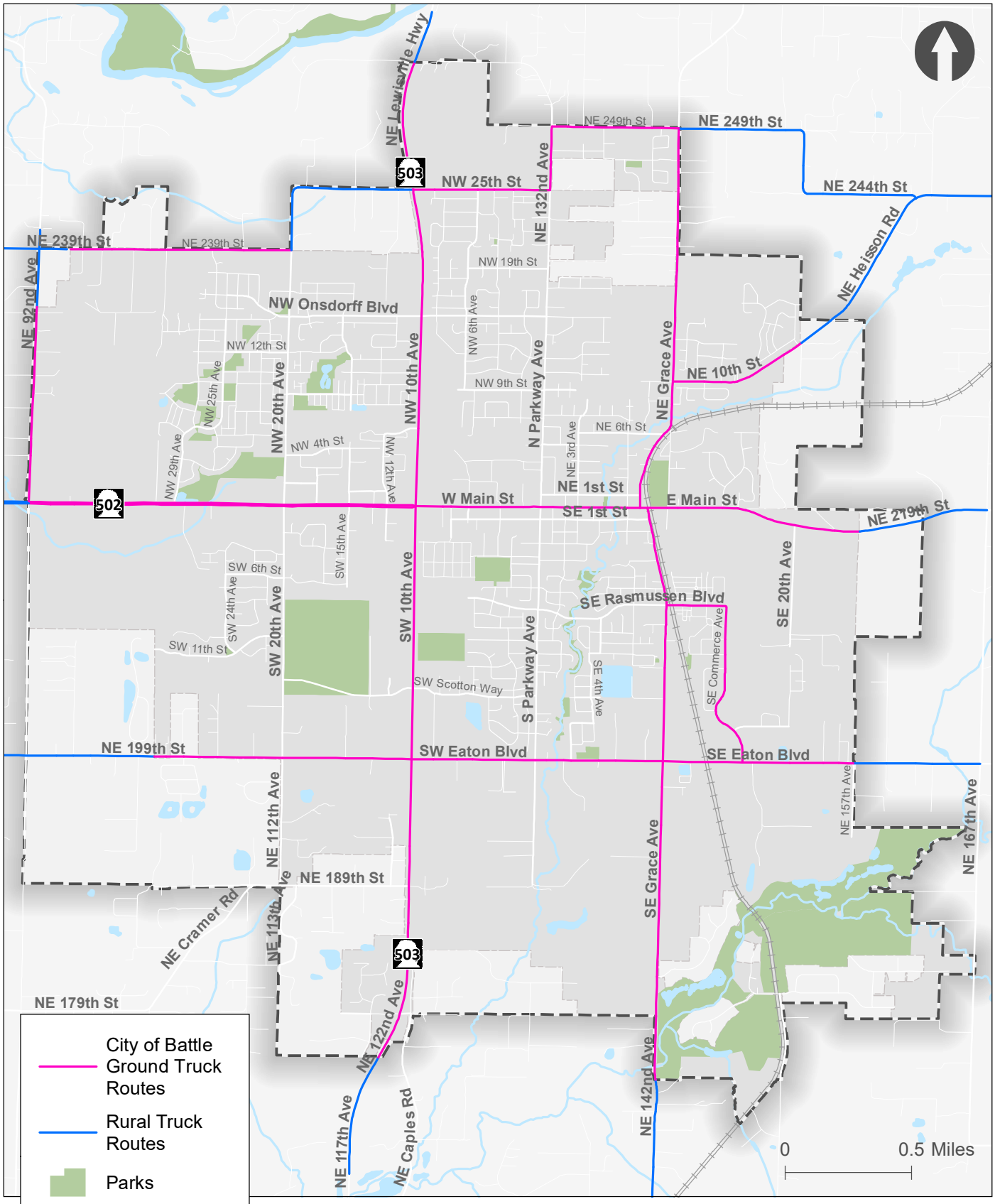
Table 3: Minimum Spacing Standards for City Streets

Functional Classification	Lane Width	Bicycle Lane	Sidewalk	Minimum Access Intersection Spacing (feet)
Principal Arterial	11-12 ft; 14 ft center	6 ft stripped both directions	6+ ft both sides	600
Minor Arterial	11 ft; 12 ft center	6 ft striped both directions	6+ ft both sides	500
Major Collector	10 ft	4 ft striped in both directions	5 ft both sides	250
Neighborhood Collector	16 ft total	4 ft striped in both directions, except when on-street parking is required	5 ft both sides	250
Local Street A	14 ft total	Bicycles share Roadway	4 ft both sides	240
Local Street B	14 ft total	Bicycles share Roadway	4 ft both sides	240

Source: Current Battle Ground TSP, 2005

Freight Routes

Figure 5 illustrates classified truck routes within the Battle Ground Urban Growth Area (urban routes) and routes in the vicinity of Battle Ground but outside of the UGA (rural routes). The designated truck routes are intended to address restrictions on the movement of large, through-moving vehicles and not locally-oriented truck traffic which can travel on any available and appropriate street necessary to reach a destination. Rail lines in the Battle Ground area are shown in Figure 5. The Chelatchie Prairie line runs through the City of Battle Ground east of and generally along the alignment of Grace Avenue. Clark County owns and maintains the rail line.



Truck Routes
City of Battle Ground

Figure **5**

H:\23\23653 - Battle Ground Land Use and TSP Update\gis\Truck Route Plan.mxd - arazmpa - 4:56 PM 6/24/2019

KITTELSON & ASSOCIATES

Coordinate System: NAD 1983 StatePlane Washington South FIPS 4602 Feet
Data Source: Clark County Opendata

PEDESTRIAN AND BICYCLE NETWORK

Pedestrian and bicycle facilities serve as the framework of the active transportation network. Active transportation is often referred to as "human-powered" transportation and includes walking, traveling with a mobility aid, biking, and using other wheeled devices like skateboards to access destinations such as parks, grocery stores, transit stops, and other essential destinations. Pedestrian and bicycle facilities primarily serve short trips to activity centers or essential destinations such as schools, parks, and other amenities located in the downtown business area and commercial corridors.

Pedestrian Facilities

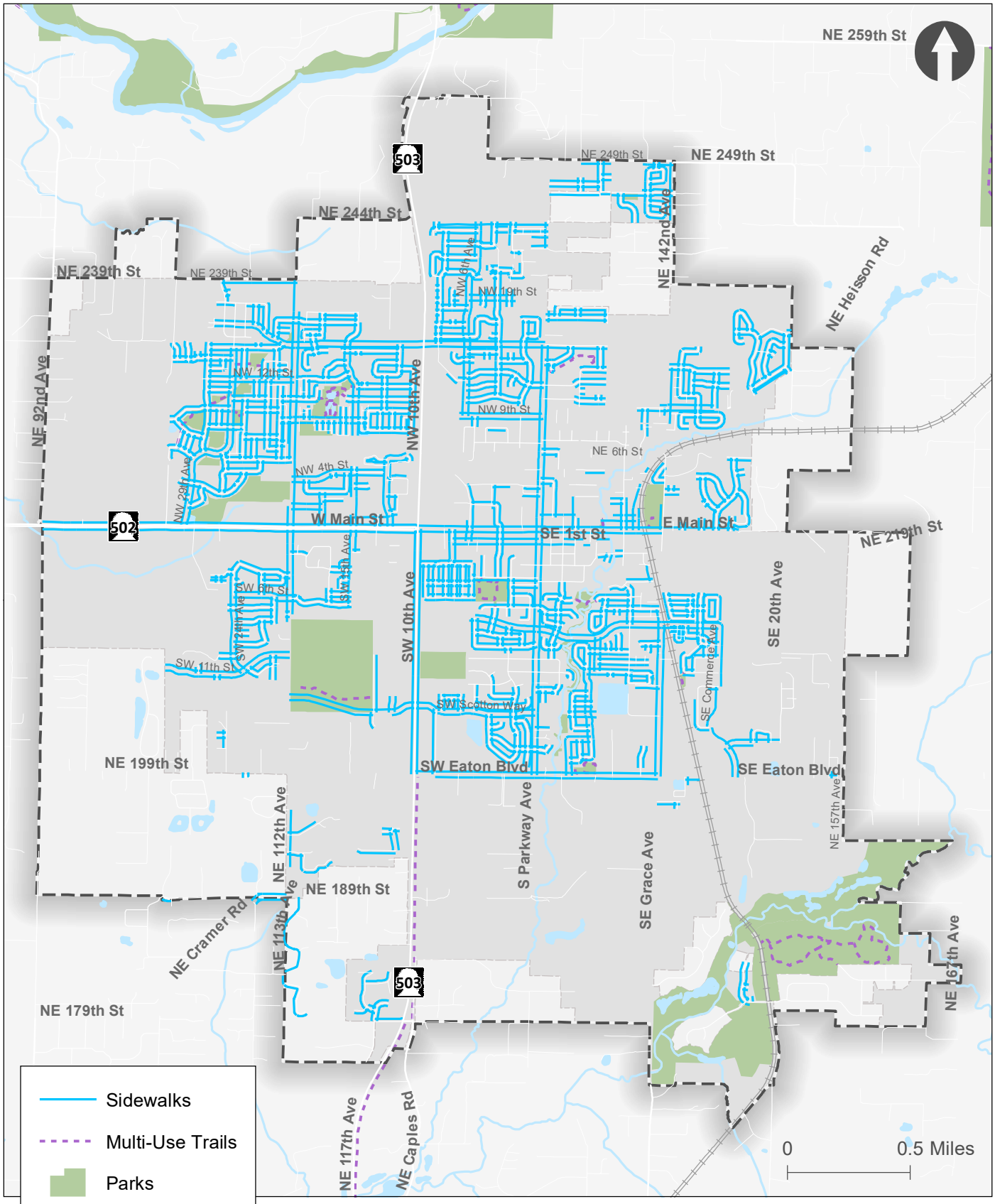
The pedestrian system in Battle Ground consists of sidewalks, multi-use paths, marked and unmarked, signalized and unsignalized pedestrian crossings. These facilities provide residents the ability to access local retail/commercial centers, recreational areas, and other land uses by foot. Figure 6 illustrates the locations of existing pedestrian facilities within Battle Ground.

Multi-use Trails

Figure 6 also illustrates the locations of existing multi-use trails within Battle Ground. There is a main designated multi-use trail located within the City which runs parallel to State Route 503 between 149th Street and Eaton Boulevard. Other smaller multi-use trails exist within designated parks and connections within master planned neighborhoods.

Bicycle Facilities

The bicycle system in Battle Ground consists of striped bicycle lanes, wide roadway shoulders, shared-lane roadways (vehicles and bikes share the same travel way), and multi-use trails. Figure 7 illustrates the locations of the existing bicycle facilities within Battle Ground.



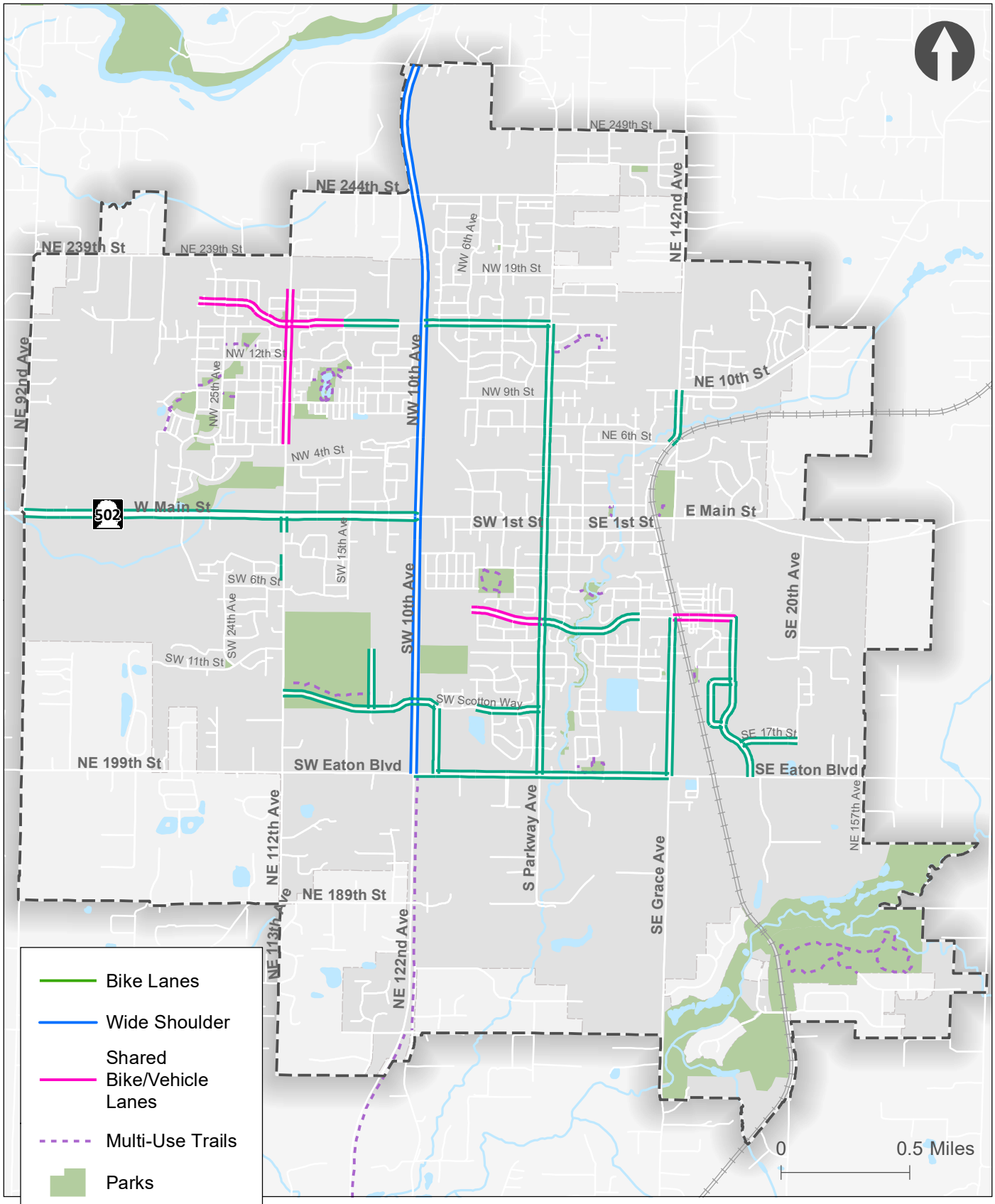
Existing Pedestrian Facilities
City of Battle Ground, Washington

Figure **6**

H:\23\23653 - Battle Ground Land Use and TSP Update\gis\Existing Sidewalk Facilities.mxd - arazmpa - 4:59 PM 6/24/2019

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Coordinate System: NAD 1983 StatePlane Washington South FIPS 4602 Feet



Existing Bicycle Facilities
City of Battle Ground, Washington

Figure **7**

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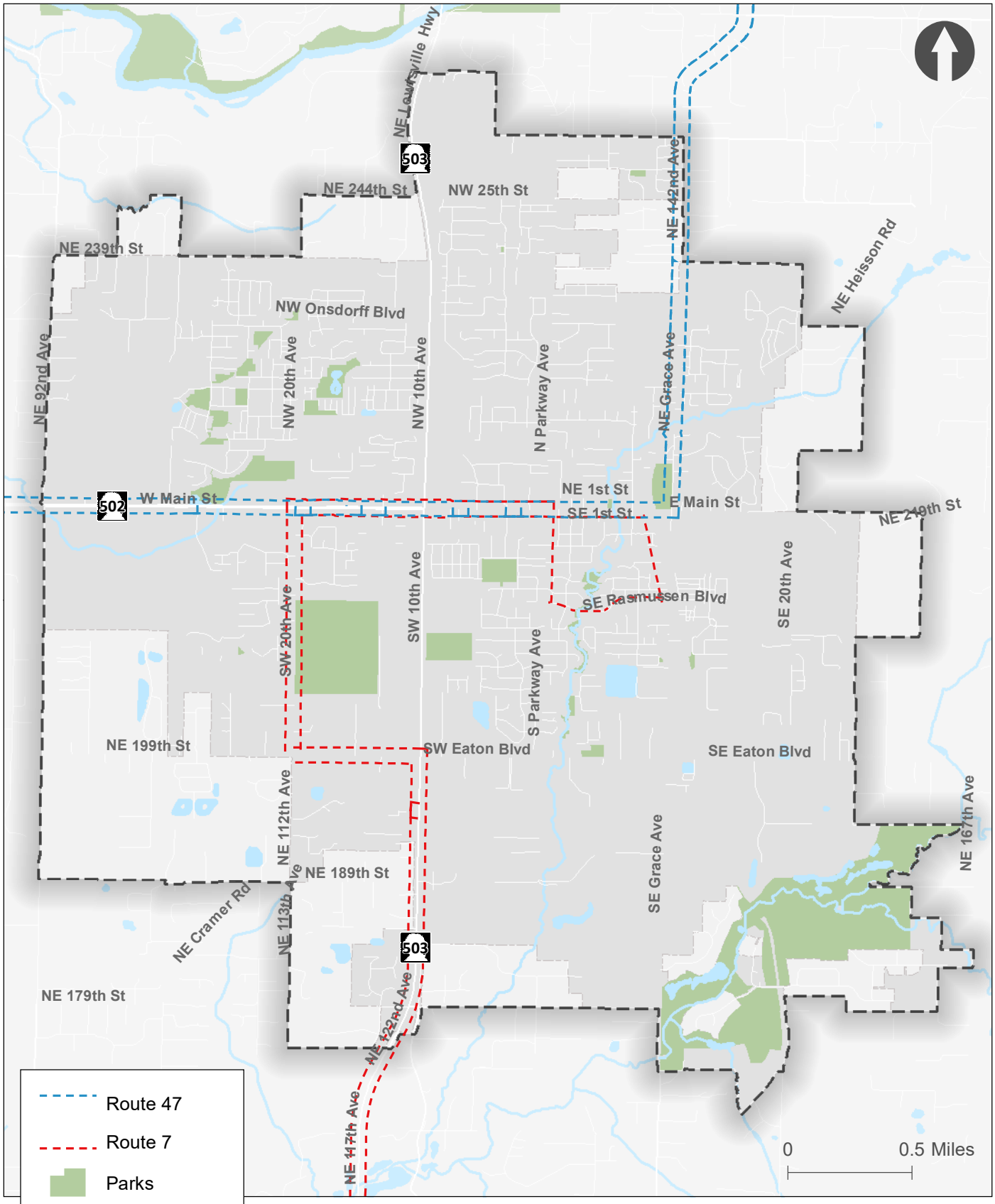
KITTELSON & ASSOCIATES

Coordinate System: NAD 1983 StatePlane Washington South FIPS 4602 Feet

PUBLIC TRANSIT SYSTEM

C-TRAN operates transit service providing two fixed-route commuter service in Battle Ground. Each route is summarized below. Figure 8 illustrates the existing transit facilities and service.

- Route 7 enters the south of Battle Ground city limits along SR 503 from Vancouver Mall Transit Center and ends at Grace Avenue and Rasmussen Boulevard intersection. The service operates on weekdays from approximately 5:45 AM to 9:30 PM, with 30-minute headways for most of the day. The route operates from 8:00 AM to 7:40 PM on Saturdays and 9:00 AM to 5:40 PM on Sundays with 90-minute headways.
- Route 47 enters the south of Battle Ground city limits along Main Street from Vancouver and exists the north of Battle Ground city limits along Grace Avenue to Yacolt. The service is limited and operates only on weekdays from 6:00 AM to 7:45 AM (South to Vancouver), and from 5:15 PM to 6:50 PM (North to Yacolt).



Public Transit Routes (C-TRAN)
Cite of Battle Ground, Washington

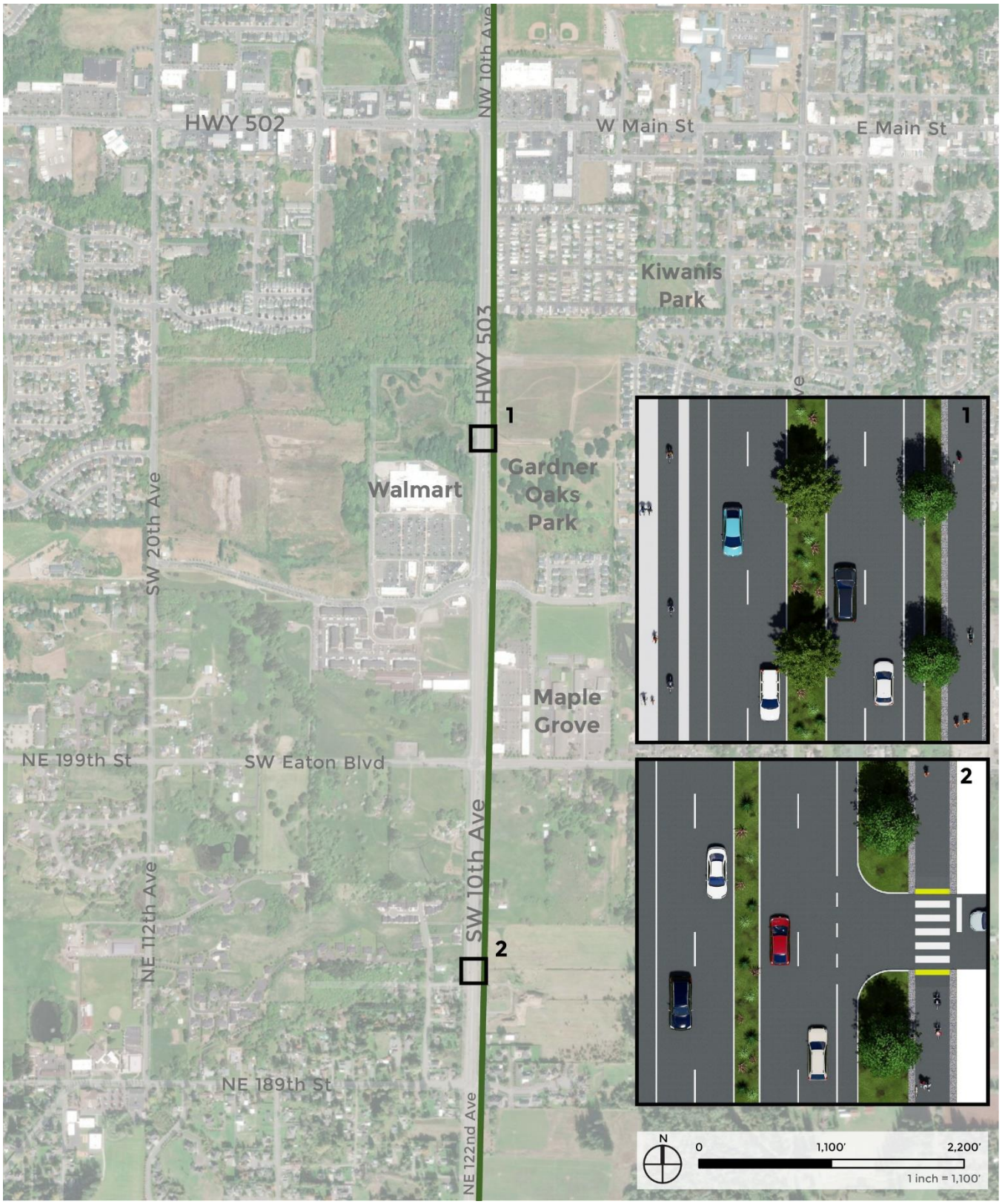
Figure **8**

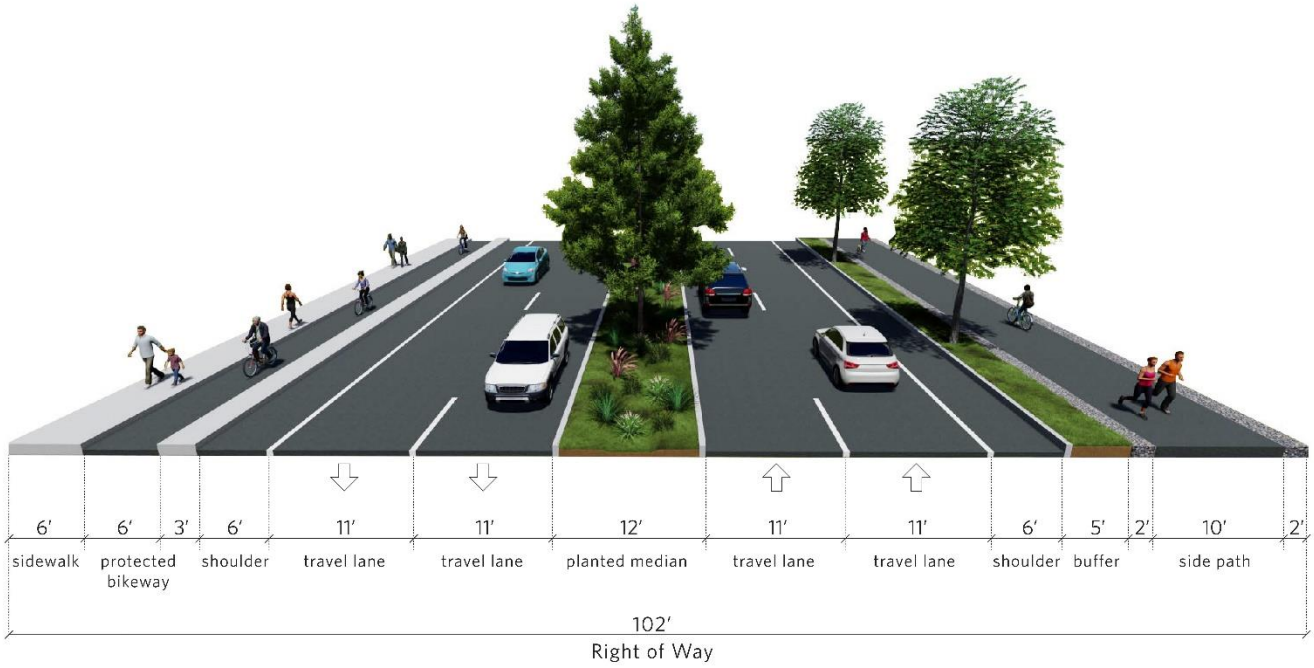
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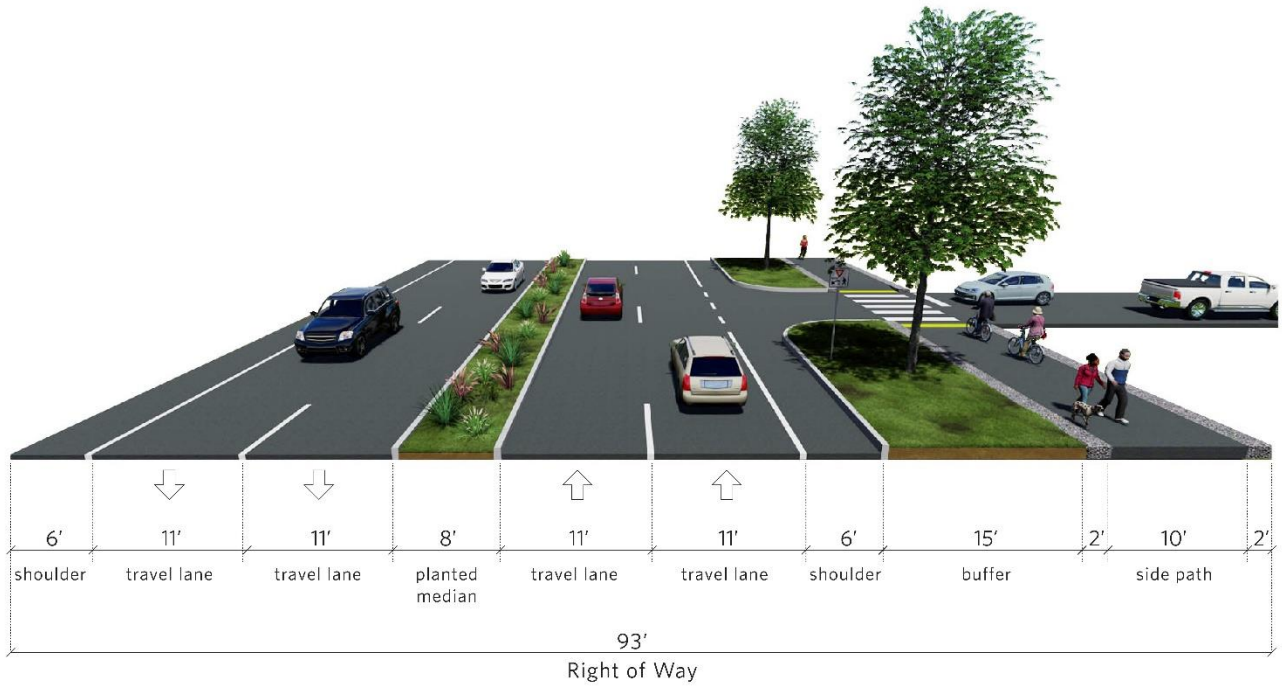
KITTELSON & ASSOCIATES

Coordinate System: NAD 1983 StatePlane Washington South FIPS 4602 Feet
Data Source: Clark County Opendata

Appendix B: SR 503 Reimagining




6′
sidewalk
6′
protected bikeway
3′
6′
shoulder
11′
travel lane
11′
travel lane
12′
planted median
11′
travel lane
11′
travel lane
6′
shoulder
5′
buffer
2′
10′
side path
2′
102′
Right of Way


6′
shoulder
11′
travel lane
11′
travel lane
8′
planted median
11′
travel lane
11′
travel lane
6′
shoulder
15′
buffer
2′
10′
side path
2′
93′
Right of Way