



PBOT
PORTLAND BUREAU OF TRANSPORTATION

NORTHWEST IN
MOTION

DRAFT: Tier 1 Projects Overview

04.15.19

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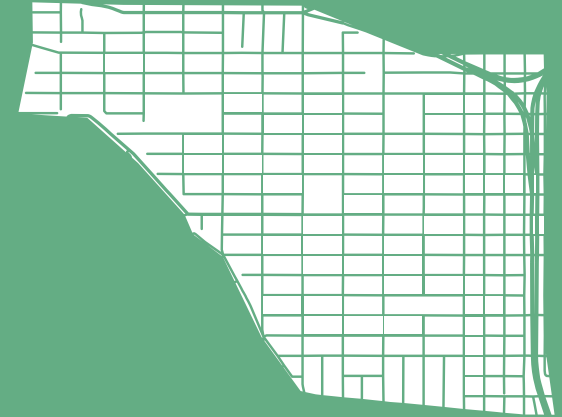
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Tier 1 Projects Overview

01 Tier 1 Projects Overview

05 Neighborhood Greenways

NG.1 NW Johnson St

NG.2 NW Marshall St

NG.3 NW Savier St

NG.4 NW Pettygrove St / NW Overton St

NG.5 NW 24th Ave

17 Transit Improvements

TI.1 NW 21st Ave (Line 77)

TI.2 NW 18th Ave / NW 19th Ave (Line 24)

TI.3 W Burnside St (Line 15)

25 Corridor Improvements

CS.1 NW Glisan St / NW Everett St

CS.2 NW 23rd Ave

CS.3 NW 25th Ave / NW Westover St

CS.4 NW Vaughn St

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ABOUT THIS DOCUMENT:

This booklet contains a series of **preliminary design concepts to illustrate the range of potential project elements** that could be included in the Tier 1 Project List for Northwest in Motion.

This project ideas outlined here should be considered as a **starting point for further discussion**. Illustrations and graphics are intended to more clearly communicate current thinking around proposed projects and do not imply that any final decisions have been made.

All of the projects detailed here **require additional project development**, including **stakeholder consultation, public outreach and engagement**, and ongoing **feasibility analysis**.

There are **multiple upcoming opportunities to continue to engage** in this planning process and shape the project recommendations. These include **additional stakeholder working group meetings, a public in-person and online open house, and continued dialogue with interested parties** about how to further refine these projects.

Tier 1 Projects Overview

In a previous phase of the Northwest in Motion planning process, projects were identified and then prioritized using a set of evaluation criteria to divide them into Tier 1 and Tier 2 projects. Tier 1 projects are considered the highest priorities for funding and implementation in the next five years, and are the projects that are being developed to a higher level of readiness through the Northwest in Motion Plan. Tier 2 projects are still recognized as needs, but are lower priorities and will not be actively developed or targeted for funding in the next five years unless there is a significant financial leverage opportunity.

Northwest in Motion Tier 1 Projects are divided into three project types



Neighborhood Greenways

Low-stress streets that are great places to walk, bike, roll, play, and just be.



Transit Improvements

Small changes that translate to big improvements for bus speed and reliability.



Corridor Safety Improvements

Safer crossings, bikeway, and streetscape improvements on Northwest's busiest streets.



Neighborhood Greenways

NG.1 NW Johnson St

Retrofit existing neighborhood greenway to meet established guidelines for traffic speeds, traffic volumes, design elements, and crossings.

NG.2 NW Marshall St

Retrofit existing neighborhood greenway from NW 9th to NW 16th to meet established guidelines. Extend neighborhood greenway west to NW 21st Ave.

NG.3 NW Pettygrove St

Design and implement a new neighborhood greenway on NW Pettygrove that meets established guidelines. Add a bikeway connection to NW 9th Ave via NW 11th and NW Overton.

NG.4 NW Savier St

Design and implement a new neighborhood greenway that meets established guidelines.

NG.5 NW 24th Ave

Retrofit existing neighborhood greenway to meet established guidelines. Extend bikeway to NW Flanders.



Transit Improvements

TI.1 NW 21st Ave

Improve bus stop accessibility and reduce transit delay on the Line 77 from NW District to the Pearl District and Old Town / Chinatown.

TI.2 NW 18th /19th Ave

Provide new bus stops and crossings on NW Thurman and NW 18th/19th to serve the Line 24 Extension.

TI.3 W Burnside St

Improve bus stops, reduce peak-hour transit delay, and improve all-day travel time on the Line 15 from NW District to Downtown and the Central Eastside.



Corridor Safety Improvements

CS.1 NW Glisan / NW Everett St

Improve safety along the NW Everett/ Glisan couplet by adding crossing improvements, reducing traffic speeds, and improving bike lanes.

CS.2 NW 23rd Ave

Improve the safety and asset condition of the northern section of NW 23rd Ave by reconstructing the roadway, rebuilding an aging signal, and improving pedestrian crossings.

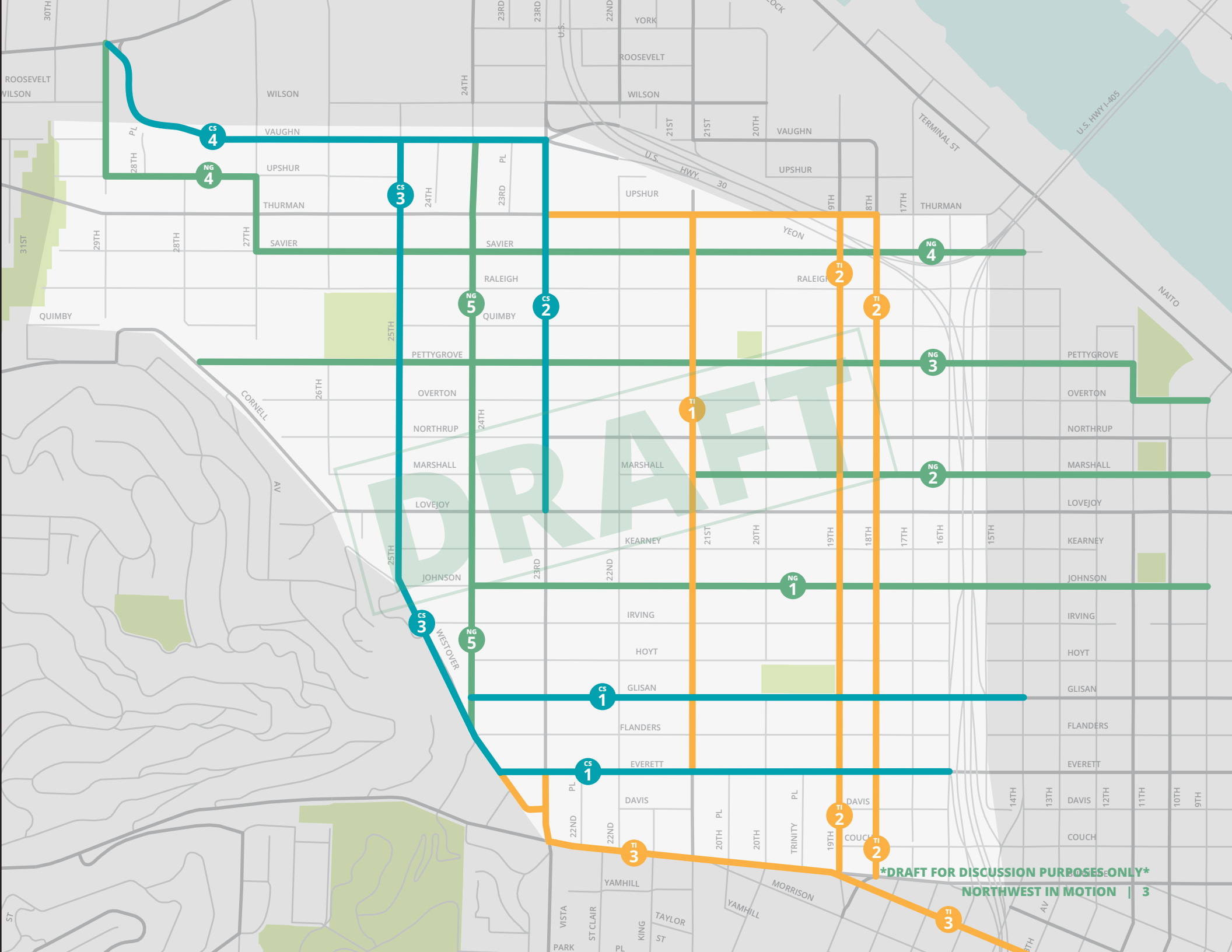
CS.3 NW 25th Ave / Westover

Calm traffic along NW 25th Ave and NW Westover by adding traffic slowing devices and enhanced pedestrian/bicycle crossings.

CS.4 NW Vaughn St

Improve safety along NW Vaughn and NW Wardway by adding improved crossings, signal upgrades, and bikeway enhancements.

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CS 3

CS 4

NG 4

CS 2

NG 5

NG 4

NG 3

NG 2

NG 1

CS 3

NG 5

CS 1

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NORTHWEST IN MOTION | 3



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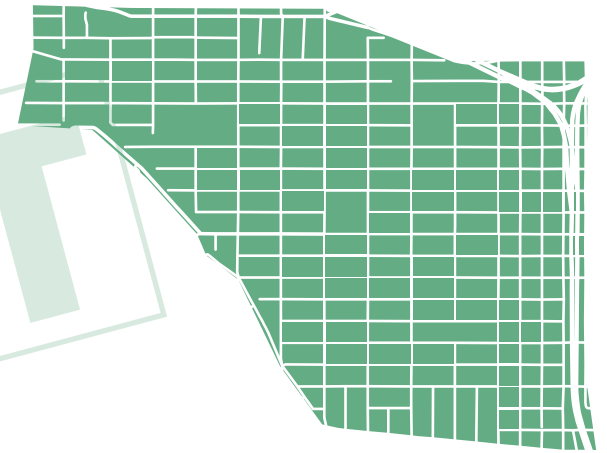
City of Seattle Department of Transportation

TIER 1 PROJECTS

Neighborhood Greenways

Neighborhood greenways are calm streets designed to create a safe and comfortable biking and walking experience. They allow people of all ages and abilities to use low-volume, low-speed neighborhood streets rather than busy arterials.

Neighborhood Greenways typically feature a shared street environment rather than separated bike lanes, and use elements such as speed bumps, traffic diverters, enhanced crossings, and way-finding to ensure that the street is clearly prioritized for biking while preserving local automobile access. Neighborhood greenways are great walking routes, providing an alternative to walking along busy traffic-heavy streets.



KEY DESIGN ELEMENTS

Neighborhood Greenways are intentionally designed to be low-stress streets that are great places for walking, biking, and rolling.

Slow Speeds

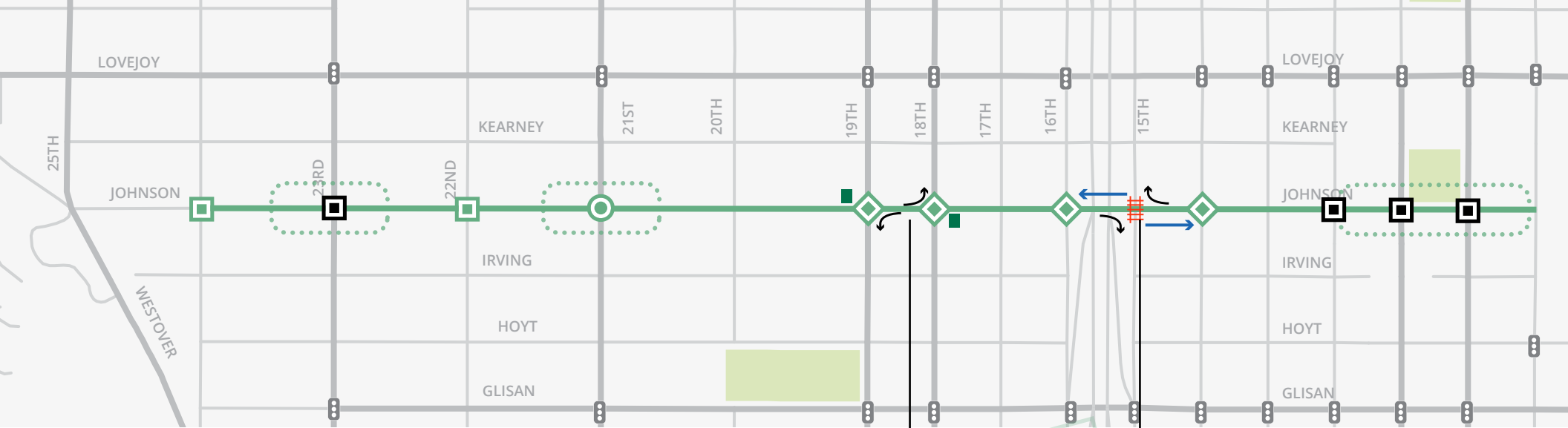
Traffic calming tools including speed humps, curb extensions, and median islands help keep vehicles moving at slow speeds.

Low Vehicle Volumes

Some streets require traffic pattern changes to discourage cut-through traffic and keep traffic volumes low. These changes can be achieved through physical barriers (diverters) or through signage.

Placemaking

Neighborhood Greenways often connect key neighborhood destinations like parks and schools. Our designs look for opportunities to create new great places in Northwest Portland.



Paired diverters at NW 18th and 19th Ave allows vehicles full access to the couplet, but block through movement

Traffic pattern change (see visualization on next page)

NG.1 NW Johnson Neighborhood Greenway

Project Description

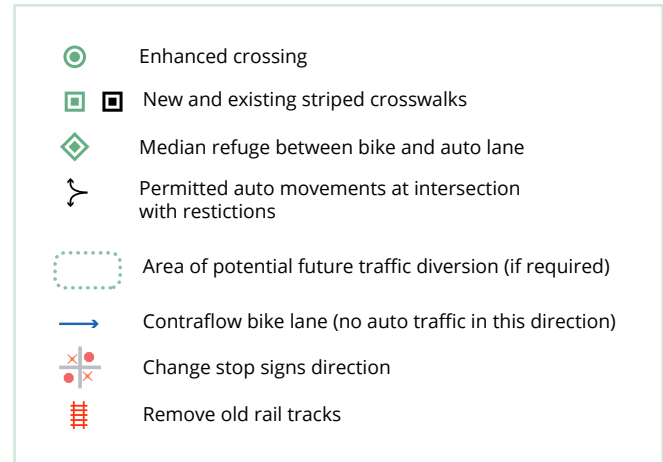
Add speed bumps, turn stop signs, and update signage on NW Johnson St from 9th to 25th. Incorporate diverters or other circulation changes as needed to reduce traffic volumes to acceptable levels. Improve crossings at busy streets. Repave segments of Johnson that have a poor riding surface, and remove rails from Johnson/15th intersection.

Project Goal:

- Establish a new low-stress walking and biking connection on NW Johnson St.

Key Considerations:

- Diversion strategy between NW 14th and 16th Ave may require out of direction travel for people accessing REI's parking garage and will impact on-street parking. Diverters may increase traffic volumes on parallel local streets.

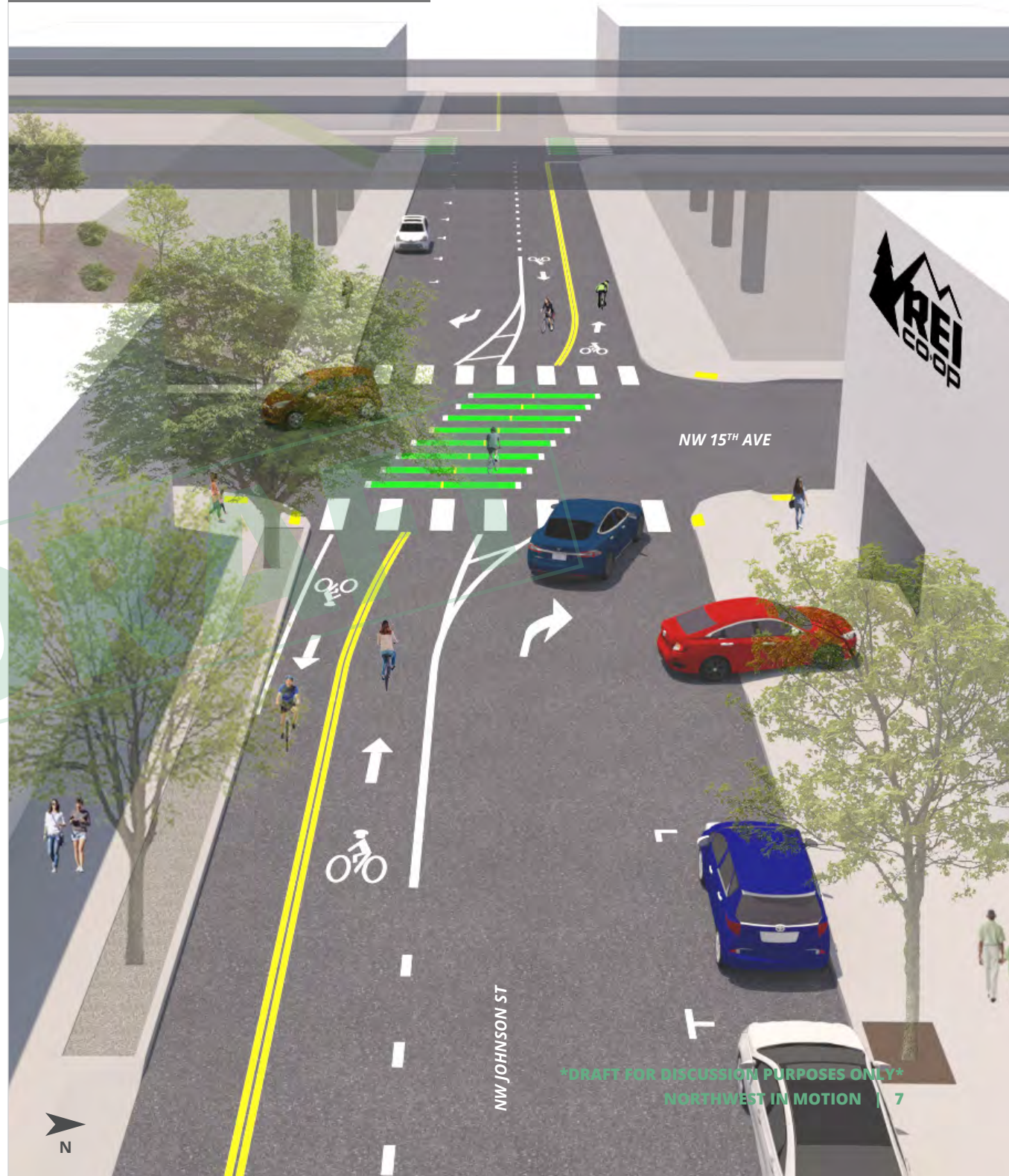


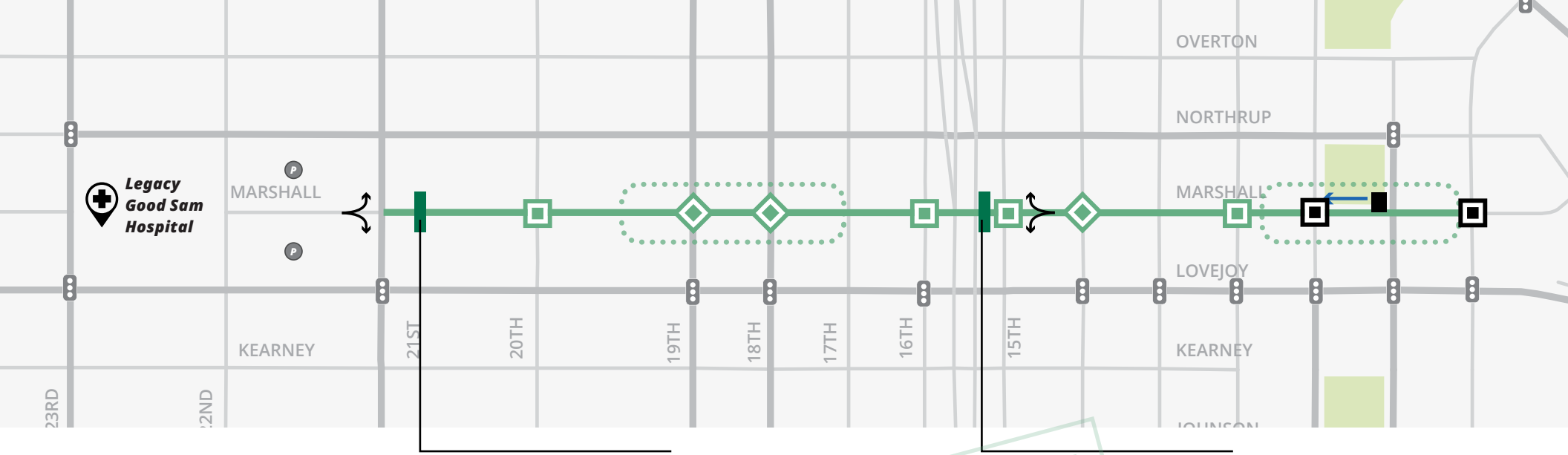
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DESIGN CONCEPT DETAIL:

NW Johnson | NW 14th to NW 16th

NW Johnson St currently has traffic volumes that greatly exceed the recommended guidelines for a neighborhood greenway. The highest traffic volumes are found in the area between 14th Ave and 16th Ave due to several factors including convenient freeway access and a major commercial garage entrance. This design concept would address these issues by making Johnson one-way for cars converging on 15th Ave, with a separated two-way bikeway through the entire segment. On-street parking would be preserved on one side of Johnson, and there would be no conflicts between bicyclists and traffic at the garage entrance or at 15th Ave. Local access would be preserved, but cut-through traffic would be prevented.





Mid-block full closure diverter proposed. (see design concept on next page)

Full closure diverter at NW 15th Ave allows through bike and pedestrian movements, while preserving access to Streetcar maintenance yard via NW 16th Ave

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NG.2 NW Marshall Neighborhood Greenway

Project Description

Add speed bumps and sharrows, turn stop signs, and update signage on NW Marshall St from 9th to 21st. Incorporate diverters or other circulation changes as needed to reduce traffic volumes to acceptable levels. Improve crossings at busy streets.

Project Goal:

- Extend and improve the existing NW Marshall Neighborhood Greenway to provide a direct connection to 21st Ave business district.

Key Considerations:

- Midblock traffic diverter between NW 21st and 20th Ave requires consultation with auto shops to minimize impacts.
- Diverters will likely increase traffic volumes on Lovejoy and Northrup.

	New and existing striped crosswalks
	Median refuge between bike and auto lane
	Permitted auto movements at intersection with restrictions
	New and existing diverters
	Area of potential future traffic diversion (if required)
	Contraflow bike lane (no auto traffic in this direction)

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DESIGN CONCEPT DETAIL:

NW Marshall & NW 15th Ave

The Pearl District Access and Circulation Plan, adopted in 2012, recognized that the diverter at 10th & Marshall might not be sufficient to address cut-through traffic issues on the Marshall Neighborhood Greenway, and recommended consideration of an additional diverter at 15th & Marshall to prevent through traffic under I-405. Recent traffic counts confirm that NW Marshall St currently has traffic volumes that greatly exceed the recommended guidelines for a neighborhood greenway, so it would be appropriate to implement this. Portland Streetcar has also indicated that closing this segment of Marshall to through car traffic at 15th Ave, while maintaining employee access from 16th Ave, would improve their maintenance operations.

DESIGN CONCEPT DETAIL:

NW Marshall | East of NW 21st Ave

Because there are major parking garages on Marshall St between 22nd and 21st, it is critical to divert motor vehicle traffic at 21st Ave to prevent east-west cut-through traffic and reduce volumes to an acceptable level. This design concept would place a full diverter between 21st and 20th in a way that preserves full access to two automobile service businesses just east of 21st while preventing cut-through traffic all the way through the block. Existing driveways are available on both sides allowing cars to turn around if needed, and on-street parking is preserved on both sides of the diverter.

PRELIMINARY DESIGN: NW MARSHALL AT 15TH



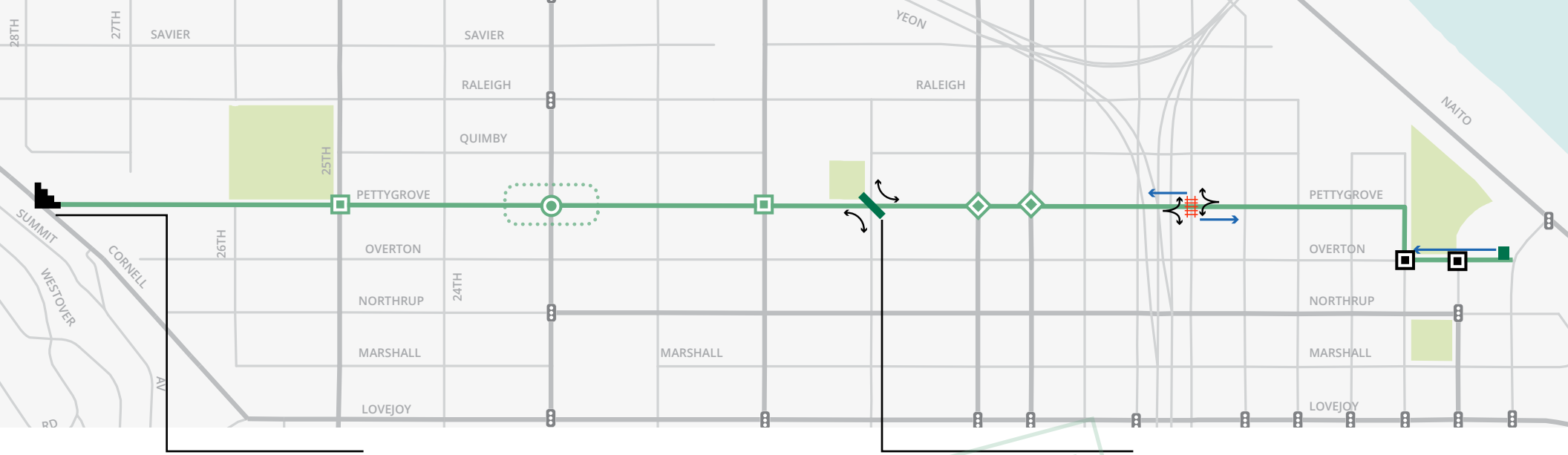
PRELIMINARY DESIGN: NW MARSHALL AT 21ST



Full closure allows people walking and biking to pass through, while restricting through vehicle movements.

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NORTHWEST IN MOTION | 9





Existing public stairway connection to Cornell Rd

Diagonal diverter that extends the new park at the northwest corner of the intersection

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NG.3

NW Pettygrove Neighborhood Greenway

Project Description

Add speed bumps and sharrows, turn stop signs, and install signage on NW Pettygrove St from 11th Ave to the bottom of the staircase to Cornell (add bike-rail to staircase if feasible). Incorporate diverters or other circulation changes on Pettygrove as needed to reduce traffic volumes to acceptable levels. Improve crossings at busy streets. Remove rails from 15th/Pettygrove intersection. Add a bikeway connection to 9th Ave at the east end via 11th and Overton. After implementation, remove sharrows from Overton west of 14th Ave.

Project Goal:

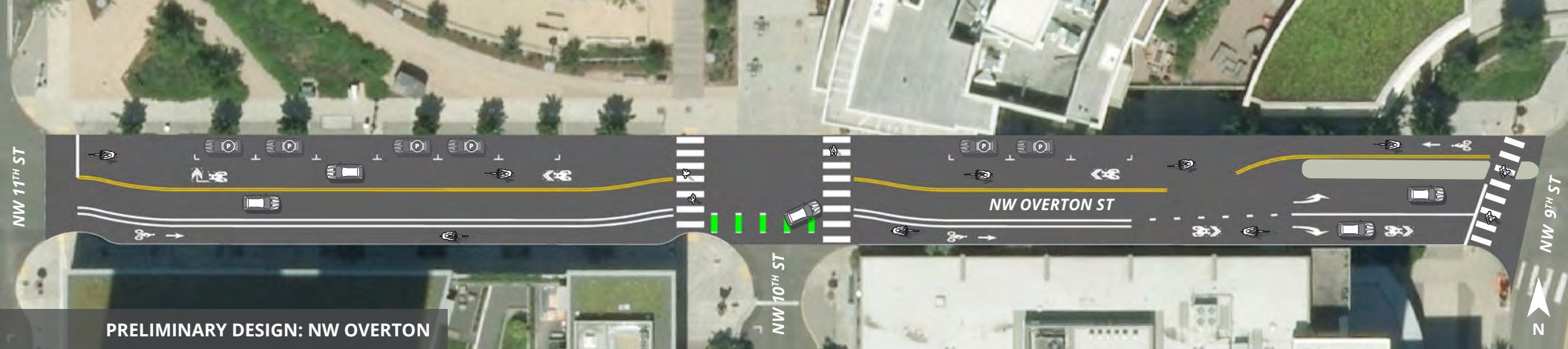
- Provide a low-stress walking and biking connection through NW Portland, connecting Wallace Park to NW Naito / NW 9th Ave.

Key Considerations:

- Diverters may increase traffic volumes on parallel streets.
- On-street parking removed from one side of Overton St.

	Enhanced crossing
	New and existing striped crosswalks
	Median refuge between bike and auto lane
	Permitted auto movements at intersection with restrictions
	New and existing diverters
	Area of potential future traffic diversion (if required)
	Contraflow bike lane (no auto traffic in this direction)
	Change stop signs direction
	Remove old rail tracks

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PRELIMINARY DESIGN: NW OVERTON

DESIGN CONCEPT DETAIL:

NW Overton | NW 9th to NW 11th

Overton St is meant to be a local access street, but it is also a major emergency response route and is one of the few ways to access Naito Pkwy from the west. This design concept preserves eastbound through traffic and provides a separated bike lane. In the westbound direction, a diverter would allow only bike access from 9th Ave, with a shared street environment west of the diverter. This concept preserves on-street parking on the north-side of Overton along Fields Park and the Encore frontage.

DESIGN CONCEPT DETAIL:

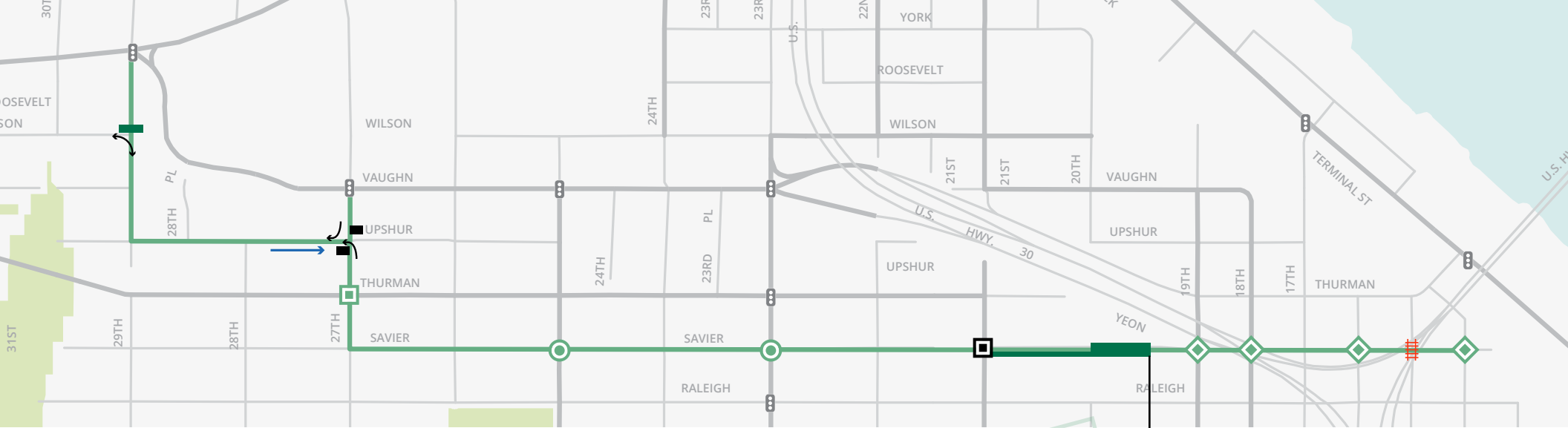
NW Pettygrove at NW 20th Ave

20th & Pettygrove is the intersection of two neighborhood greenways, both of which currently carry traffic volumes that exceed neighborhood greenway standards. A diagonal diverter at this location would preserve local access and on-street parking, but would prevent east-west and north-south motor vehicle travel through the intersection. The diverter would also provide a great opportunity for additional green space and place-making adjacent to a future city park planned for the property at the northwest corner of the intersection.

PRELIMINARY DIAGONAL TRAFFIC DIVERTER CONCEPT: NW 20TH AND NW PETTYGROVE



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NORTHWEST IN MOTION | 11



Stripe bikeway on existing half street
(see next page for concept design)

NG.4 NW Savier Neighborhood Greenway

Project Description

Add speed bumps and sharrows, turn stop signs, and install signage on NW Savier St from 14th to 27th, on NW 27th Ave from Savier to Vaughn, and a connection to NW Nicolai via NW Upshur and NW 29th Ave. Incorporate diverters or other circulation changes as needed to reduce traffic volumes to acceptable levels. Improve crossings at major streets. Remove rails from Savier/15th intersection. Consider converting one-way half-street sections to bike-only as an interim measure until streets are widened with redevelopment. After implementation, remove sharrows from Raleigh.

Project Goals:

- Create a low-stress walking and biking connection to Montgomery Park, taking advantage of an existing lower-volume streets.

Key Consideration:

- The interim two-way connection between NW 19th and NW 21st Ave may need to be replaced with a diverter if development occurs on the south side of NW Savier.

- ⊙ Enhanced crossing
- ◻ ◻ New and existing striped crosswalks
- ◊ Median refuge between bike and auto lane
- ↔ Permitted auto movements at intersection with restrictions
- ▬ ▬ New and existing diverters
- ⋯ Area of potential future traffic diversion (if required)
- ➔ Contraflow bike lane (no auto traffic in this direction)
- ⊙ ⊙ Change stop signs direction
- ⊘⊘ Remove old rail tracks

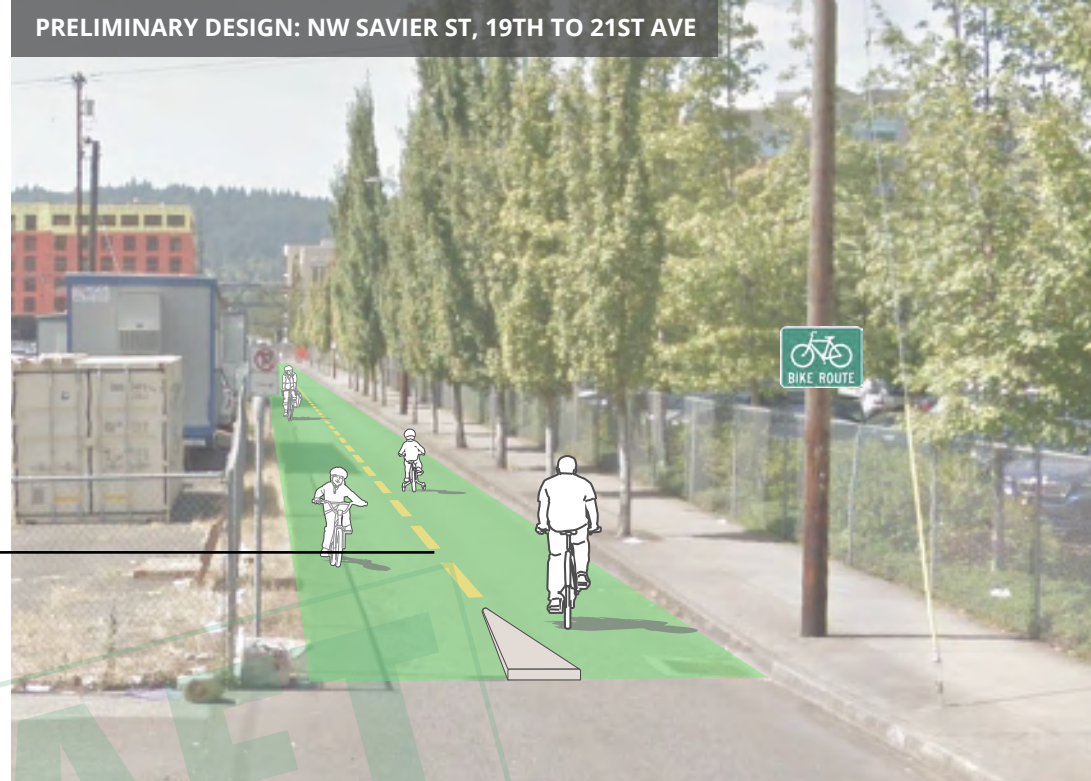
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DESIGN CONCEPT DETAIL:

NW Savier | 19th Ave to 20th Ave

A portion of NW Savier St from 19th to 21st has a limited public right-of-way that only contains a single westbound travel lane and a sidewalk on the north side. Where the rest of the street should be on the south side, the space is currently private property, mostly used for parking. As properties redevelop, they will be required to dedicate this space as public right-of-way and build the rest of the street and sidewalk, but the pace of development is slowing and it may be many years before all of Savier is dedicated and constructed. This design concept shows a potential "interim" design for the narrow section of Savier with no driveways between 19th and 20th, turning the single travel lane into a two-way bike path.

Two way cycle interim cycle track.

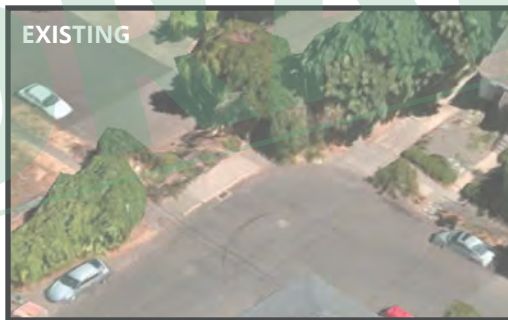


DESIGN CONCEPT DETAIL:

NW Wilson and NW 29th Ave

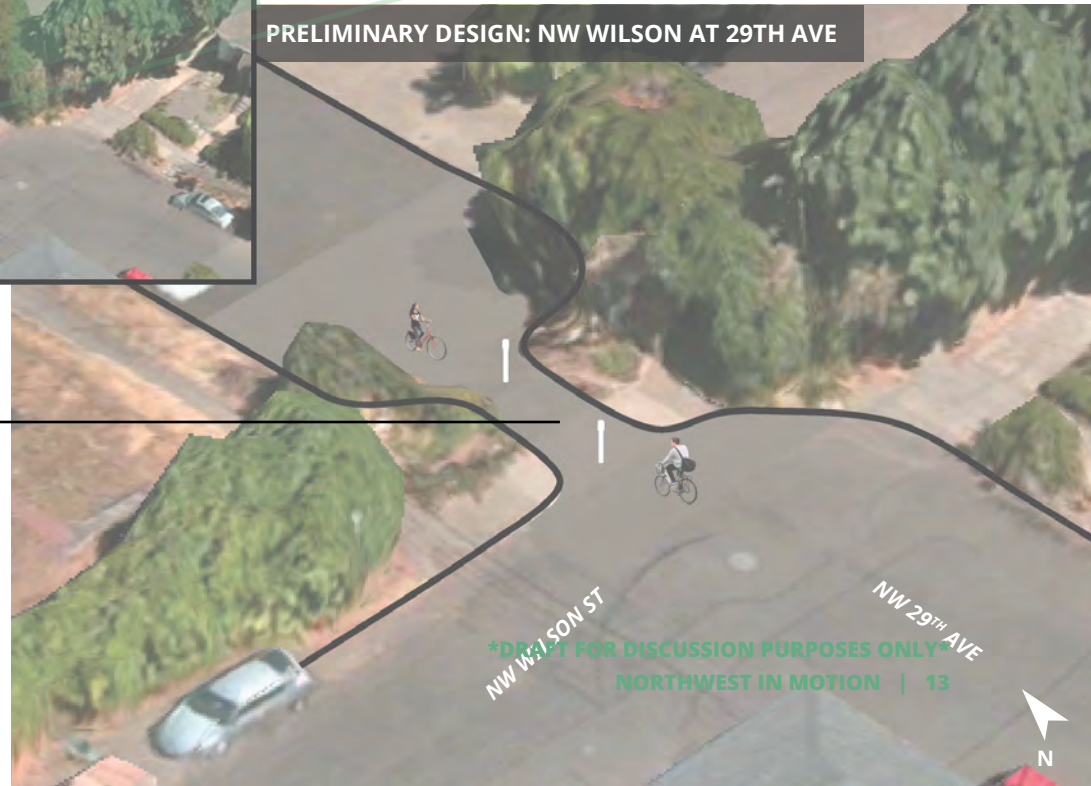
The existing diverter at Wilson & 29th is effective at eliminating cut-through traffic from Nicolai to Thurman, but the design is not ideal for bike travel. It has a single opening for bikes, off to one side, that is obscured by vegetation. This concept design shows an improved bicycle cut-through to make this an attractive route for bicyclists who want to travel between the residential and industrial areas of NW Portland.

EXISTING



PRELIMINARY DESIGN: NW WILSON AT 29TH AVE

Walking and biking connection through existing traffic diverter



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NORTHWEST IN MOTION | 13

NG.5

NW 24th Ave Neighborhood Greenway

Project Description








Add speed bumps, turn stop signs, and update signage on NW 24th Ave from Glisan to Vaughn. Incorporate diverters or other circulation changes as needed to reduce traffic volumes to acceptable levels. Mark crosswalks at Johnson and Thurman, and provide an enhanced crossing of Vaughn. Extend bikeway connection from Glisan to Flanders, including resurfacing if needed.

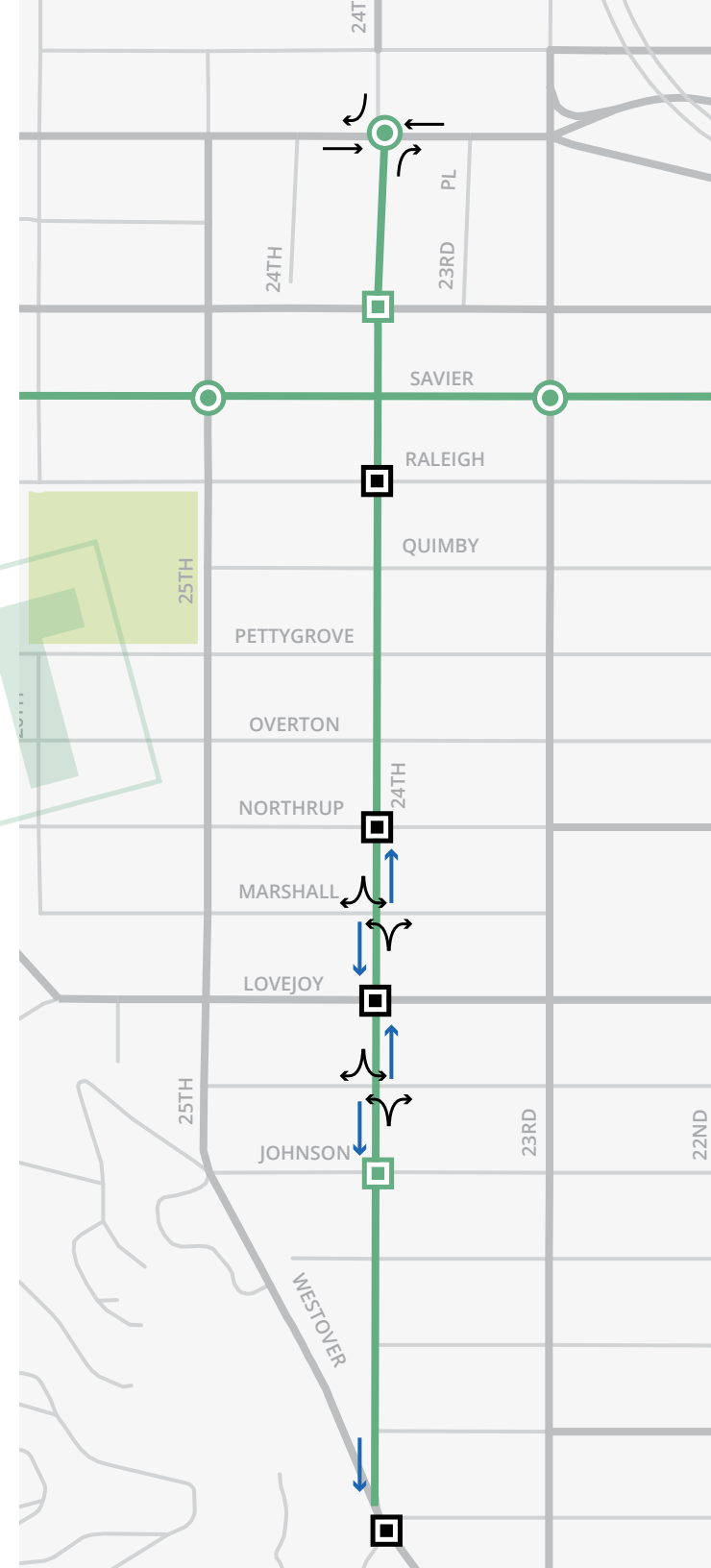
Project Goals:

- Upgrade an existing Neighborhood Greenway to meet traffic volume and speed guidelines.
- Provide a low-stress option for people accessing destinations on NW 23rd and NW 25th Ave.

Key Considerations:

- Traffic diverter and crossing improvement will redirect through traffic to NW 23rd and NW 25th Ave.
- Potential traffic pattern changes near NW Lovejoy will prevent cut-through traffic but will also require out of direction travel for local residents.

-  Enhanced crossing
-  Median refuge between bike and auto lane
-  Permitted auto movements at intersection with restrictions
-  New and existing diverters
-  Area of potential future traffic diversion (if required)
-  Contraflow bike lane (no auto traffic in this direction)
-  Change stop signs direction



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DESIGN CONCEPT DETAIL:**NW 24th Ave at NW Vaughn**

NW 24th Ave currently has traffic volumes that greatly exceed the recommended guidelines for a neighborhood greenway, especially peak hour traffic in the section near Vaughn heading to Hwy 30 and I-405. This design concept would address this traffic issue by restricting turns at Vaughn using a median island that would also function as an enhanced crossing for people walking and bicycling across Vaughn. The offset intersection provides an opportunity to provide a straight two-way bike crossing, while requiring automobiles to turn right from 24th to Vaughn. Nearby traffic signals at 23rd and 25th would provide access to/from Vaughn for car and truck drivers who want access in the other direction.

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NORTHWEST IN MOTION | 15



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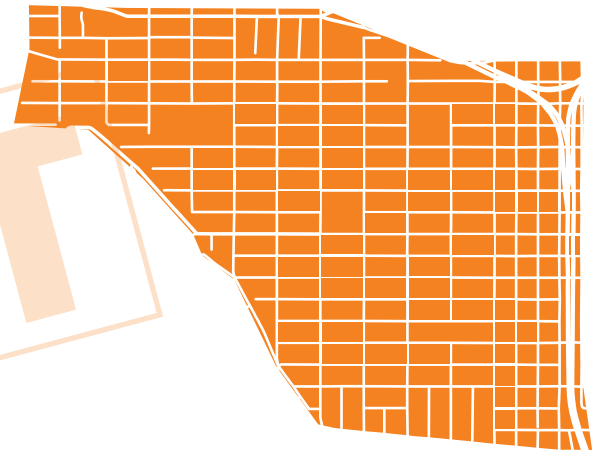
TIER 1 PROJECTS

Transit Improvements

Transit service, including bus and streetcar, is essential to providing NW residents and employees travel options other than driving.

However, transit service often experiences heavy delay due to overall traffic congestion, which impacts schedule reliability and makes it a less attractive option. Access to transit can also be a challenge, with not enough crossings at bus stops and sometimes a lack of space and amenities at the stops themselves. Additionally, buses and bikes can come into conflict when they share a roadway.

Transit Improvements are mainly focused on addressing the worst delay issues along bus lines and reducing conflicts with other modes, but also include some targeted access to transit improvements and stop improvements.



KEY DESIGN ELEMENTS

While PBOT does not operate TriMet buses, it can still play a major role in improving transit access and reliability by making small, but high impact changes to the streets where transit operates.

Transit Islands

Transit islands help improve bus reliability by allowing them to load and unload passengers without having to leave the travel lane. They also allow for more space on sidewalks at stations and can reduce conflicts with bicyclists.

Stop Optimization

Relocating a bus stop to the far side of an intersection or consolidating stops that are too close can greatly improve transit service.

Enhanced Crossings

Based on recommendations in PedPDX, Portland's Pedestrian Master Plan, NWIM projects will make it easier to access the bus by improving crossings at or near transit stops.

TI.1

NW 21st Ave

Project Description

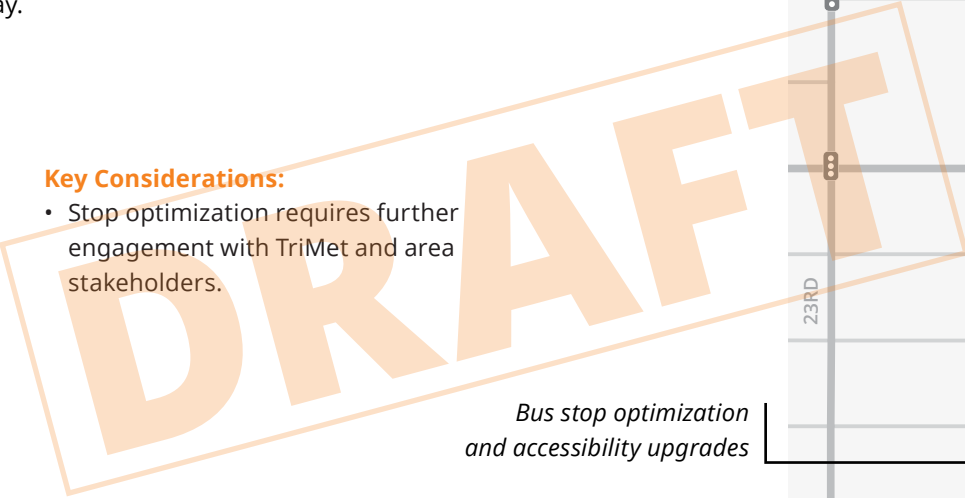
Upgrade signal at Thurman/23rd with a protected left turn to reduce transit delay. Mark crosswalks at Pettygrove. Optimize bus stops from Irving to Glisan to improve accessibility and reduce transit delay. Modify Everett/21st signal to provide a lagging left-turn signal to reduce delay.

Project Goals:

- Improve transit access and reliability on a busy commercial corridor, NW 21st Ave.

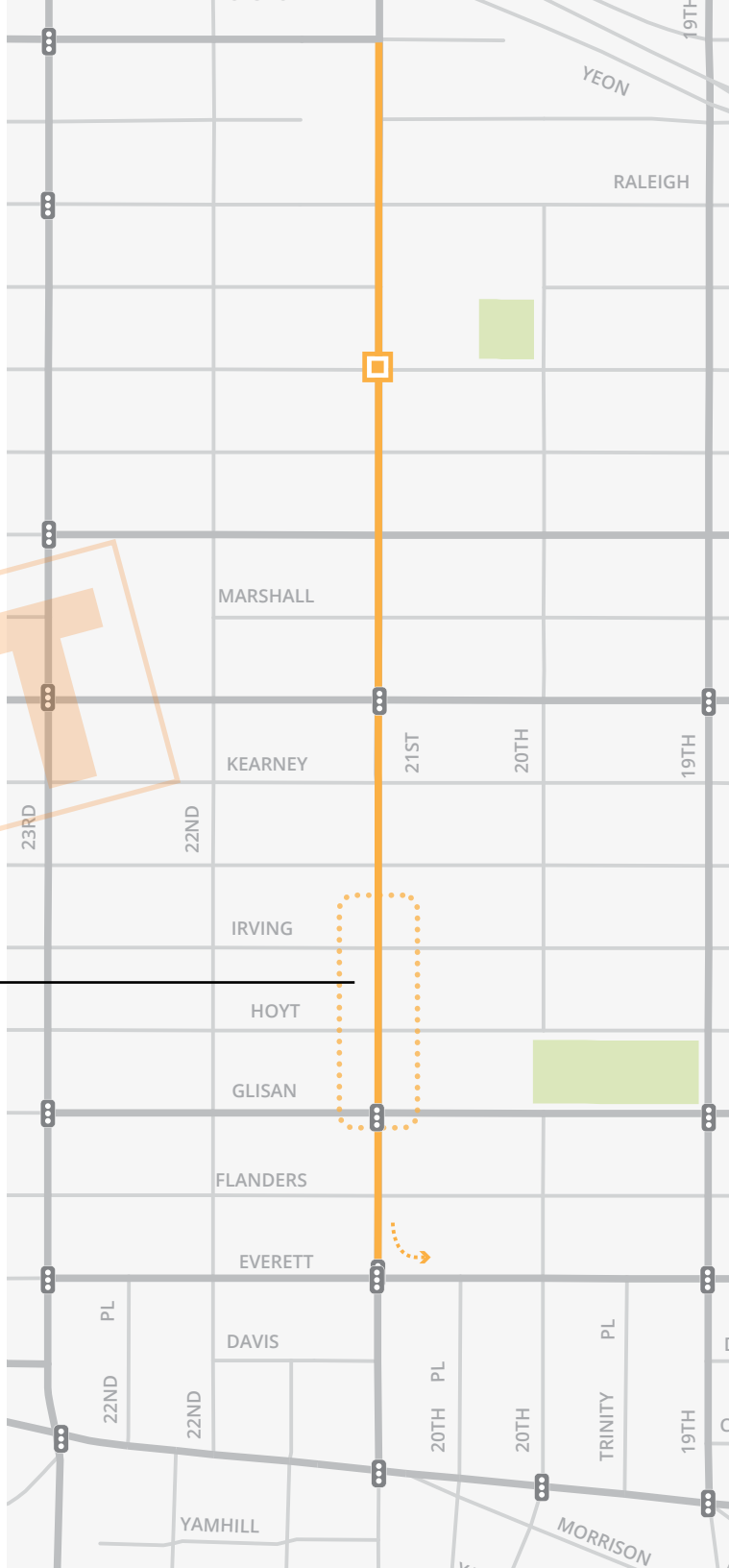
Key Considerations:

- Stop optimization requires further engagement with TriMet and area stakeholders.



Bus stop optimization and accessibility upgrades

	New striped crosswalks
	New signal or signal upgrades
	New protected left at signal



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DESIGN CONCEPT DETAIL:**Curb Extension Bus Stop**

The Line 77 bus stops at 21st & Glisan and 21st & Irving have been raised by community members as issues because they provides the access to destinations yet lack accessible boarding areas. A curb extension bus stop can be a good solution as it offers the most efficient use of the curb zone by reducing the amount of on-street parking loss, providing a wider space for passenger loading and bus stop amenities. This design also eliminates the need for the bus to pull in and out of traffic. Improving one bus stop while removing the other may be more cost-effective solution, since they are very close together. Further collaboration with TriMet and stakeholder outreach is required before a final recommendation can be offered.

**DESIGN CONCEPT DETAIL:****NW 21st Ave at NW Everett St**

TriMet data analysis shows a high amount of delay for the Line 77 bus turning left from 21st Ave southbound to Everett St eastbound. Because this is a permissive left turn at a traffic signal, bus drivers must yield to oncoming traffic on 21st Ave and have a difficult time finding a gap to make the turn. This issue could be solved using a “protected-permissive” signal that would provide a protected left turn after a period of time if there are cars or buses still waiting to make the turn. This is an especially good solution where a two-lane street intersects with a one-lane street, since there are no left turns in the opposite direction. Another advantage of this design is that it does not require removal of on-street parking to install turn pockets. This type of signal can be found elsewhere in NW Portland, for example at 23rd/Everett and at 23rd/Raleigh.

LAGGING LEFT TURN SIGNAL

TI.2

NW 18th Ave & NW 19th Ave

Project Description

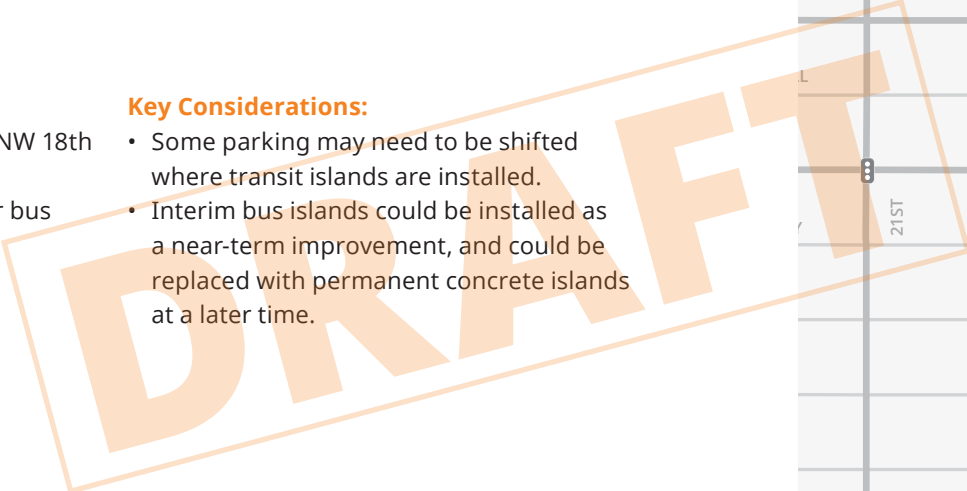
Install transit islands at 18th/Marshall, 19th/Marshall, 18th/Flanders, and 19th/Flanders to reduce bus/bike conflicts. At other stops, establish bus zones to provide accessible transit boarding areas. Install marked pedestrian crosswalks at all bus stops. Upgrade signal at Thurman/23rd with a protected left turn to reduce transit delay.

Project Goals:

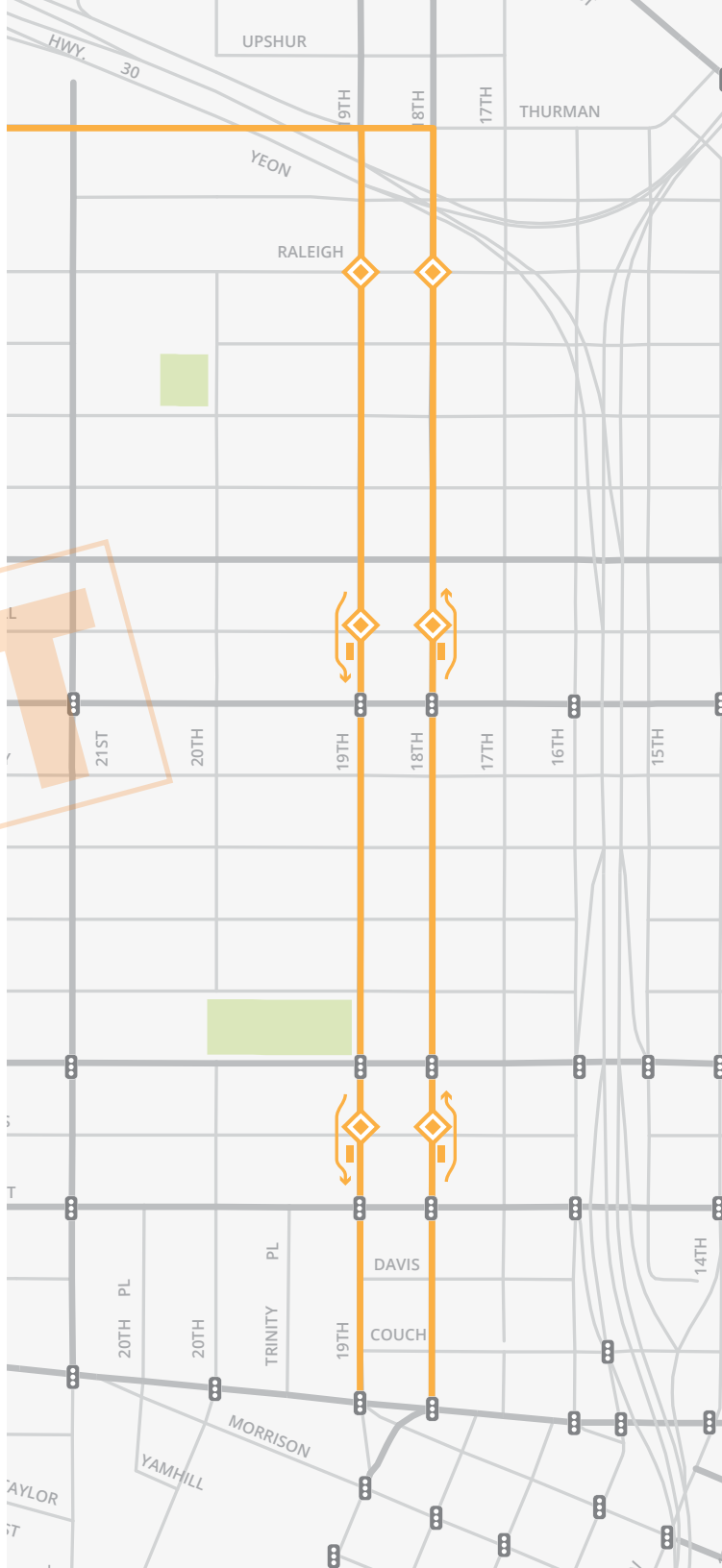
- Minimize bus and bike conflicts on NW 18th and 19th Ave (Line 24).
- Improve bus service by allowing for bus boarding in the travel lane.

Key Considerations:

- Some parking may need to be shifted where transit islands are installed.
- Interim bus islands could be installed as a near-term improvement, and could be replaced with permanent concrete islands at a later time.



	Median refuge between bike and auto lane
	Bike lane behind bus platform



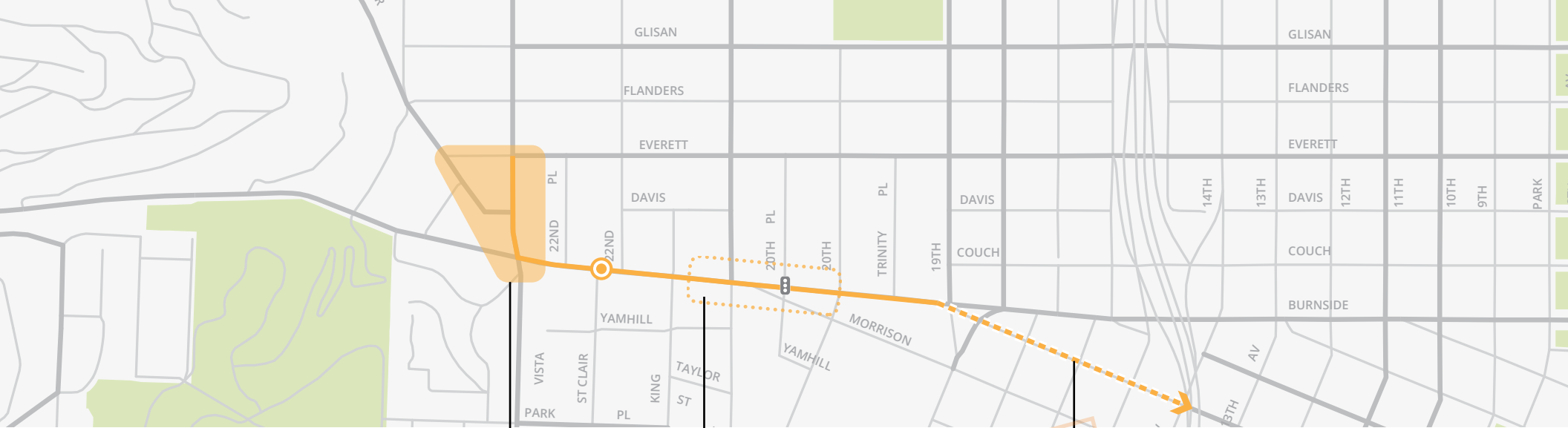
DESIGN CONCEPT DETAIL:

Bus Behind Transit Platform

TriMet recently extended the Line 24 bus from NE Portland across the Fremont Bridge and down the 18th and 19th Ave couplet to Providence Park. While this new bus line provides a great new transit connection for people traveling to and from NW Portland, the combination of curb-side bus stops and bike lanes result in bus/bike conflicts and transit delay, as buses have to cross over the bike lane twice whenever serving a stop. To address this issue, this design concept shows floating transit islands with the bike lane shifting to curb-side temporarily to go around the island. In this design, the bus would stop in the travel lane, which is preferred because it reduces the transit delay associated with pulling in and out of traffic and across bike lanes. There would be no conflict between bikes and buses at these stops, and the transit islands will also provide pedestrians with a refuge that shortens the crossing distance and improves visibility.

PRELIMINARY DESIGN: BIKES BEHIND TRANSIT ISLANDS







Traffic pattern changes to improve transit priority

Bus stop optimization and stop improvements

Potential route shift for TriMet Line 15

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-  Enhanced crossing
-  New signal or signal upgrades

TI.3 W Burnside St

Project Description

Adjust circulation patterns at 23rd/Burnside to prevent Westover traffic from blocking bus movement. Adjust stop locations on Burnside to reduce transit delays and move shelters out of the pedestrian through zone where feasible. Consider shifting eastbound Line 15 route from Salmon to Alder through downtown to improve transit travel time and reliability.

Project Goals:

- Improve transit reliability by addressing a congested bottleneck at NW 23rd and Burnside.
- Improve the pedestrian experience for people walking along NW 23rd Ave at Westover Rd.

Key Considerations:

- Traffic pattern changes near NW Westover and NW Everett will require some people driving to take a slightly different route to access Burnside.
- Further discussion about a Line 15 route shift would be subject to additional public involvement and analysis in partnership with TriMet.

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DESIGN CONCEPT DETAIL:

NW Westover & NW Everett Circulation




TriMet data analysis shows a high amount of delay for the Line 15 bus southbound on 23rd Ave approaching Westover and Burnside, especially in the morning peak hours. Much of this delay is due to significant traffic on Westover Rd in the morning that fills up the left turn lanes from 23rd to Burnside. Because Westover is stop-controlled, this flow of traffic arrives randomly and negatively impacts transit reliability.

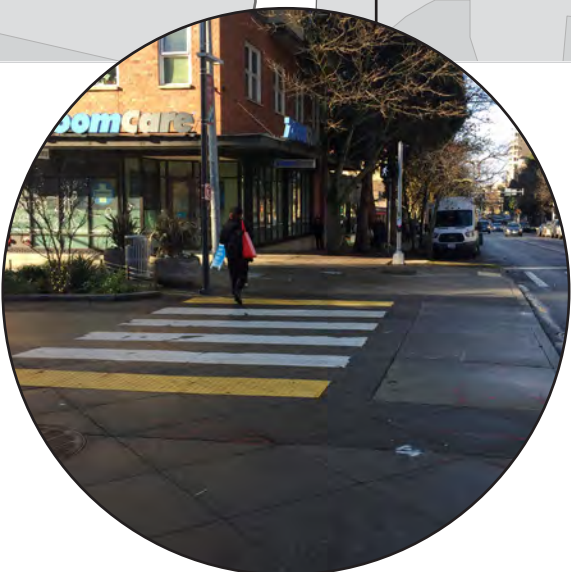
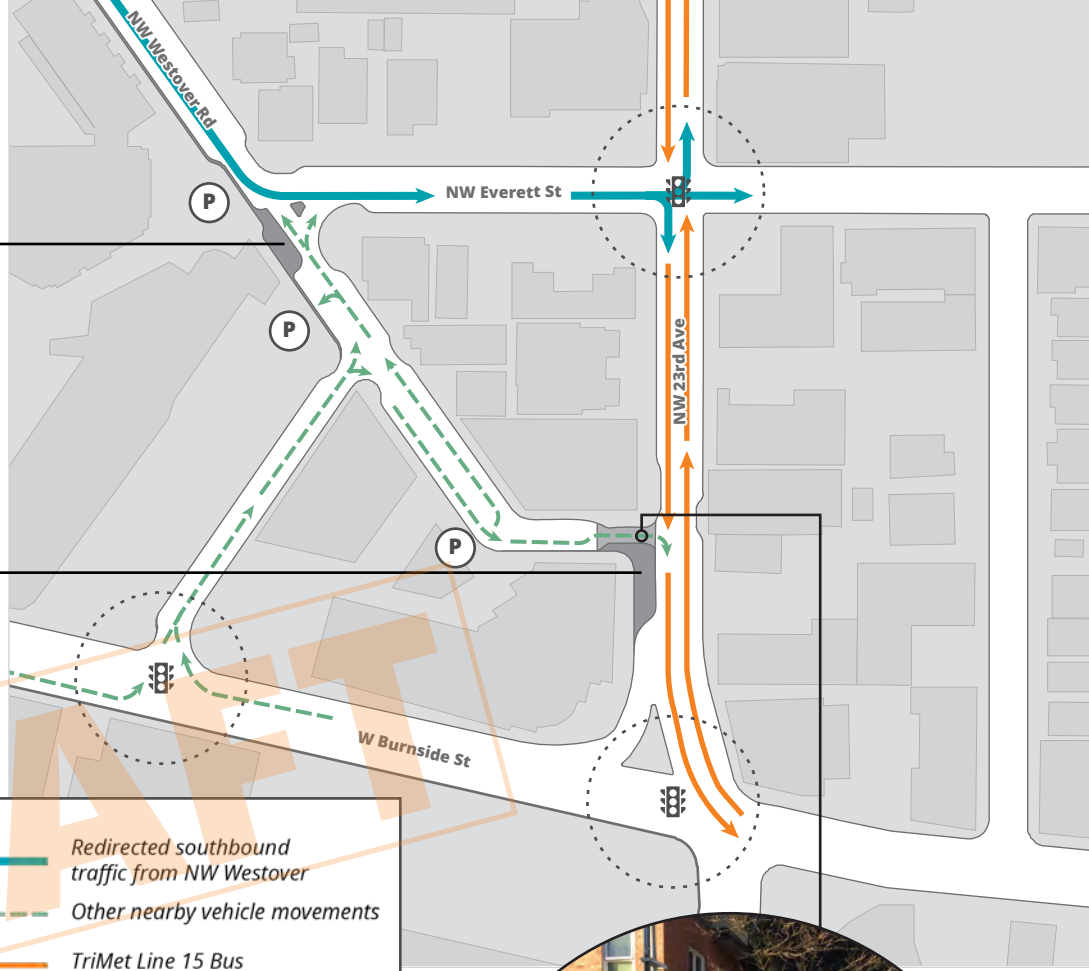
This design concept addresses these issues by directing southbound traffic on Westover to turn onto Everett eastbound to access 23rd Ave. The traffic signal at Everett will meter the traffic so that 23rd Ave traffic, including the Line 15 bus, have an easier time accessing the turn pocket onto Burnside. The segment of Westover Rd from Everett to 23rd would remain open for local access to/from the shopping center, on-street parking would be preserved, and Westover at Everett would remain open for northbound traffic from Burnside.

The design of the 23rd/Westover intersection lacks adequate sightlines, causing drivers to roll through the stop sign and block the pedestrian crosswalk while waiting to turn. This significantly degrades the pedestrian environment along this otherwise pedestrian-oriented main street. A curb extension paired with a raised intersection at the southwest leg of 23rd/Westover would improve the pedestrian crossing and reduce the issue of drivers ignoring the stop sign.

Sidewalk extension redirects southeast bound vehicles on NW Westover to the signalized intersection of Everett & Burnside

Curb extension and raised intersection at NW Westover and Burnside allows for a continuous pedestrian experience, while still allowing local vehicle access

- Redirected southbound traffic from NW Westover
- - - Other nearby vehicle movements
- TriMet Line 15 Bus
-  New concrete islands or curb extensions
-  Existing signalized intersection
-  Parking lot or garage





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TIER 1 PROJECTS

Corridor Safety Improvements

Busy traffic streets are the places where crossing improvements and other roadway improvement projects can have the biggest benefit for the safety and comfort of people walking, biking, or accessing transit.

Corridor Safety is mainly focused on providing safe crossings of busy streets at regular intervals, but also includes improvements such as traffic calming, signal upgrades, pavement reconstruction, and bike lane enhancements.



KEY DESIGN ELEMENTS

Corridor Safety Improvement Projects are located on Northwest Portland's busiest streets. While these streets carry higher volumes of vehicles, these projects use design tools to address conflicts between roadway users.

Enhanced Crossings

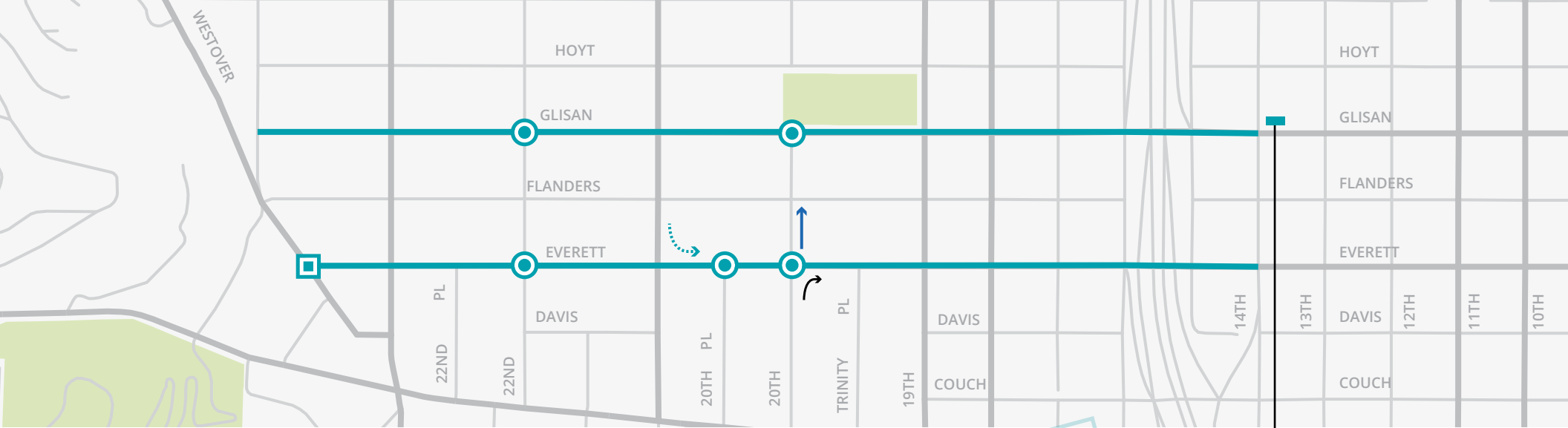
These design elements help shorten the crossing distance or allow people walking to only have to navigate one lane of traffic at a time.

Curb Extensions

Curb extensions help improve the visibility of people walking and can help improve yielding compliance by people driving.

Signal Improvements

Unsignalized left turns on busy streets pose a major safety risk and can increase congestion. Separate signal phases can help reduce these potentially deadly conflicts.



Curb extension with improved bus stop to facilitate boarding and slow right turns.

CS.1

NW Glisan St & NW Everett St

DRAFT

Project Description

Construct enhanced crossings at Everett & 20th Ave, Everett & 22nd Ave, Glisan & 20th Ave, and Glisan & 22nd Ave. Construct curb extensions at Everett & 20th Place half-signal to shorten crossing distance and improve pedestrian visibility. Install a diverter on 20th Ave just north of Everett to prevent northbound traffic on neighborhood greenway. At Everett & Westover, mark crosswalks on east leg. Improve safety at existing signals. Improve safety of existing bike lanes, and extend them where feasible. Improve accessibility of bus stops.

Project Goals:

- Address safety concerns by upgrading and establishing new pedestrian crossings on two busy corridors.

Key Considerations:

- Contraflow bike lane proposal at NW 20th and NW Everett is a new design for Portland, inspired by successful implementation in other major US cities.

	Enhanced crossing
	New and existing striped crosswalks
	New signal or signal upgrades
	Permitted auto movements at intersection with restrictions
	New protected left at signal
	Contraflow bike lane (no auto traffic in this direction)

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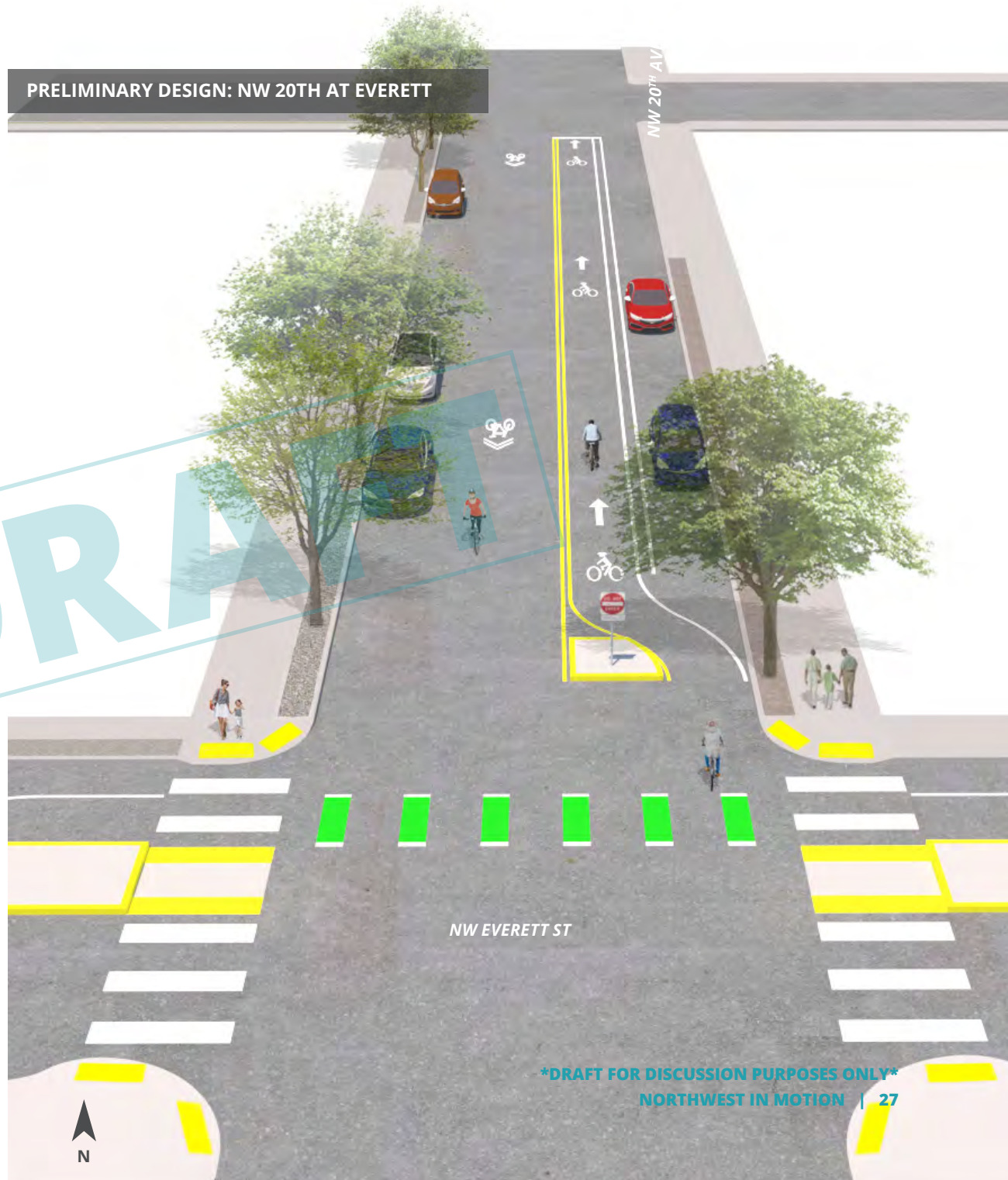
DESIGN CONCEPT DETAIL:

NW Everett at NW 20th Ave

As a pedestrian, crossing Everett and Glisan at unsignalized intersections can feel stressful and unsafe, with drivers often failing to yield to pedestrians while traveling along these streets or turning onto them from side streets. Curb extensions and median crossing islands can be used to shorten crossing distances and improve visibility of pedestrians, improving driver yielding behavior. This design concept shows curb extensions and median islands at the 20th/Everett intersection, as well as a potential reconfiguration of 20th Ave north of Everett to reduce cut-through traffic on the 20th Ave Neighborhood Greenway.

PRELIMINARY DESIGN: NW 20TH AT EVERETT

DRAFT



CS.2

NW 23rd Ave

Project Description

Full pavement reconstruction from Lovejoy to Vaughn (including concrete bus pads), curb extensions with marked crosswalks at Marshall, Overton, Quimby, Pettygrove, and Savier, and a signal rebuild at Thurman. Address sidewalk accessibility issue at Raleigh signal. Adjust location of Thurman/23rd bus shelter to move it out of the pedestrian through zone. Upgrade signal and add protected left turns from 23rd to Thurman to address transit delay and improve safety.

Project Goals:

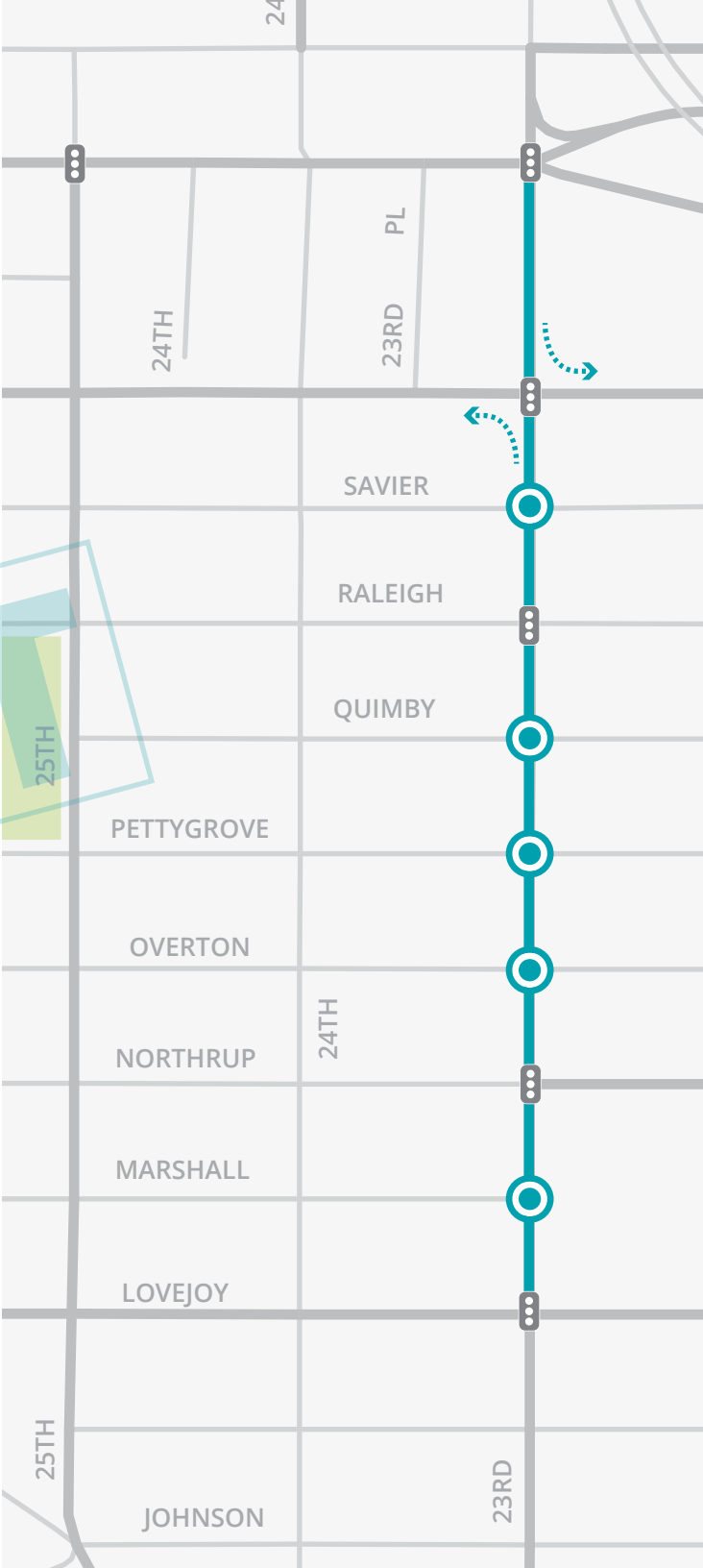
- Improve the pedestrian realm by upgrading and providing new curb extensions throughout the corridor.

Key Considerations:

- Some on-street parking spaces might be impacted to provide space for new crossing improvements.



	Enhanced crossing
	New signal or signal upgrades
	Permitted auto movements at intersection with restrictions
	New protected left at signal



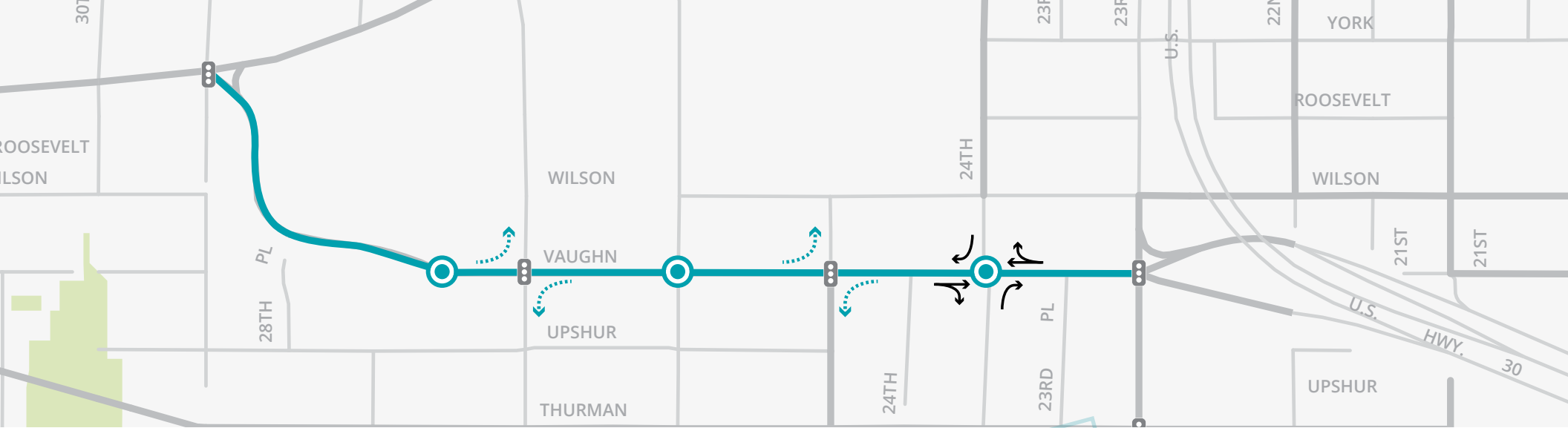
DESIGN CONCEPT DETAIL:**NW 23rd Ave Curb Extensions**

NW 23rd Ave is a busy main street, with high levels of pedestrian activity. However, traffic volumes are also very high and can lead to many conflicts between motor vehicles and pedestrians. In this kind of environment, curb extensions and crosswalks are a great tool for prioritizing the pedestrian and letting drivers know to be careful. 23rd Ave already has many curb extensions and marked crosswalks, and this design concept shows a continuation of that trend, adding more curb extensions to further improve the pedestrian experience. Full reconstruction of the roadway is also a high priority, given the very poor pavement quality, and ideally both the safety and maintenance improvements would occur as part of one project to limit construction impacts and gain economies of scale.

**DESIGN CONCEPT DETAIL:****NW 23rd Ave at NW Marshall St**

At “T” intersections, there is an opportunity to provide longer curb extensions with more greenery along the length of the intersection. This prioritizes pedestrians, provides a nicer place to be, and lowers traffic speeds by narrowing the roadway temporarily. 23rd & Marshall is one example in NW Portland where this kind of design treatment could be deployed.

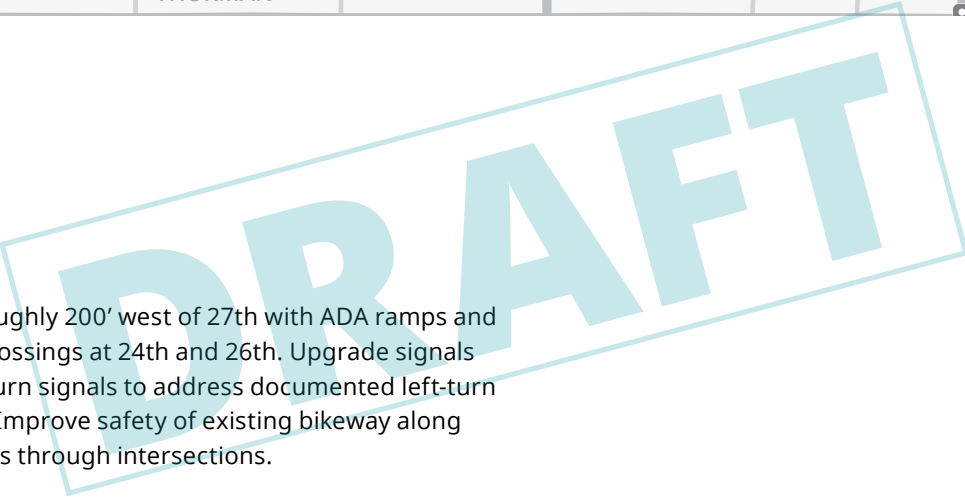
WIDE CURB EXTENSION AT T-INTERSECTION



CS.3 NW Vaughn St

Project Description

Improve existing school crosswalk roughly 200' west of 27th with ADA ramps and a median island. Provide enhanced crossings at 24th and 26th. Upgrade signals at 25th and 27th with protected left turn signals to address documented left-turn vehicle conflict with oncoming bikes. Improve safety of existing bikeway along Vaughn by providing conflict markings through intersections.



Project Goals:

- Reduce delay and improve safety at major intersections by providing a protected left-turn signal phase.
- Improve the safety and comfort of people crossing at minor

intersections.

Key Considerations:

- Restricted movements at NW 24th Ave may require people driving to use the nearest signal instead.

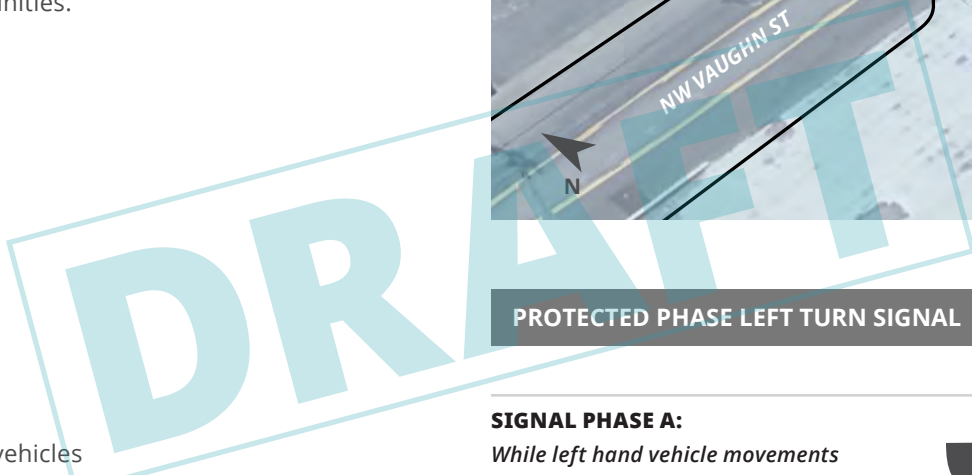
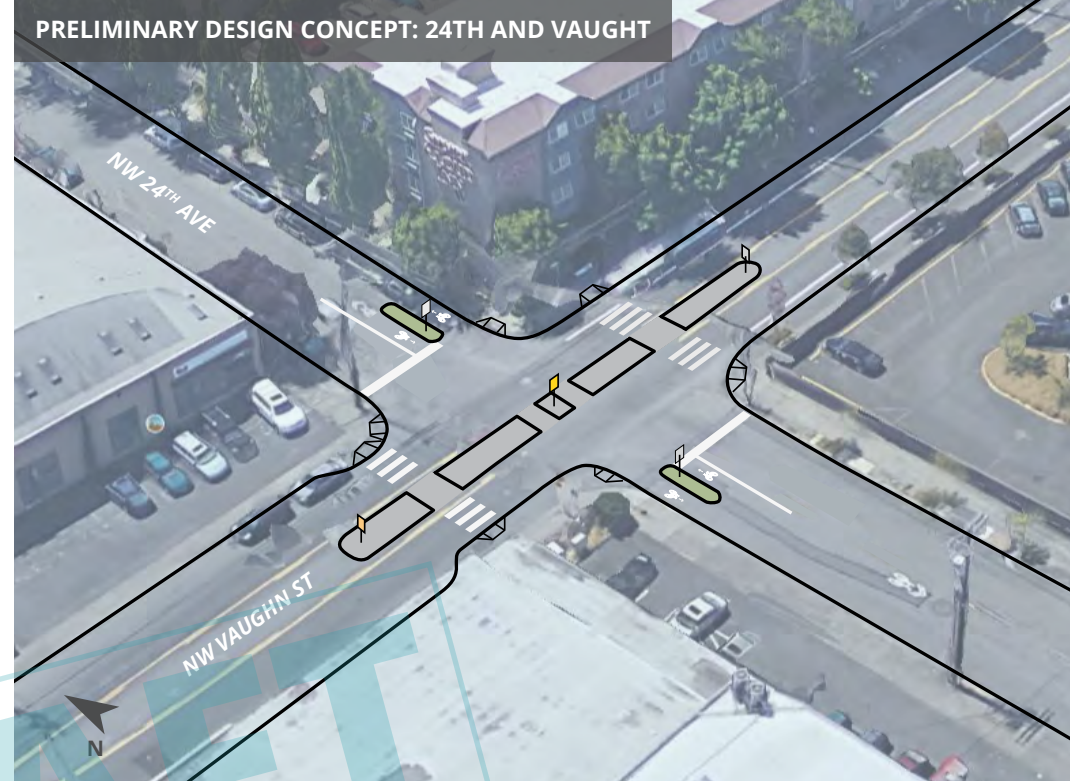
	Enhanced crossing
	New and existing striped crosswalks
	New signal or signal upgrades
	Permitted auto movements at intersection with restrictions
	New protected left at signal

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DESIGN CONCEPT DETAIL:

NW Vaughn St at NW 24th Ave

A combination median island and traffic diverter across NW Vaughn St provides a range of benefits for multiple roadway users. For people walking or biking, the median island shortens the crossing distance and allows them to only have to navigate one travel lane at time. For people driving, they are redirected to nearby signalized intersections which provide safer left turn opportunities.



DESIGN CONCEPT DETAIL:

Protected Left Turn Signal Phase

By adding a protected signal phase, vehicles turning left are given a dedicated time to make the otherwise difficult left turn. The signal phase would be coordinated with the pedestrian walk signal to eliminate 'permissive' left turns and reduce/eliminate conflicts between people walking and people driving.

PROTECTED PHASE LEFT TURN SIGNAL

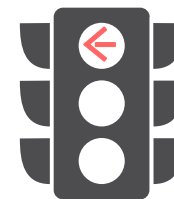
SIGNAL PHASE A:

While left hand vehicle movements are permitted, pedestrians are not permitted to cross the street.



SIGNAL PHASE B:

While the pedestrian crossing phase is activated, vehicles are prohibited from turning left.



CS.4

NW 25th Ave / Westover

Project Description

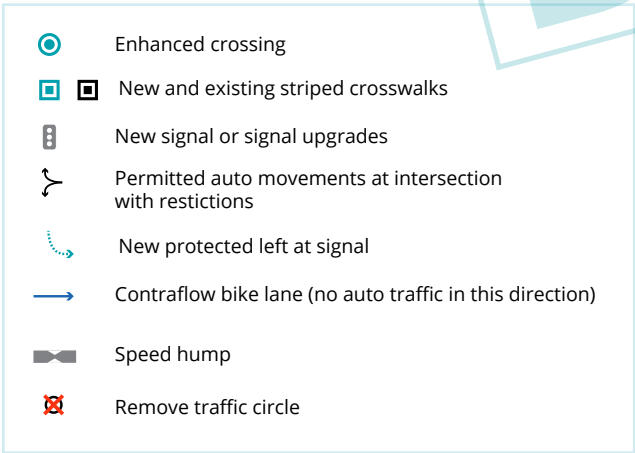
Add speed bumps and enhanced crossings from Everett to Johnson, and mark crosswalks at Westover/Johnson/25th. Add fire-friendly speed cushions on 25th Ave from Lovejoy to Vaughn if needed to address speeding issues. Remove traffic circles at Marshall, Overton, and Quimby to reduce conflicts and enhance visibility for pedestrians, and replace with enhanced crossings. Mark crosswalks at the Lovejoy 4-way stop, add enhanced crossing at Northrup, add missing crosswalk at Pettygrove, and add enhanced crossing at Savier.

Project Goals:

- Eliminate conflicts between different roadway users and improve visibility for people crossing NW 25th Ave. Reduce traffic speeds along NW 25th Ave to make it easier for people of all ages and abilities to cross the street.

Key Considerations:

- Requires existing traffic circles to be removed at multiple intersections.
- Median islands will require have a small impact on on-street parking, and may present challenges for larger vehicles while turning.



- Enhanced crossing
- New and existing striped crosswalks
- New signal or signal upgrades
- Permitted auto movements at intersection with restrictions
- New protected left at signal
- Contraflow bike lane (no auto traffic in this direction)
- Speed hump
- Remove traffic circle



DESIGN CONCEPT DETAIL:

NW 25th Ave | Lovejoy to Thurman

NW 25th Ave carries high volumes of car traffic, especially during peak commute hours. This can lead to conflicts between traffic and pedestrians, as people cross 25th Ave to access Wallace Park, Pettygrove Elementary, and the surrounding residential area. The traffic circles installed many years ago do lower speeds somewhat, but they also limit the visibility of pedestrians trying to cross 25th, and cause encroachment of cars into the adjacent crosswalks. They are also difficult to properly maintain over time. This design concept would remove these poorly-functioning traffic circles in favor of a series of crossing improvements, including median islands at most intersections. By adding median islands, we would expect to retain the positive aspects of traffic circles (reducing traffic speeds), while providing safer pedestrian crossings across and along the corridor. Fire-friendly speed cushions could also be installed if needed to further reduce traffic speeds.

Curb extensions shorten the distance for people crossing NW 25th Ave.

Median islands allow a refuge for people crossing; allowing them to negotiate one direction of traffic at a time.

Removal of existing traffic circles is proposed to improve pedestrian visibility.



