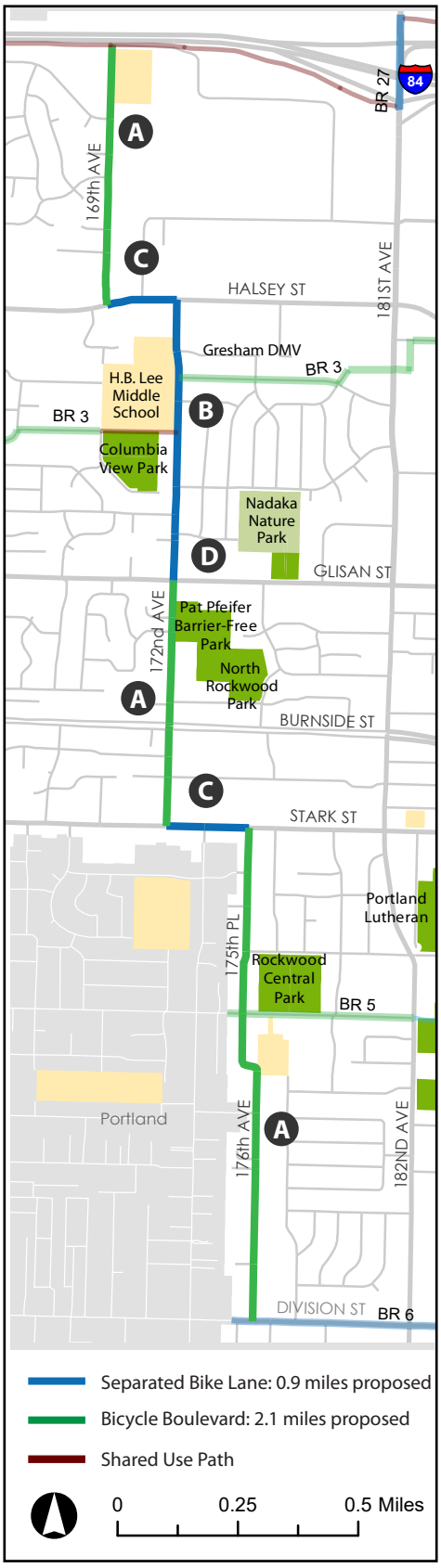
Project BR 1
West Gresham Connector

CITY OF GRESHAM



PLANNED IMPROVEMENTS

This route connects I-84 to SE Division St along NE 169th Ave, NE 172nd Ave, and SE 176th Ave. Facility types vary from bike boulevards to separated bike lanes. To provide low-stress connections, jogged intersections at NE Halsey St and SE Stark St require short separated bike lanes and crossing enhancements.

Wayfinding

Wayfinding signs will help people navigate the jogs and turns along the route and connect with other Bike Routes for Everyone.

A Bike Boulevard

With few vehicles traveling at low speeds, these streets are a good fit for shared use streets. To create low-stress bike boulevards, signs, pavement markings (sharrows), and traffic calming measures should be added.

NACTO Urban Bikeway Design Guide

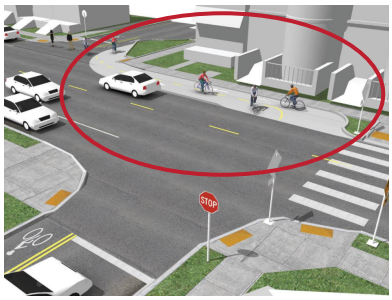
B Separated Bike Lane

People biking on NE Halsey St, NE 172nd Ave, and on SE Stark St need separation from the roadway because of fast speeds and high numbers of vehicles. Separated bike lanes, protected by bollards, posts, concrete barriers or planters, should be added to provide this protection.

FHA Separated Bike Lane Design Guide

C Separated Bike Lane Intersection Jog

At the jogged intersections on NE 169th Ave/NE Halsey St/NE 172nd Ave and SE 172nd Ave/SE Stark St/SE 175th Pl, separated bike lanes and enhanced crossings should be added to provide safe connections accross busy roads.



NACTO Urban Bikeway Design Guide

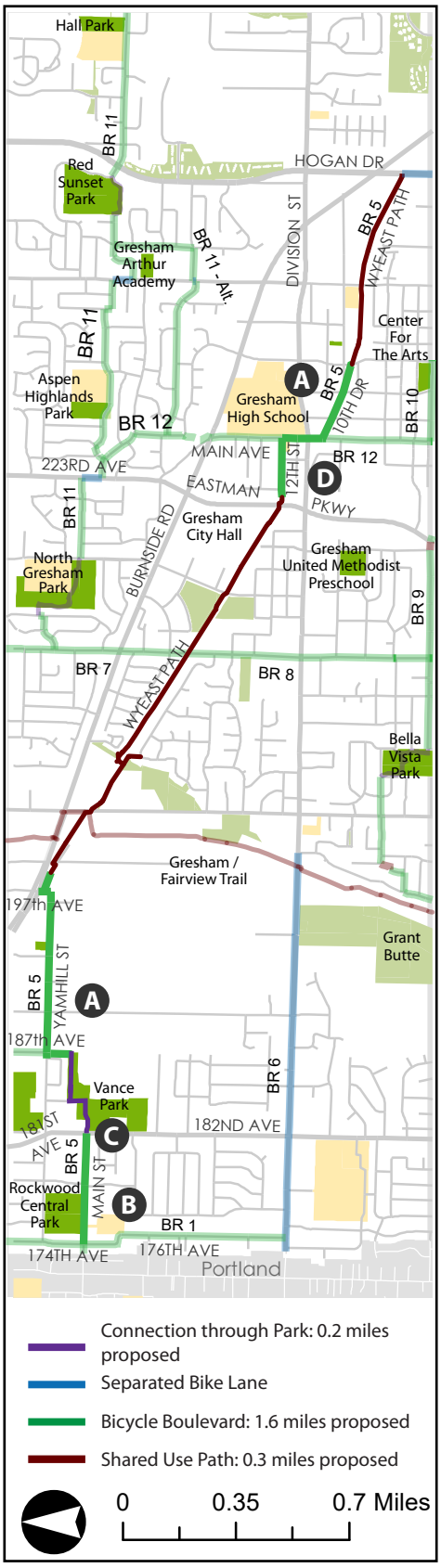
D Enhanced Crossing

At the busy intersection at NE 172nd Ave and NE Glisan St the route will transition between a separated bike lane and a bike boulevard. People biking will need an enhanced crossing with signs and a bike box to safely cross the road.

Project BR 5

Wyeast Crosstown Bike Route

CITY OF GRESHAM



PLANNED IMPROVEMENTS

This route connects NE Hogan Dr to SE 174th Ave. It will close longstanding gaps along the Wyeast Path, connect to six important north/south bike routes, and link Gresham to the planned Portland 4M Neighborhood Greenway. The Wyeast Crosstown Bike Route will generally be comprised of shared space streets linking segments of the Wyeast Trail.

A Bike Boulevard

Due to the low volume of cars traveling at low speeds, these streets are a good fit for shared use streets. To create low-stress bike boulevards, signs, pavement markings (sharrows), and traffic calming measures should be added.

NACTO Urban Bikeway Design Guide

B Connection to Portland 4M Neighborhood Greenway

The western end of the Wyeast Crosstown Bike Route will connect with the planned Portland 4M Neighborhood Greenway via SE Main St, providing a key link to the City of Portland bike network.

C Connection through Park

An existing path through Vance Park connects two bike boulevards on neighborhood streets. The existing enhanced crossing at SE 182nd Ave provides access to the park from SE Main St.

Google Maps

D Enhanced Crossings

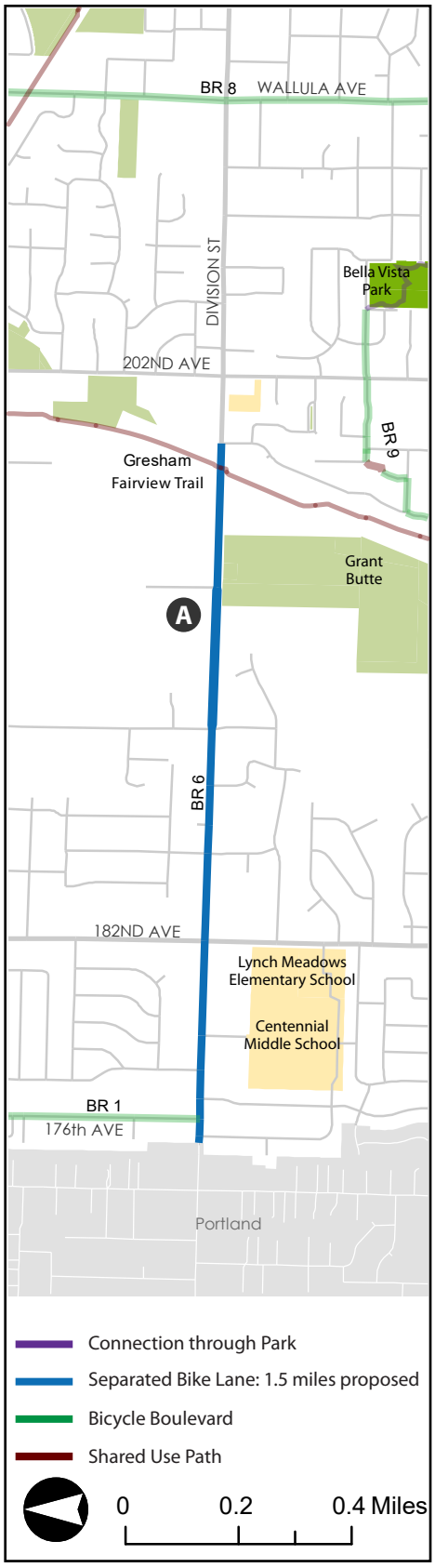
The crossing at NW 12th St and N Main Ave already has some traffic calming, but is still challenging for people walking and biking to navigate. A raised crosswalk would slow traffic and make people crossing more visible.
Narrowing the traffic lanes and reducing the curb radii at NW 10th and Main Streets would improve crossing conditions. Raising the intersection across NW Main would further reduce auto speeds.

Fundamentals of Bike Boulevard Planning and Design Guidebook

Project BR 6

Division St Separated Bike Lane

CITY OF GRESHAM



PLANNED IMPROVEMENTS

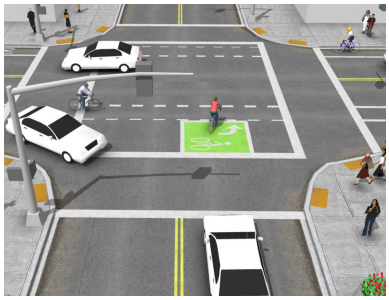
This route would upgrade the current buffered bike lanes on SE Division St to separated bike lanes. Fast speeds and high volumes of cars require more protection for people on bikes. The Division St Separated Bike Lane would connect west Gresham neighborhoods to the Gresham Fairview Trail and provide access to several grocery stores and other local businesses. NW Division St, east of NW Birdsdale, appears to be a good candidate for a road diet, given Average Annual Daily Traffic (AADT) of less than 25,000. Depending on the final design of TriMet's Division BRT project, traffic volumes may be reduced in coming years. Implementation should be a one-way separated bike lane on each side of the street. The street has too many driveways for a two-way separated bike lane.

A One-Way Separated Bike Lane

This route should upgrade the current bike lane buffer to include physical protection and a treatment to address the many driveways along the street. Both can be accomplished by raising the bike lane to above the street grade, up to the height of the sidewalk. If the bike facility remains at street level, sharrows or green paint skip lines should be added to warn bicyclists and motorists at driveway conflict zones.

NACTO Urban Bikeway Design Guide

At intersections, people biking are at risk from both right- and left-turning motorists. To address this issue, the separated bike lane facility should include two-stage bike turn boxes at signalized intersections, signal changes, physical protection (e.g. median refuge islands), and/or reduced corner radii to limit vehicle speeds while turning.



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Materials and Maintenance

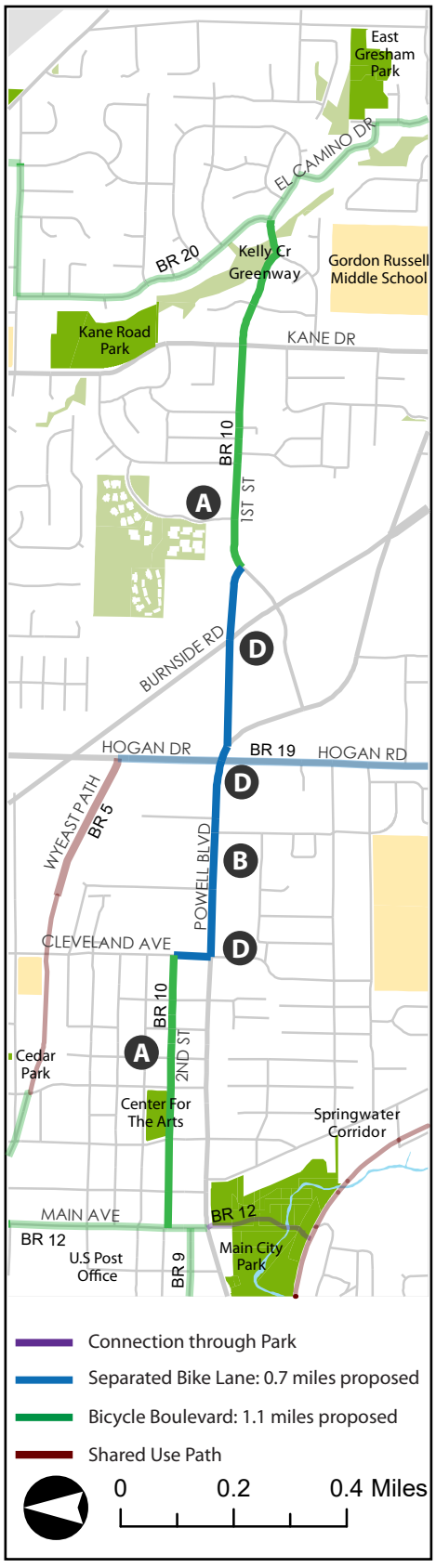
Flexible delineators are a good option for providing a minimum level of protection when spaced out appropriately, relative to the speed of vehicle traffic. Other protection options include a raised concrete median, parking bumpers, plastic bumpers, and planters. Separated bike lanes require routine maintenance, including debris removal. Routine sweeping to remove debris, such as leaves and other obstructions, can be done with smaller street sweepers.

Bike lane street sweeper in L.A. Gizmodo

Project BR 10

East Gresham Connector

CITY OF GRESHAM



PLANNED IMPROVEMENTS

The East Gresham Connector Route connects downtown Gresham to SE El Camino Dr along the Powell Blvd corridor, following NE 2nd St/E Powell Blvd/SE 1st St. This connection is important because it provides a low stress route from East Gresham neighborhoods into downtown and the Civic District. This route will include bicycle boulevards along low stress neighborhood streets, separated bike lanes as the route joins Powell Blvd for several blocks, and enhanced crossings of several busy arterial streets.

A Bike Boulevard

A low volume of cars traveling at low speeds make NE 2nd St and SE 1st St, west of SE 3rd St, a good fit for signs, pavement markings, and speed and volume management measures to create low-stress bicycle routes.

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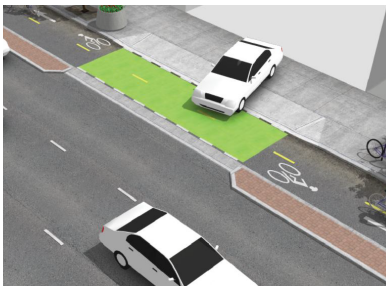
B Two-Way Separated Bike Lane

A two-way separated bike lane on the west side NE Cleveland Ave and north side of E Powell Blvd will connect NE 2nd St and SE 1st St. The two-way separated bike lane will continue on the south side of SE 1st St to SE 3rd St. Driveway consolidation will be necessary to protect people biking.



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Types of Protection

For a two-way separated bike lane, the minimum protection needs to be more substantial than for a one-way facility. Options for providing protection include raised concrete medians, concrete planters, parking bumpers, plastic bumpers, etc. Driveways should be eliminated or consolidated wherever possible to reduce the number of conflict areas.

D Signalized Intersections

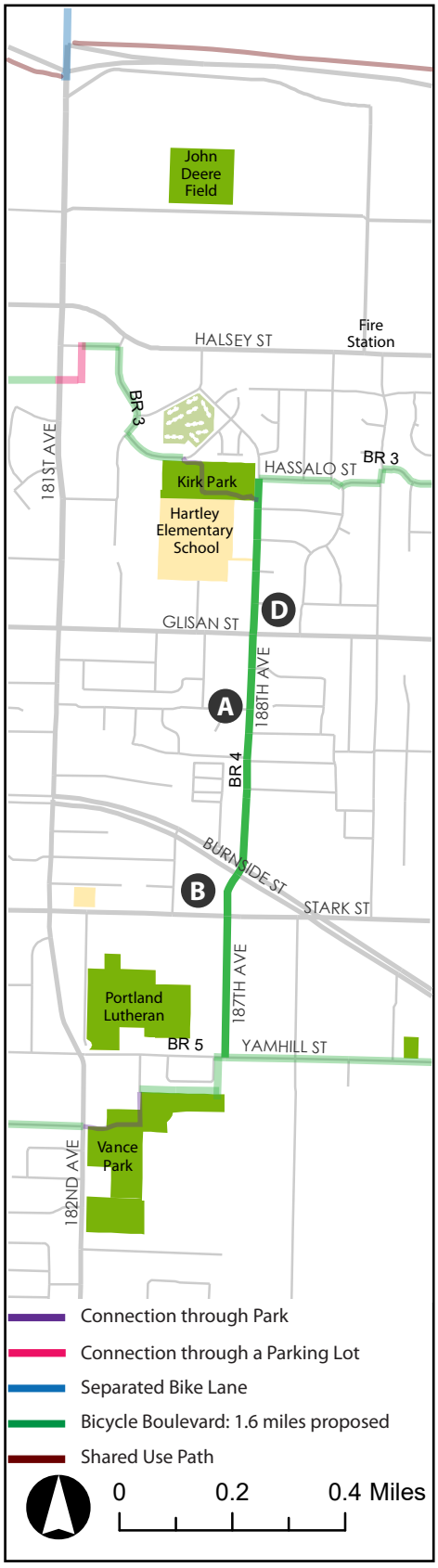
The signalized intersections at NE Cleveland, NE Hogan, and SE Burnside should be modified to create protected signal phases via push button request or automatic detection of bicycles. If intersection efficiency is unacceptably impacted, through movements of vehicles can be allowed during the protected phase for bicyclists.

NACTO Urban Bikeway Design Guide

Project BR 4

Rockwood Bike Route

CITY OF GRESHAM



PLANNED IMPROVEMENTS

The Rockwood Bike Route connects two east/west routes that are north and south of the Rockwood neighborhood, which currently lacks safe, low stress access for people biking. The route will link SE Yamhill St to NE Hassalo St along bike boulevards on NE 187th Ave/NE 188th Ave and navigate several large arterial crossings.

A Bike Boulevard

This route takes advantage of one of the few through streets in Rockwood with low traffic volumes and speeds to create bike boulevard facilities. Few vehicles and low traffic speeds make these streets a good fit for signs, pavement markings, and speed and volume management measures to create low-stress bicycle routes.

NACTO Urban Bikeway Design Guide

B Existing Crossing

At SE 187th St and SE Stark Ave, people riding will use the existing traffic signal to cross SE Stark St and continue on the bike boulevard.

Google Maps

D Enhanced Crossing

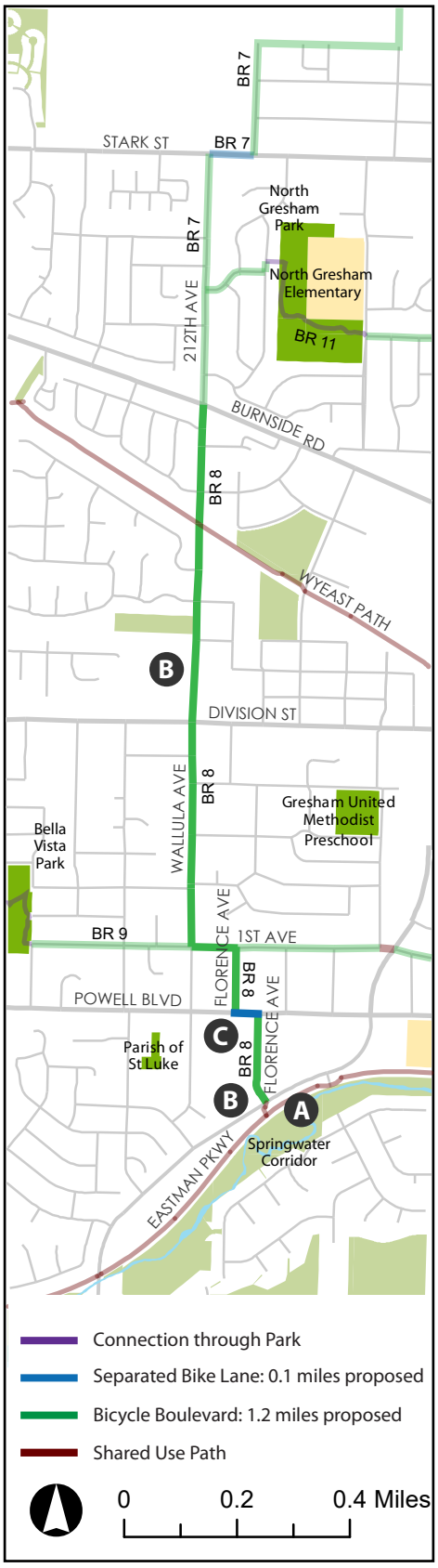
At NE 188th St and NE Glisan St the bike boulevard crosses NE Glisan St, a five-lane arterial. This crossing requires significant safety enhancement. Install Rectangular Rapid Flashing Beacons (RRFBs) per the FHWA Interim Approval IA-11, or Pedestrian Hybrid Beacons (PHBs) per MUTCD Chapter 4F, with corresponding signs and pavement markings. Given the posted speed limit of 40 MPH, Average Annual Daily Traffic (AADT) between 15,001 – 25,000, a crossing length of 65 feet, and the variability of motorist compliance rate to RRFBs, a PHB is recommended. A refuge median island should also be installed.


NACTO Urban Bikeway Design Guide

Project BR 8

Civic District Bike Route

CITY OF GRESHAM



PLANNED IMPROVEMENTS

The Civic District Bike Route connects the Civic District, a major employment and commercial hub, with key east/west bike routes and the Springwater Corridor. The route will go from NW Burnside Rd to SW Eastman Pkwy/Springwater Corridor Path, primarily along NW Wallula Ave and SE 212th Ave. The route will primarily be comprised of bike boulevards along calm streets, with a separated bike lane intersection jog at W Powell Blvd.

A Enhanced Crossing

The SW Eastman Pkwy crossing from the Springwater Corridor to SW Florence Ave requires safety enhancements for people biking to access the path. Given the 35 MPH posted speed limit and the 5,001 to 15,000 AADT volumes on SW Eastman Pkwy, an RRFB installation per the FHWA Interim Approval IA-11 is recommended along with an extension of the south side sidewalk and a full crosswalk treatment for the intersection.

NACTO Urban Bikeway Design Guide

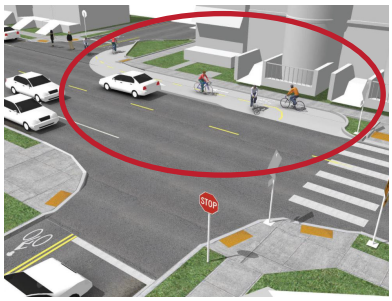
B Bike Boulevard

NW Wallula Ave and SE 212th Ave are good candidates for bike boulevards because speed humps and other traffic calming measures already exist. A potential treatment is to apply sharrows on the downhill direction and bike lanes on the uphill direction, due to the speed differential between cars and people biking.

NACTO Urban Bikeway Design Guide

C Separated Bike Lane Intersection Jog

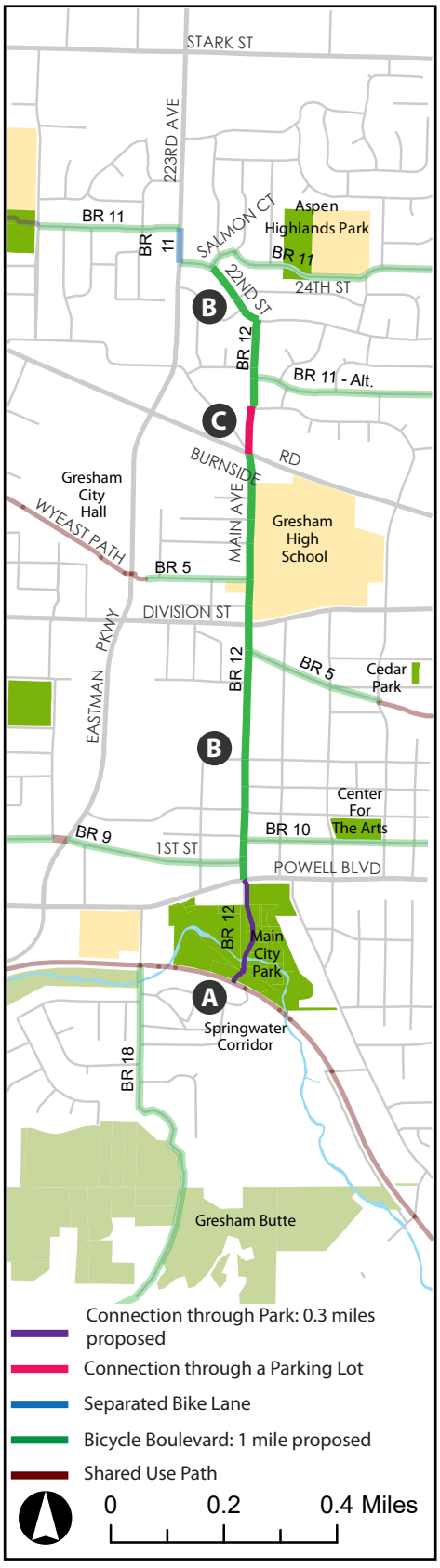
The route jogs at SW Florence Ave/ W Powell Blvd/NW Florence Ave/ NW 1st St/NW Wallula Ave. Due to the traffic volumes on Powell Blvd, a separated bike lane is necessary for this half block. Due to the right-of-way limitations, the separated facility could take the form of a shared use path on the south side of Powell, in place of the existing bike lane. An enhanced crossing at the west side of SW Florence will provide a safe crossing of W Powell Blvd for people walking and biking.


NACTO Urban Bikeway Design Guide

Project BR 12

Downtown Gresham Bike Route

CITY OF GRESHAM



PLANNED IMPROVEMENTS

The Downtown Gresham Bike Route will connect the Springwater Corridor to BR 11 (at SE Salmon Ct), primarily along N Main Ave. This route will provide access to many jobs, amenities, and important institutions, such as Gresham High School. N Main Ave already includes some traffic calming measures, but additional access and speed management measures will be required for this route to serve as the central low stress downtown bike route. This route's unique downtown context may require a custom design approach.

A Connection through Park

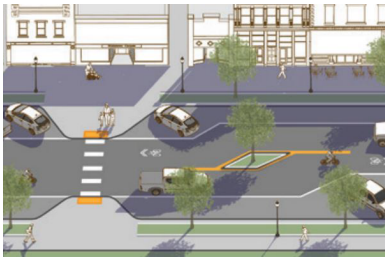
The route will use existing paths through Main City Park to connect N Main Ave with the Springwater Corridor.

Google Maps

B Shared Use Roadway

From E Powell Blvd to NE Burnside Rd, N Main Ave is already designated as a shared roadway with sharrow markings. However, this segment needs significant speed and volume management to create a low-stress facility. Such management would benefit the neighborhood and increase safety for people accessing the school. Further study is needed to find the best solution for the corridor, while maintaining access to Gresham High School.

North of NE Burnside Rd, the route will use neighborhood streets, N Main Ave, NW 22nd St, and SE Salmon Ct, that are suitable for bike boulevard treatment.



NACTO Urban Bikeway Design Guide

N. Main Ave & NE 3rd St. Google Maps

C Connection through Parking Lot

In order to cross NE Burnside Rd and continue north/south, the route cuts through a large commercial shopping center parking lot. It will be necessary to negotiate with the owners for public and well-signed access through the site. A design which calms traffic and creates an obvious, well-marked path for bicyclists is needed. Stop signs may be necessary to reduce conflict.

Google Maps

Project BR 2

Gresham Fairview Trail Extension

CITY OF GRESHAM

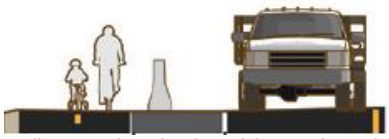
DESIGN SUGGESTIONS FOR KEY INTERSECTIONS

Railroad Underpass South of Hwy 84 on NE 201st Ave

This railroad underpass is very constrained and difficult to change. Current AADT is around 5,000 vehicles and the speed limit is 35 MPH. Due to this context, bike boulevard or advisory bike lane treatments are not a good fit. There are two options to create a safe, comfortable crossing for people walking and biking on the Gresham Fairview Trail.

A Shared Use Path

Build a separated shared-use path on one side of NE 201st Ave, under the overpass. Travel lane widths would need to be reduced to make room for the path. Due to the limited space, this path would need to be accompanied by traffic calming, which could include speed bumps and/or roundabouts at the closest intersections (on NE Thompson St and NE Sacramento St. The speed limit should be reduced to 25 MPH



Small Town and Rural Multimodal Networks Guide

B Widen Public Right-of-Way

If the overpass is renovated or re-built, the City of Gresham should negotiate for a wider right-of-way with the railroad company. It is possible the bridge abutments are already in the existing public right-of-way. If this is so, the City could require the railroad to move the abutments back to create more space for the road and shared use path.

Current Railway Underpass Google Maps

NE 185th Ave & NE Riverside Pkwy
NE 185th Ave & NE Portal Way

These two intersections require a similar approach to make them easier to navigate on foot and by bike. Both roadways must accommodate large, heavy freight trucks traveling to distribution centers in the neighborhood. Currently, the large radius corners at the intersections allow trucks to travel at fast speeds and increase the chance of right and left hook crashes. For both intersections, the following design options would make the crossing safer and more comfortable for people walking and biking. If possible, the dedicated turn lanes should be removed to reduce the crossing distance.

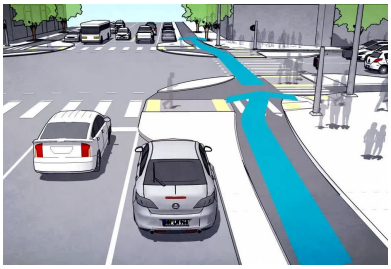
An additional consideration for both intersections are the numerous parking lot entrances and exits along NE 185th Ave. To navigate these parking lot entrances, the path should be raised to level of sidewalk with short vertical ramps from the path to the street and parking lot. Thermoplastic colored markings and yield signs for vehicles should be added to indicate that people will be walking and biking in the area.

A 4-Way Stop

Add a 4-way stop at each intersection, with crossing signs and medians on NE Riverside Pkwy and NE Portal Way to reduce the crossing distance. This option would bring traffic to a stop and create safe gaps for people to cross the road.

B Half-Protected Intersection

Add a half-protected intersection (with or without a raised crossing) with two protection islands on the east side of the intersection. The crossing should use thermoplastic markings and signage. This option would increase the turn radius and shorten the crossing distance.

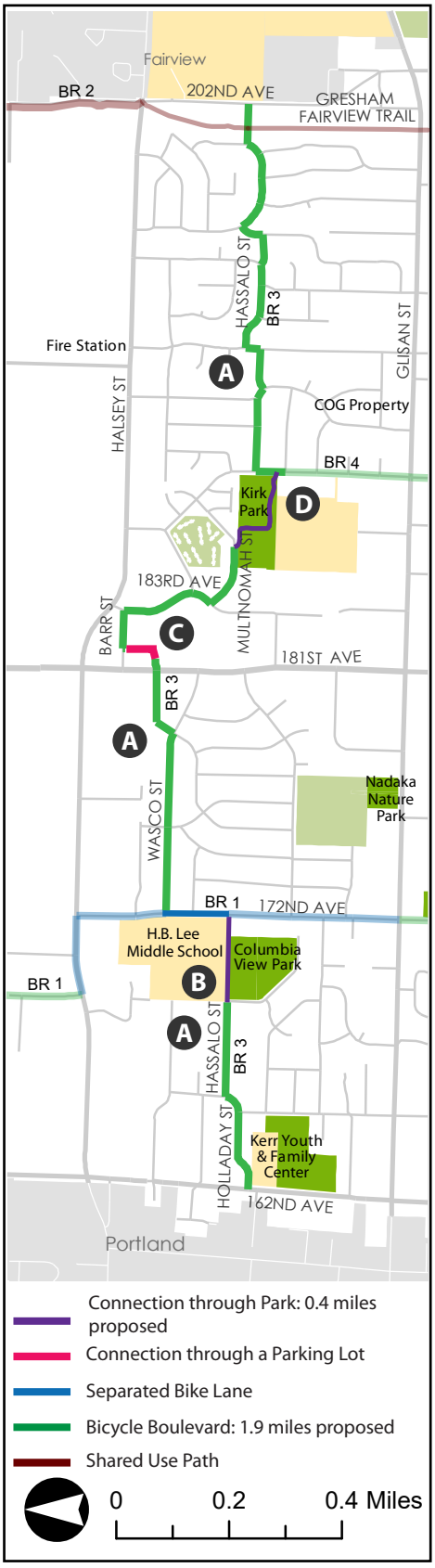


Half-Protected Intersection | Urban Bikeway Design Guide

Project BR 3

North Gresham Bike Route

CITY OF GRESHAM



PLANNED IMPROVEMENTS

The North Gresham Bike Route is an east/west route through north Gresham, linking NE 162nd Ave to NE 202nd Ave via NE Hassalo St and NE Wasco St. To navigate the suburban roadways, cul-de-sacs, and park cut throughs will provide direct access for people riding bikes to avoid traveling on major arterials. This route relies on the implementation of a separated bike lane on 172nd Ave, which a part of the BR 1 West Gresham Connector project. Implementation may require access management and speed management to create low-stress shared roadway conditions.

A Bike Boulevard

Most of this route is on low-traffic neighborhood streets. A bike boulevard treatment with signs, pavement markings, and speed and volume management measures will create a low-stress environment. NE Hassalo St, NE Wasco St, and NE Holladay St will all be bike boulevards.

NACTO Urban Bikeway Design Guide

B Connection through Parking Lot and School

This route will use the start of an existing path between Columbia View Park and H.B. Lee Middle School then traverses the school drop-off zone to connect back to the separated bike lane on 172nd Ave (BR 1). Signage and shared lane markings should be installed in the school driveway to alert drivers to the presence of bikes.


Google Maps

C Enhanced Crossing and Parking Lot Cut Through

To allow people to safely cross NE 181st Ave at NE Wasco St, this route would cut through a private alley and parking lot. Access to this cut through would require approval of the property owners. This crossing would require safety enhancements, such as a raised crosswalk and Rapid Flashing Beacon.

NACTO Urban Bikeway Design Guide

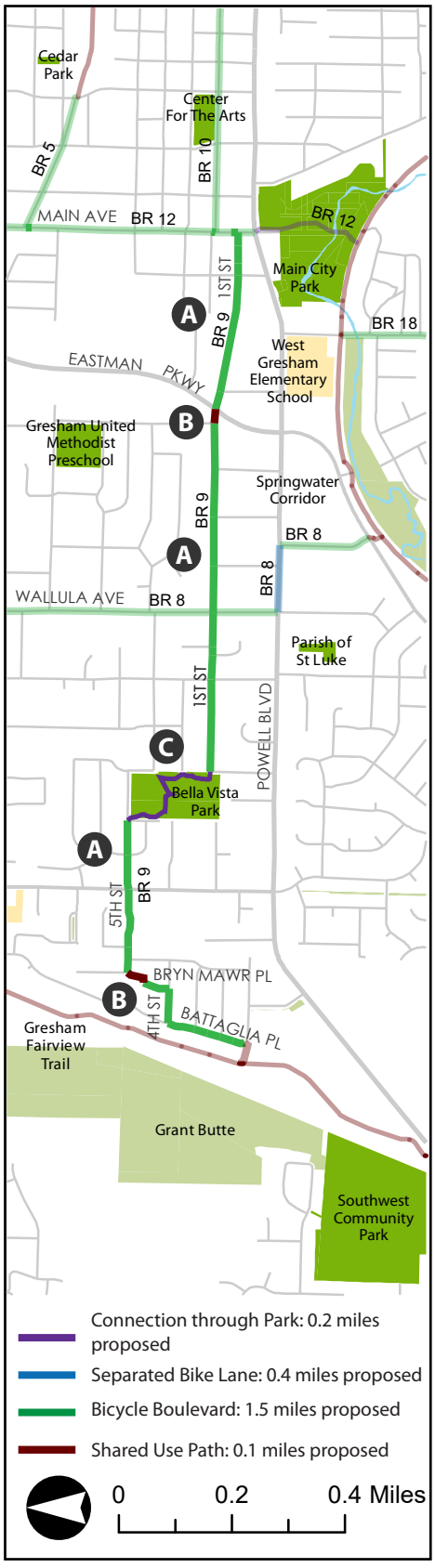
D Connection through Park

The route passes through Kirk Park on existing paths. Wayfinding signs will be important to help people walking and biking find their way through the park and back to the on-street route.

Project BR 9

Gresham Fairview Trail Connector

CITY OF GRESHAM



PLANNED IMPROVEMENTS

The Gresham Fairview Trail Connector Route connects the Gresham/Fairview Trail to Downtown via NW 1st St and other neighborhood streets. The route will primarily be a bicycle boulevard with connections through Bella Vista Park and existing cul-de-sac cut throughs.

A Bike Boulevard

Most of this route is on low-traffic neighborhood streets. A bike boulevard treatment with signs, pavement markings, and speed and volume management measures will create a low-stress environment. NW 1st St, NW 5th St, NW 4th St, NW Battaglia Pl will all be bike boulevards.

NACTO Urban Bikeway Design Guide

B Existing Cul-de-Sac Cut Throughs

At two places along the route, existing, short multi-use paths cut through the end of cul-de-sacs to provide neighborhood connectivity for people walking and biking. These cut throughs are located between NW 5th St and NW Bryn Mawr Pl and between NW 1st St and Eastman Parkway.

NW Bryn Mawr Cut Through Google Maps

C Connection through Park

The route will pass through Bella Vista Park on existing paths to connect NW 1st St with NW 5th St. Wayfinding signs will be important to help people walking and biking find their way through the park and back to the on-street route.

Google Maps