LLOYD TO WOODLAWN
NEIGHBORHOOD GREENWAY

DESIGN CONCEPT SKETCHBOOK AND INITIAL ROUTE ANALYSIS

PBOT
PORTLAND BUREAU OF TRANSPORTATION

JUNE 2018

In Spring of 2016, City Council asked PBOT to identify the route and design of an important, new neighborhood greenway in Northeast Portland.

This request was built on the recommendations of the 2010 *Portland Bicycle Plan for 2030*, which identified both NE 7th and NE 9th as potential neighborhood greenway streets.

Neighborhood greenways are family-friendly streets that are designed to be calm, safe, great places to walk, ride, live, and be. The best routes connect schools, parks, community destinations and run adjacent to commercial main streets

In addition to serving the residential neighborhoods it passes through, the new neighborhood greenway has the potential to serve as an alternative route to Martin Luther King Jr Blvd, a street on our citywide high crash network for people walking and bicycling.

This Design Concept Sketchbook identifies the potential locations and details of design elements for each of our alignment streets. These designs range from minor enhancements to support safer street crossings, to diverters which change how we use our neighborhood streets.

The Initial Route Analysis section evaluates our routes on the key factors related to picking the referred alignment for a neighborhood greenway street.

We look forward to community discussions about these design concepts, and appreciate community guidance as we create Portland's next great neighborhood greenway.

Rendering: Jake Marshall, ASLA

Neighborhood greenways are **family-friendly streets** that are designed to be **calm, safe, great places** to **walk, ride, live, and be.**

Design Concept Sketchbook and Initial Route Analysis

LLOYD TO WOODLAWN
NEIGHBORHOOD GREENWAY

Project Overview

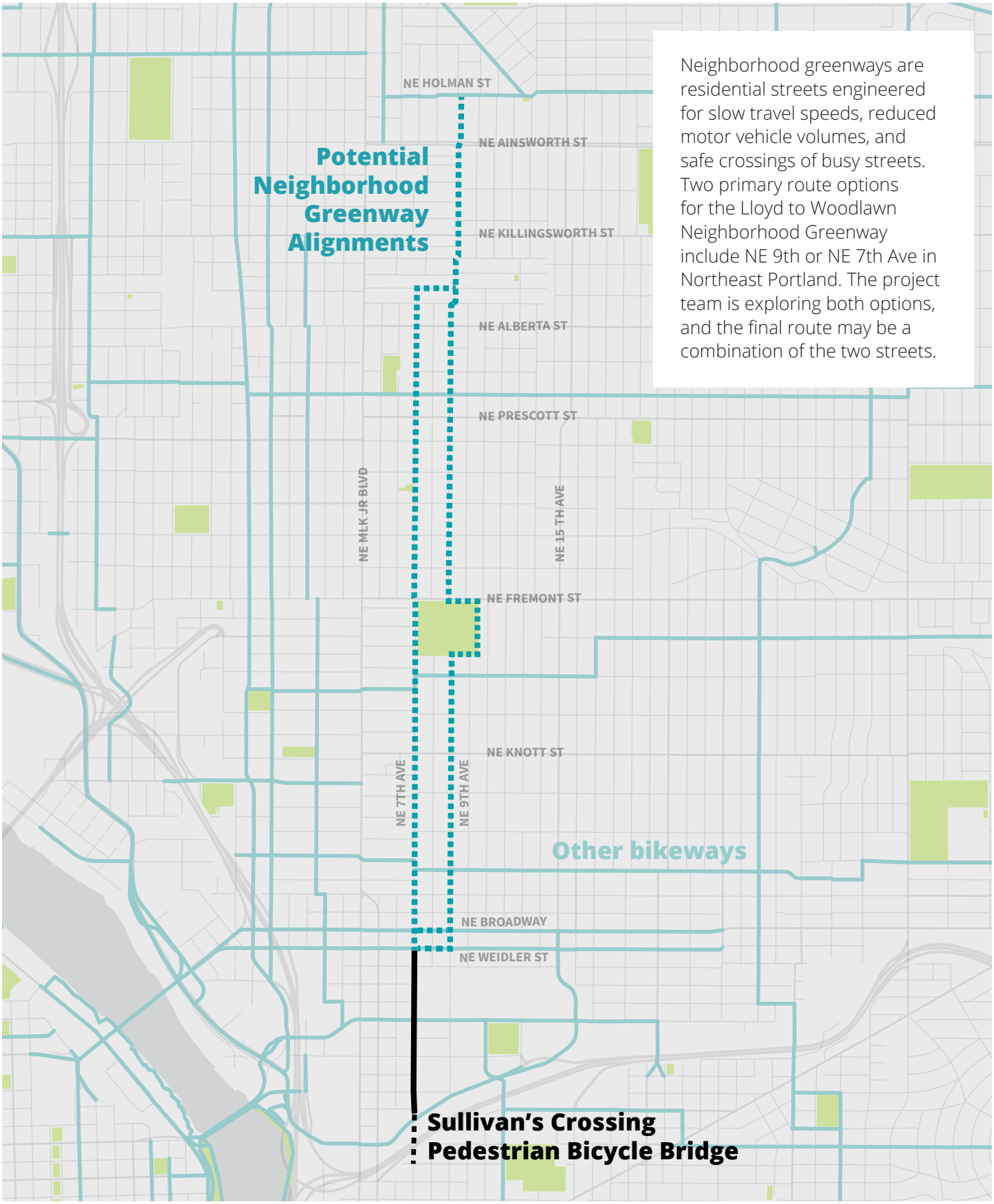
LLOYD TO WOODLAWN NEIGHBORHOOD GREENWAY

The Lloyd to Woodlawn Neighborhood Greenway Project will expand our citywide low-stress walking and bicycling network in Northeast Portland by creating a safe and pleasant place to walk or bike to employment centers, neighborhood destinations, schools, and nearby parks.

PBOT plans to fill a gap in our citywide Neighborhood Greenway network by improving safety and comfort for people walking and bicycling in NE neighborhoods, and providing a safe option for people accessing Martin Luther King Jr Blvd.

Project Overview

LLOYD TO WOODLAWN NEIGHBORHOOD GREENWAY



Neighborhood greenways are residential streets engineered for slow travel speeds, reduced motor vehicle volumes, and safe crossings of busy streets. Two primary route options for the Lloyd to Woodlawn Neighborhood Greenway include NE 9th or NE 7th Ave in Northeast Portland. The project team is exploring both options, and the final route may be a combination of the two streets.

What we've heard

MARCH 2018 OPEN HOUSE

LISTENING AND LEARNING OPEN HOUSE | FEB 2018

In February and March 2018, PBOT held an in-person and Online open house focused on listening and learning from the community about the Lloyd to Woodlawn Neighborhood Greenway project. The events had 361 participants, leaving 256 map-based comments and 322 complete surveys.

During these events, PBOT staff shared the ideas under consideration, heard about safety concerns in the area, and better understood community opinion on our route options. Review the March open house materials and the Listening and Learning Open House Summary Report at the project website.

After the open house events, PBOT staff met and spoke with businesses along the corridor to introduce them to the project and understand business access needs realted to their sites.

Feedback from community engagement centered on the following themes:

Many community members want PBOT to further explore design options on NE 7th.
People cited the ability to provide direct connections to destinations, proximity to Martin Luther King Jr. Blvd, and the opportunity to calm traffic on an important safe routes to school connection.

Businesses are concerned about changes which impact direct access to their property.
Traffic diverters are often located at the intersection of collector and arterial streets, where businesses are also located. PBOT engineers have identified an alternative approach to diversion which locates diverters internal to neighborhoods to minimize business access impacts.

There are concerns about whether Martin Luther King Jr Blvd and other arterial streets can handle the relocated traffic associated with the NE 7th option.
Early engineering assessment suggests that outside of rush hour, traffic can be easily accommodated on adjacent arterial streets. Engineers are exploring strategies and enhancements to support the relocated traffic during peak demand periods.

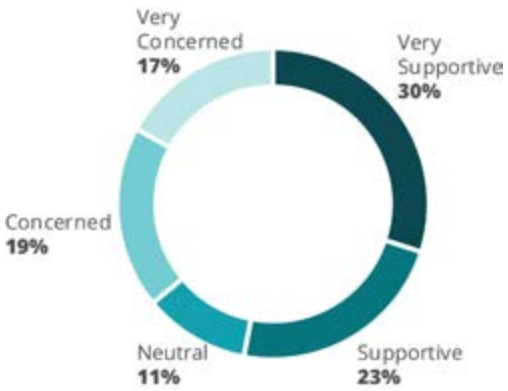
Neighbors are concerned about spillover effects of traffic patterns changes as a result of a NE 7th option.
PBOT takes concerns of spillover traffic seriously. The specific designs and locations for traffic pattern changes are selected to redirect traffic to appropriate arterial and collector streets, and to minimize any direct spillover into the neighborhood. PBOT is committed to a robust pre- and post- data collection and analysis effort to identify any undesirable traffic pattern changes resulting from this project.

What we've heard

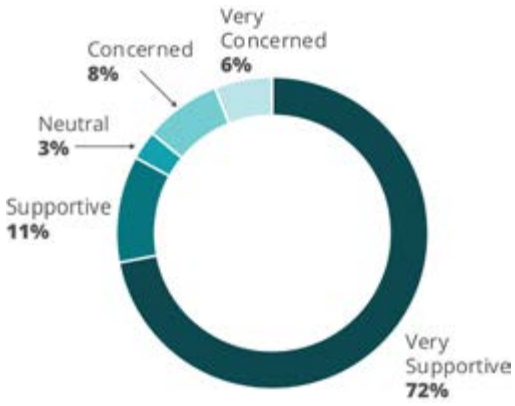
MARCH 2018 OPEN HOUSE

March Open House Feedback: *How do you feel about each potential enhancement?*

A NE 9th Ave Neighborhood Greenway with traffic calming on NE 7th Ave



A NE 7th Ave Neighborhood Greenway with area traffic mitigation



What we've heard about the NE 9th Ave alignment

The proposal for the Neighborhood Greenway on 9th received mixed results. Many participants indicated they would still bike on NE 7th if NE 9th was a designated neighborhood greenway, but there is also some agreement that an improved bikeway on NE 9th Ave would be great for the neighborhood. Those that prefer NE 9th Ave like this option because there are fewer existing traffic issues compared to NE 7th Ave, and it's already a safe, slow and quiet environment.

The key concerns participants indicated about NE 9th are the poor pavement conditions, steep hills, and circuitous route. There's substantial concern around integrating bicycle traffic with Irving Park. Many participants are concerned that it will disrupt the existing pedestrian activity.

What we've heard about the NE 7th Ave alignment

The majority of participants were very supportive of building the neighborhood greenway on NE 7th Ave with additional monitoring and mitigation of traffic in the area. Supporters for the NE 7th alignment mentioned that it's a direct connection to Lloyd District, the planned Sullivan's Crossing I-84 pedestrian bridge, and other destinations, and addresses traffic issues on NE 7th, i.e. reduces cut through traffic and speeding drivers.

However, there was concern about traffic spilling over to other side streets to avoid Martin Luther King Jr Blvd and questions about how that could be mitigated.

Design concept ideas

The sections that follow explore potential traffic control changes for both alignment alternatives. Our design concepts show changes to access and circulation necessary to achieve safer and more comfortable Neighborhood Greenway conditions on these streets.

These changes have been carefully designed to reduce the potential for cut through traffic to enter the neighborhoods, and carefully placed to allow access to all homes and businesses on the corridor. While access is preserved to all locations, the specific driving route to reach a destination may change from today.

Objectives of our traffic control changes

- Enhance crossings to create safer conditions and encourage high yielding rates
- Reduce motor vehicle volumes and speeds to achieve neighborhood greenway guidelines describe in the PBOT Neighborhood Greenways Assessment Report
- Prioritize access and circulation for businesses
- Minimize neighborhood cut through traffic
- Direct diverted traffic to arterial routes

Other corridor-wide enhancements
In addition to specific changes at key intersections, Neighborhood Greenways include additional standard treatments applied along the full corridor. The location of these elements are not identified yet, but will be included in any final alignment design. These enhancements include:

- Shared lane markings
- Speed humps
- Stop sign re-orientation
- Wayfinding signs

Characteristics of Neighborhood Greenway Projects

Safer Street Crossings

Few Cars, Many People

Walking Friendly Speeds

A NE 9th Neighborhood Greenway

The proposal for a neighborhood greenway on 9th takes advantage of the already low motor vehicle volumes on NE 9th, and the natural diverter opportunity provided by Irving Park.

Key design elements
Engineering a neighborhood greenway on NE 9th emphasizes speed reduction and crossing enhancements.

- Speed humps would be used to reduce speeds to under 20 mph.
- Crossings would be upgraded with high visibility crossings.
- Where necessary for safety, crossings will use median islands or curb extensions to reduce exposure to traffic.
- Some crossing enhancements may limit traffic movements.
- A new path through Irving Park would provide a safe connection, away from high-activity park areas.
- Consideration for treating the poor pavement quality south of NE Thompson St.

Irving Park considerations
Irving Park is an important site in our citywide park system. Established in the 1920s and upgraded in the 1970s, community members travel to the park for outdoor activities such as tennis, basketball and field sports, in addition to outdoor picnics, and a child play area. Irving Park also provides a dog off leash area which is well used by the surrounding neighborhoods.

A new pathway through the park would follow an alignment identified in the original park plan. It would run along the southern and eastern border of the park and would be designed to separate people bicycling from competing uses. The path would feature elements to minimize impacts to adjacent residential properties.

Includes minor traffic calming on NE 7th
Community surveys have indicated that many bicyclists would continue to use NE 7th even if NE 9th is engineered as a Neighborhood Greenway. If this option is selected, NE 7th will receive some level of traffic calming and traffic reduction, but not enough to meet our guidelines for neighborhood greenway conditions.

NE 9th Alignment Route Evaluation

PBOT evaluates neighborhood greenway routes on a variety of performance factors. See p.32 for the detailed results of the Initial Route Analysis.

Neighborhood Greenway Performance

★★★★☆

User Experience

★★★☆☆

Traffic Pattern Changes

★★★★☆

Policy Support

★★★☆☆

Cost Effectiveness

★★☆☆☆

NE 9th overview

Alignment elements

Median diverter or crossing Improvement
NE 9th & Ainsworth

Crossing improvement
NE 9th & Killingsworth

Crossing improvement
NE 9th & Alberta

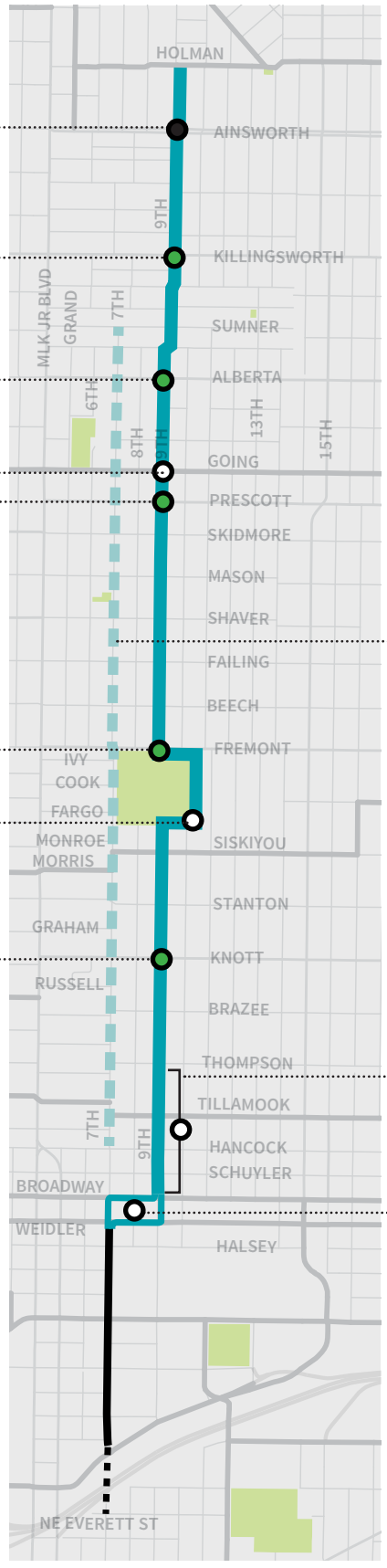
Mini Roundabout
NE 9th & Going

Crossing improvement
NE 9th & Prescott

Crossing improvement
NE 9th & Fremont

In-park path
Irving Park perimeter

Crossing improvement
NE 9th & Knott



Traffic Calming
NE 7th: Broadway to Sumner

Smooth paving strip
NE 9th: Thompson to Broadway

NE 9th to NE 7th transition
Protected bike lanes

- Diverter
- Minor Crossing Enhancement
- Transition

Overview

NE 9th Alignment builds upon already low motor vehicle volumes to create a low-stress experience. Crossing enhancements are required to prioritize people walking and biking. New and enhanced connections are required within Irving Park and Along NE Broadway/Weidler St. This option includes some level of traffic calming on NE 7th Ave.

9TH AVENUE ALIGNMENT

NE 9th & Ainsworth (Option A)

Why this design, why here?

Where neighborhood greenways cross busy streets, enhancements are often necessary to make the crossing safer and more comfortable for people walking and biking. The tree-lined median along NE Ainsworth St, also known as the Ainsworth Linear Arboretum, offers a unique opportunity to enhance the crossing while expanding a community resource. This design does prohibit some traffic movements.

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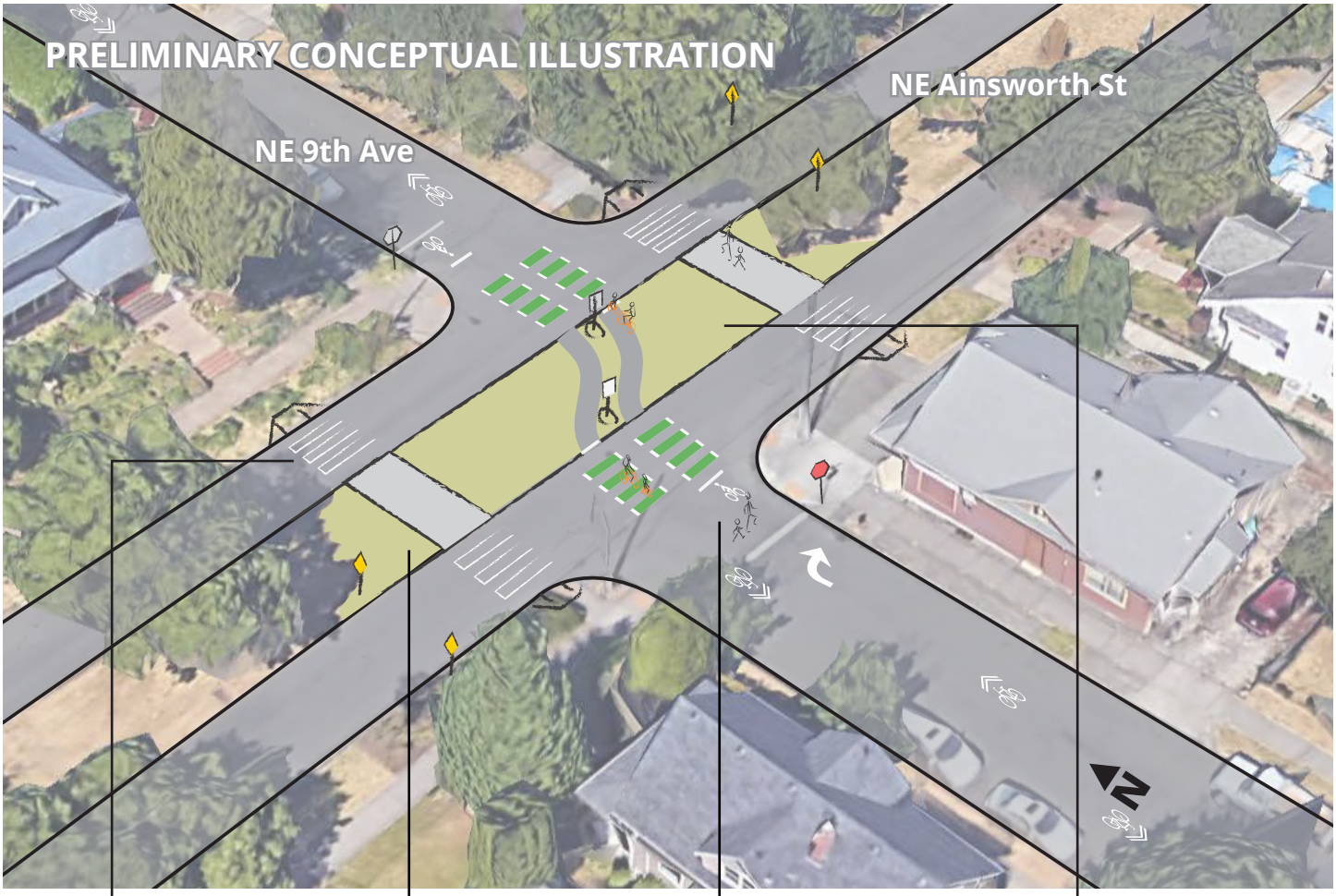

Shorten the crossing distance for pedestrians and add marked crosswalks

Significant opportunity for landscaping. Potential expansion of the Linear Arboretum or creation of a pocket park like environment.

Shorten the crossing distance for people bicycling and add crossbikes

Prevents cut through traffic from crossing Ainsworth

Additional considerations

- This proposal requires coordination with Urban Forestry, Concordia Tree Team, and other community groups with interests with the Ainsworth Linear Arboretum.
- Explore opportunities to partner with community groups to participate in the Adopt a Landscape program for maintenance of new landscaping features.

9TH AVENUE ALIGNMENT

NE 9th & Ainsworth (Option B)

Why this design, why here?

An alternative design at NE Ainsworth St can provide a safer crossing for people walking and biking without extending the tree-lined median. This crossing is less comfortable than the concept design shown in Option A.

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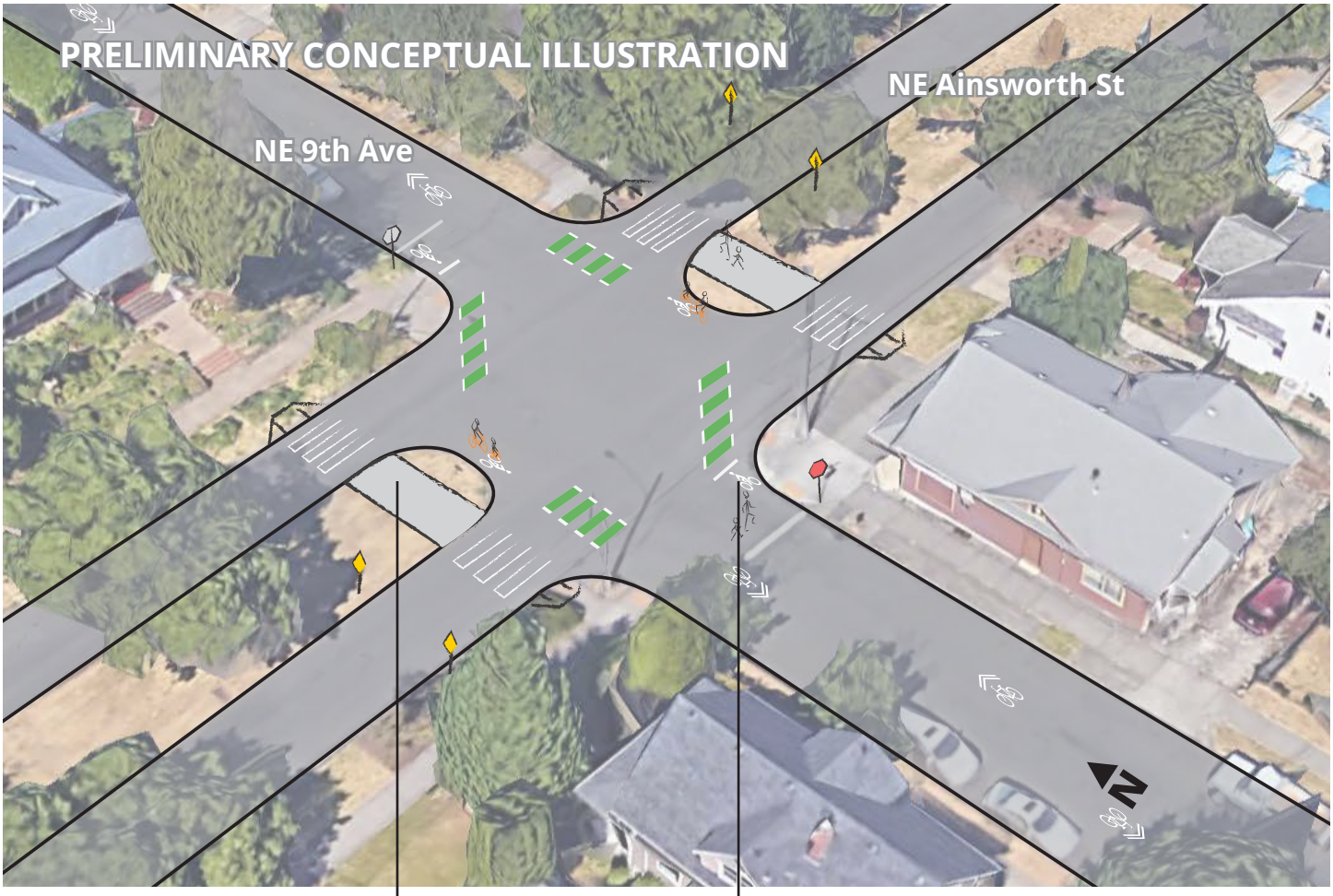

Shorten the crossing distance for pedestrians and add marked crosswalks

Shorten the crossing distance for people bicycling and add crossbikes

9TH AVENUE ALIGNMENT

NE 9th & Going

Why this design, why here?

The intersection of NE 7th Ave and NE Going St would be a crossing point for two important neighborhood greenways. People traveling on the neighborhood greenways should be aware of the intersection and potential connection to the larger neighborhood greenway network. A roundabout can be a distinctive feature and allows people driving and biking to circulate at safe speeds without needing to stop.

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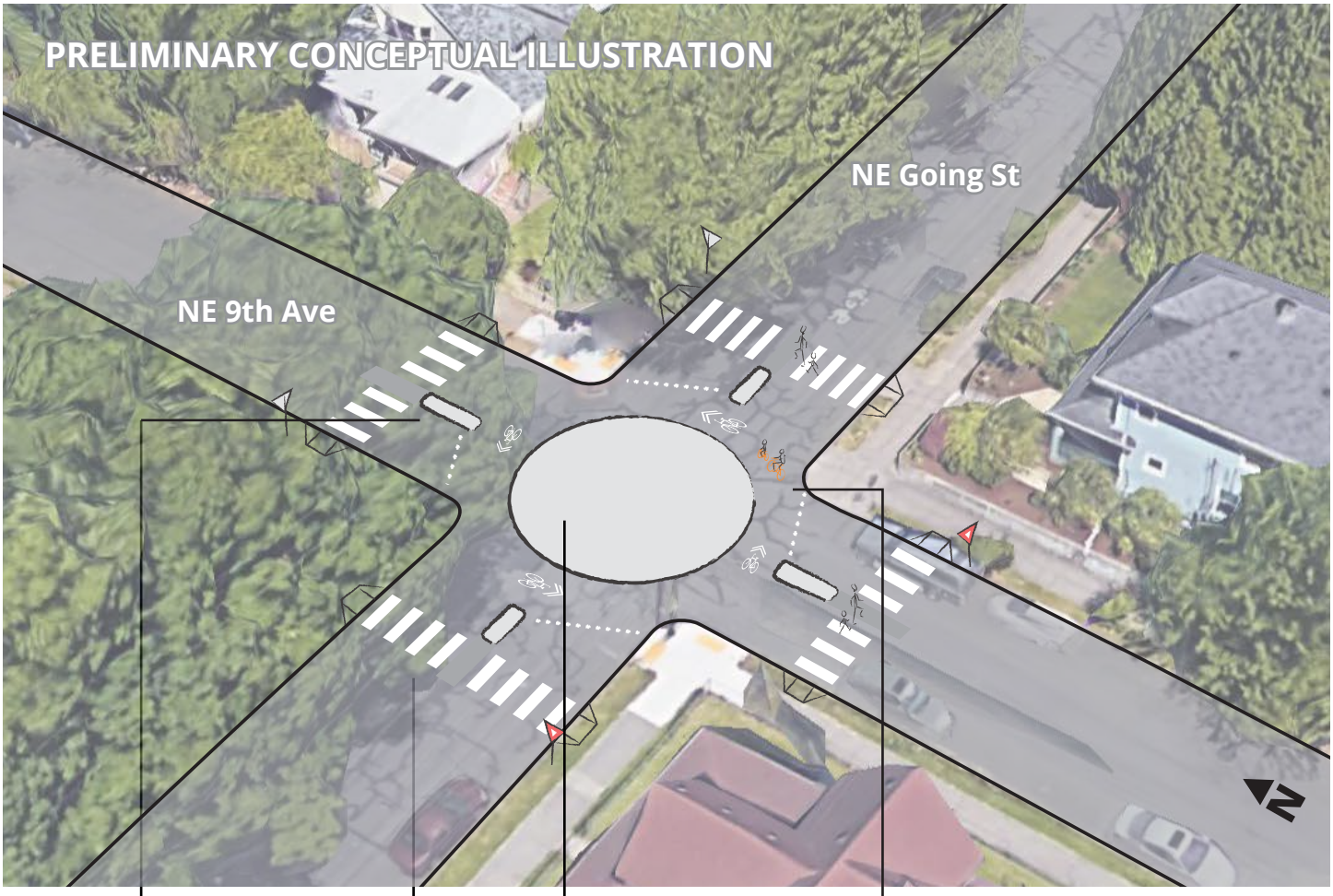

Small median islands to shorten pedestrian crossing distances and slow vehicles turning in and out of the traffic circle

High visibility crosswalks pulled back from the intersection to leave room for vehicles to yield for traffic circle traffic

Mountable mini-roundabout allows access to all vehicles while requiring them to slow to traverse the intersection.

Narrow lane in traffic circle to 7 feet, wide enough for most vehicles to traverse slowly.

Additional considerations

- Mini roundabouts of this type are new in Portland and may require community education.

9TH AVENUE ALIGNMENT

NE 9th & Fremont

Why this design, why here?

NE 9th connects to the center of Irving Park, and a route through must be provided. To integrate well with existing active uses, a perimeter pathway is proposed, traveling around the eastern edge of the park. To minimize impacts to Irving Park, the connecting pathway would be configured along NE Fremont St. On street parking would be prohibited in this location.

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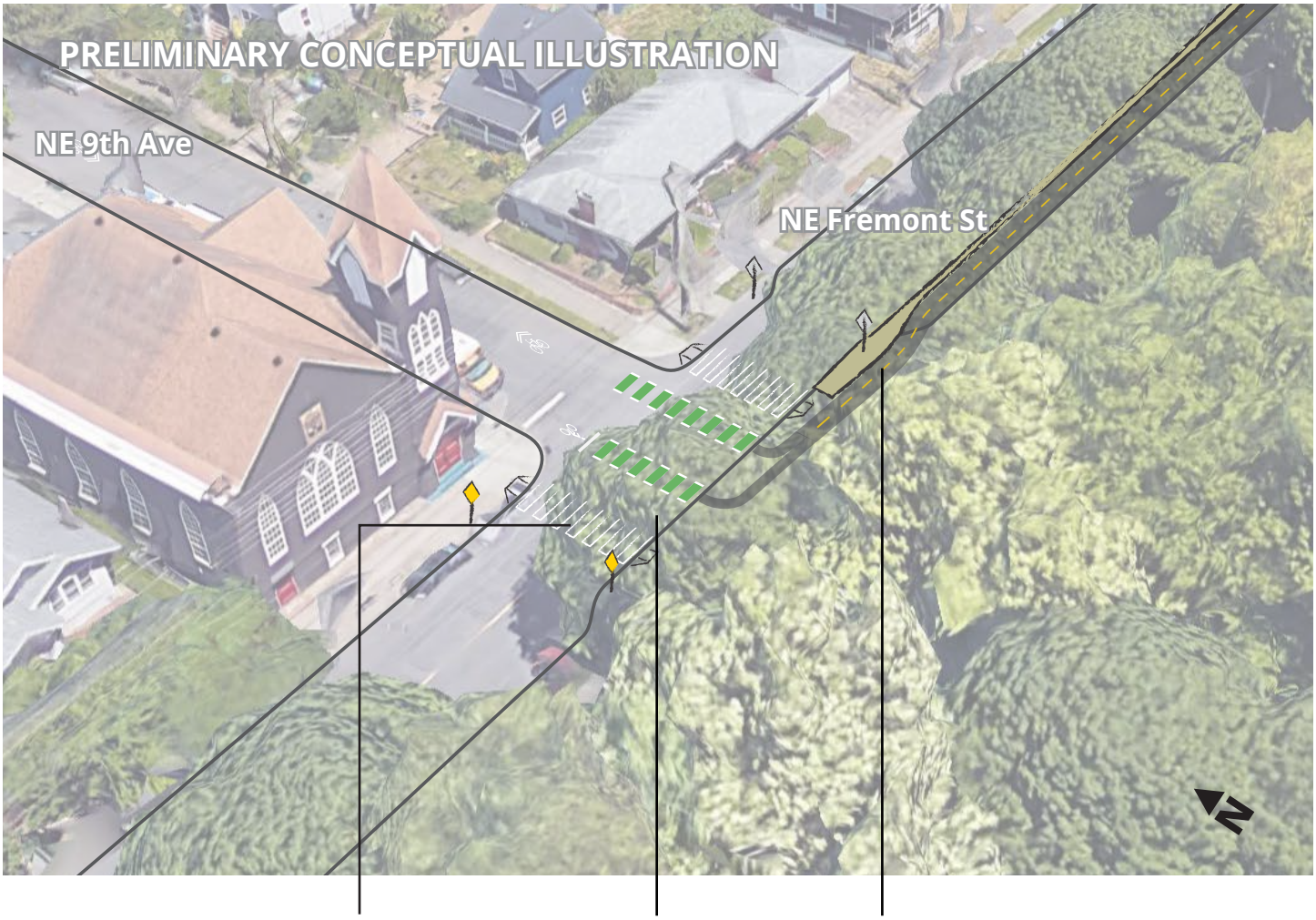

Add high visibility marked crosswalks to raise awareness of the pedestrian crossing.

Construct a two-way path along the south side of NE Fremont St. On-street parking would be prohibited.

Additional considerations

- This proposal prohibits parking on the south side of NE Fremont St. This represents about 18 parking spaces.
- Add crossbikes to raise awareness to the bicycle crossing.
- This proposal requires further coordination with Portland Parks and Recreation related to park maintenance needs.

9TH AVENUE ALIGNMENT

Irving Park Path

Why this design, why here?

NE 9th connects to the center of Irving Park, and a route through must be provided. A new pathway around the perimeter of Irving Park would connect NE 9th Ave north of the park to NE 9th Ave south of the park.

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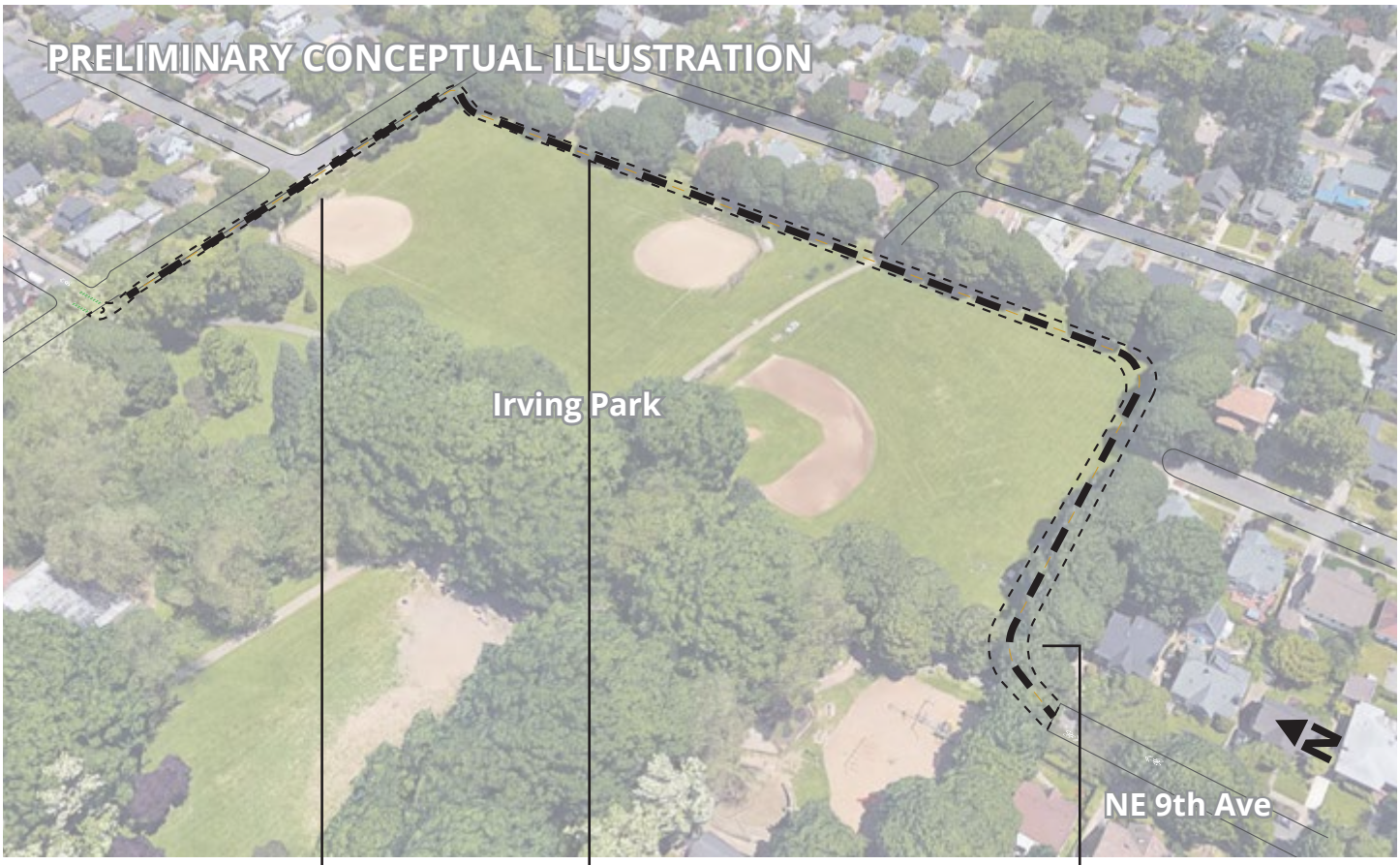

Construct a two-way path along the south side of NE Fremont St.

Construct a bicycle and pedestrian path along the perimeter of Irving Park

Use careful design to direct bicyclists along the perimeter path and away from existing park pathways.

Additional considerations

- The proposal requires further coordination with Portland Parks and Recreation to integrate well with existing active uses and maintenance needs.
- A new pathway through the park is a high cost enhancement. Additional funding may be necessary to implement this enhancement.

9TH AVENUE ALIGNMENT

NE 9th & Knott

Why this design, why here?

Where neighborhood greenways cross busy streets, enhancements are often necessary to make the crossing safer and more comfortable for people walking and biking. A median island crossing can provide a comfortable space for people walking and bicycling to cross NE Knott St in two stages.

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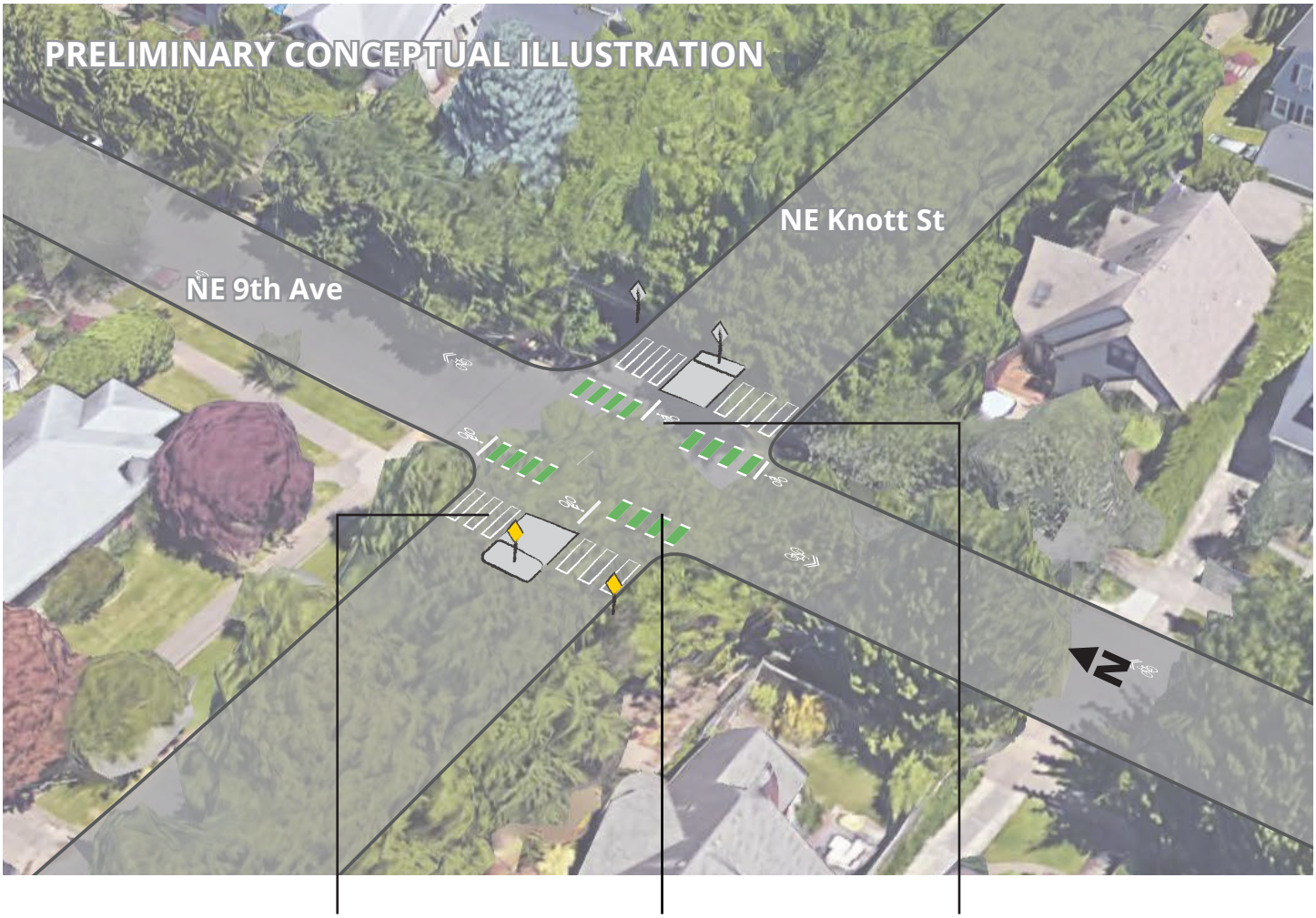

Shorten the crossing distance for pedestrians and add marked crosswalks

Shorten the crossing distance for people bicycling and add crossbikes

Allows traffic to cross NE Knott St along NE 9th Ave.

Additional considerations

- A alternate design option includes a fully enclosed median island to create a more comfortable crossing. This would prohibit some traffic movements.

9TH AVENUE ALIGNMENT

NE 9th & Broadway - Thompson

Why this design, why here?

Between NE Broadway St and NE Thompson St, the roadway surface of NE 9th Ave is rough and cracked. While this surface is functionally sound for a local street, it is unsuitable for use along a neighborhood greenway route. Repaving the center travel area would provide a smooth surface for people riding bicycles.

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Pave smooth strips of concrete in the bicycle travel path.

Additional considerations

- This proposal requires further coordination with PBOT maintenance division to ensure long-term maintenance of the smooth concrete strip.
- Street repaving may be a high cost enhancement, depending on the degree of reconstruction necessary. Additional funding may be necessary to implement this engancement.

9TH AVENUE ALIGNMENT

NE 9th to NE 7th Transition

Why this design, why here?

Existing bicycle lanes exist on NE 7th Ave south of NE Weidler St. It is important to provide a comfortable connection between a neighborhood greenway alignment on NE 9th and the existing facilities on NE 7th Ave. Reconfiguring the travel lanes on NE Broadway St and NE Weidler St to provide protected bike lanes can complete this connection.

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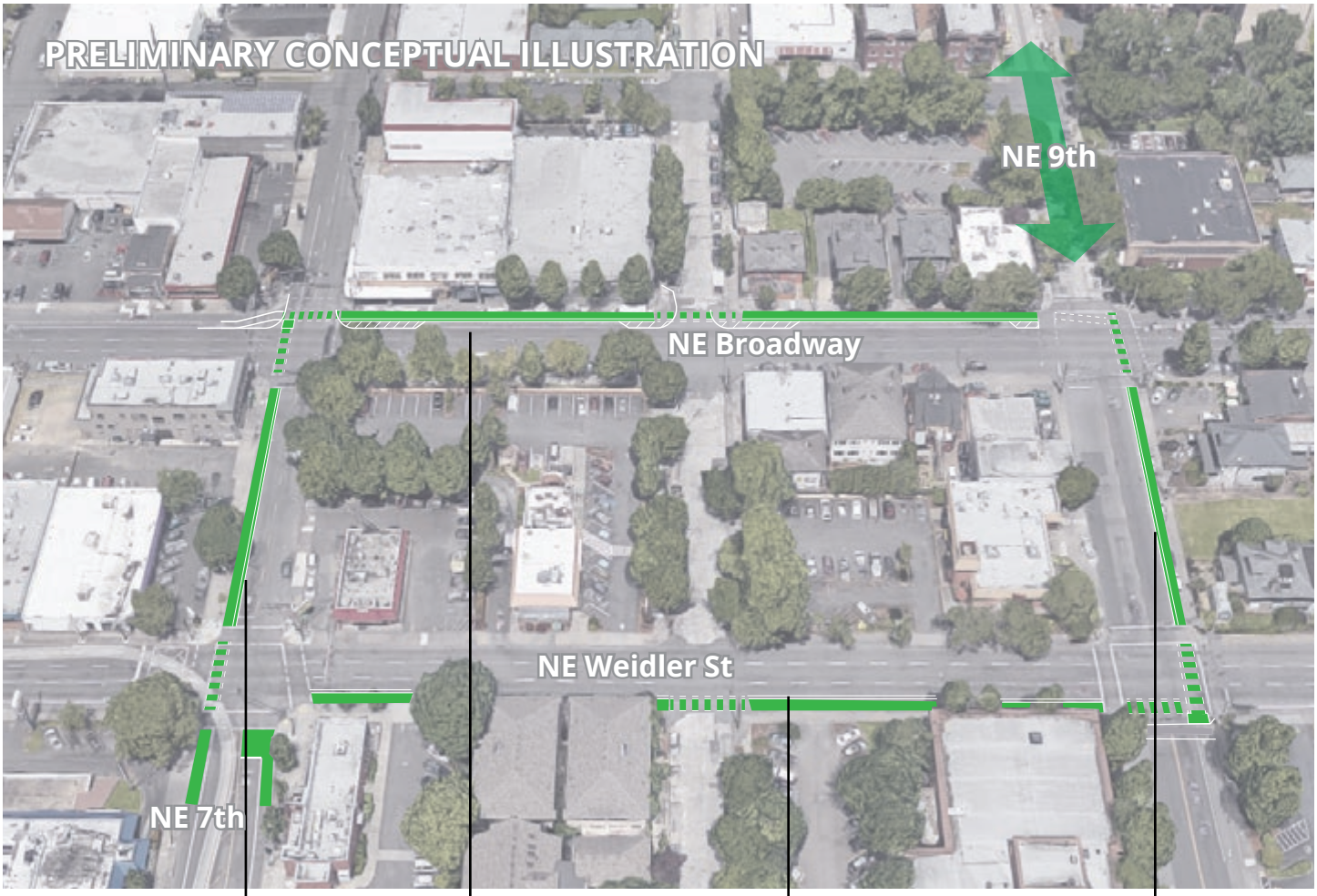


Add a bike lane to NE 7th in the southbound direction.

Reconfigure the roadway on NE Broadway St from NE 7th Ave to NE 9th Ave to provide a parking protected bike lane connection.

Reconfigure the roadway on NE Weidler St from NE 7th Ave to NE 9th Ave to provide a protected bike lane connection.

Add a bike lane to NE 9th in the northbound direction.

Additional considerations

- Requires further discussion with adjacent businesses as part of protected bike lane implementation.
- Some parking removal on NE Broadway would be necessary to enhance visibility and circulation along the protected bike lane connection.

A NE 7th Neighborhood Greenway

The proposal for a neighborhood greenway on NE 7th would reconfigure the street back into a local neighborhood street. Motor vehicle volumes would be dramatically lowered, prioritizing access for residents, visitors, employees and customers over cut through traffic.

Between NE Prescott St and NE Broadway St, through travel along NE 7th would be prohibited. This proposal will calm traffic conditions on NE 7th and change how neighbors on NE 7th and connecting streets circulate through their neighborhood.

Key Design elements
Engineering a neighborhood greenway on NE 7th emphasizes volume reduction, along with speed reduction measures.

- Automobile traffic diverters would be used strategically to re-direct cut through traffic back to Martin Luther King Jr Blvd.
- Access for neighbors and businesses would be maintained. Specific traffic routes to these destinations may need to change slightly to accommodate the new traffic diverters.
- Speed humps will be used to reduce speeds to 20 mph.
- Crossings will be upgraded with high visibility materials and paired with median islands, or curb extensions to reduce exposure to automobile traffic. Where possible, the crossing will maintain and enhance the existing traffic signals to prioritize walking and bicycling.
- Where traffic volumes cannot be lowered, a bicycle lane provides a separated place to bicycle away from traffic.

Monitoring and mitigation of neighborhood impacts
Community surveys and communication indicate a high level of concern about spillover effects of traffic diversion. The project engineers take such concerns seriously, and designs are selected on their ability to re-direct traffic to appropriate locations and discourage unwanted entrance into other neighborhood streets.

If this alignment is recommended, PBOT commits to monitoring neighborhood traffic conditions for unsafe changes and mitigating those traffic impacts. Mitigation includes traffic calming at the affected area, or modification of the design to resolve the impact.

NE 7th Alignment Route Evaluation

PBOT evaluates neighborhood greenway routes on a variety of performance areas. See p. 32 for the detailed results of the Initial Route Analysis.

Neighborhood Greenway Performance
★★★★☆

User Experience
★★★★★

Traffic Pattern Changes
★★☆☆☆

Policy Support
★★★★★

Cost Effectiveness
★★★★☆

NE 7th overview

Alignment elements

Median diverter or crossing Improvement
NE 9th & Ainsworth

Crossing improvement
NE 9th & Killingsworth

Crossing improvement
NE 7th & Alberta

Mini roundabout
NE 7th & Going

Crossing improvement
NE 7th & Prescott

Pocket park
Two Plum Park

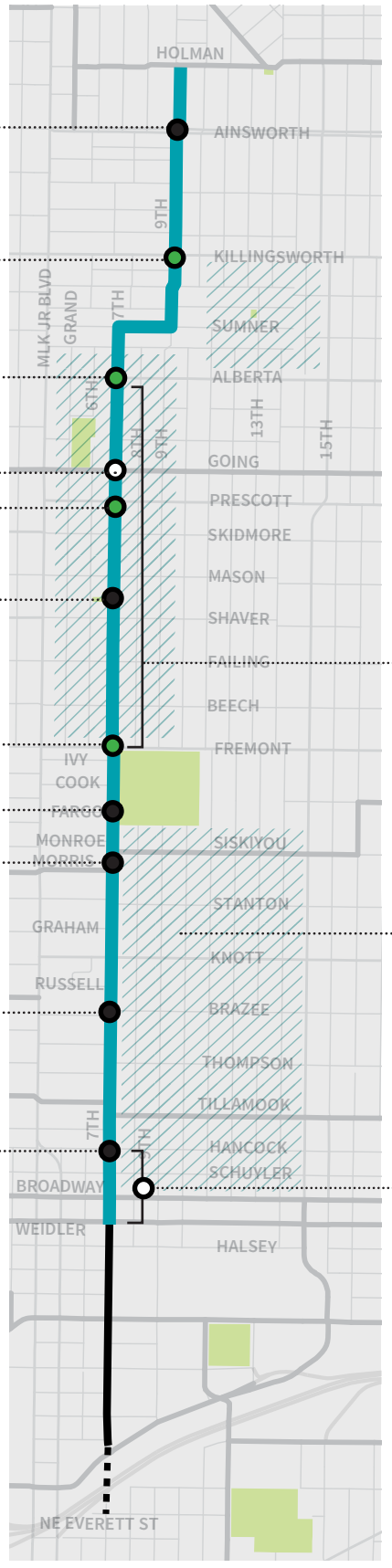
Crossing improvement
NE 7th & Fremont

Half closure (northbound)
NE 7th & Fargo

Half closure (southbound)
NE 7th & Morris

Half closure (northbound)
NE 7th & Brazee

Diagonal diverter
NE 7th & Hancock



- Diverter
- Minor Crossing Enhancement
- Transition

Overview

The NE 7th Alignment builds upon existing crossings and direct connections to the rest of the neighborhood greenway network. Frequent automobile traffic diverters would lower cut through traffic volumes to create comfortable conditions for people walking and bicycling. This option would include a robust monitoring and mitigation program in the adjacent neighborhoods.

Between NE Prescott St and NE Broadway St, through travel along NE 7th Ave would be prohibited.

Add on-street parking on west side of street
NE 7th: Fremont-Alberta

Area traffic monitoring and mitigation
Within adjacent neighborhoods

Add bike lane on east side of street
NE 7th: Weidler to Hancock

7TH AVENUE ALIGNMENT

NE 9th & Ainsworth (Option A)

Why this design, why here?

Where neighborhood greenways cross busy streets, enhancements are necessary to make the crossing safer and more comfortable for people walking and biking. The tree-lined median along NE Ainsworth St, also known as the Ainsworth Linear Arboretum, offers a unique opportunity to enhance the crossing while expanding a community resource.

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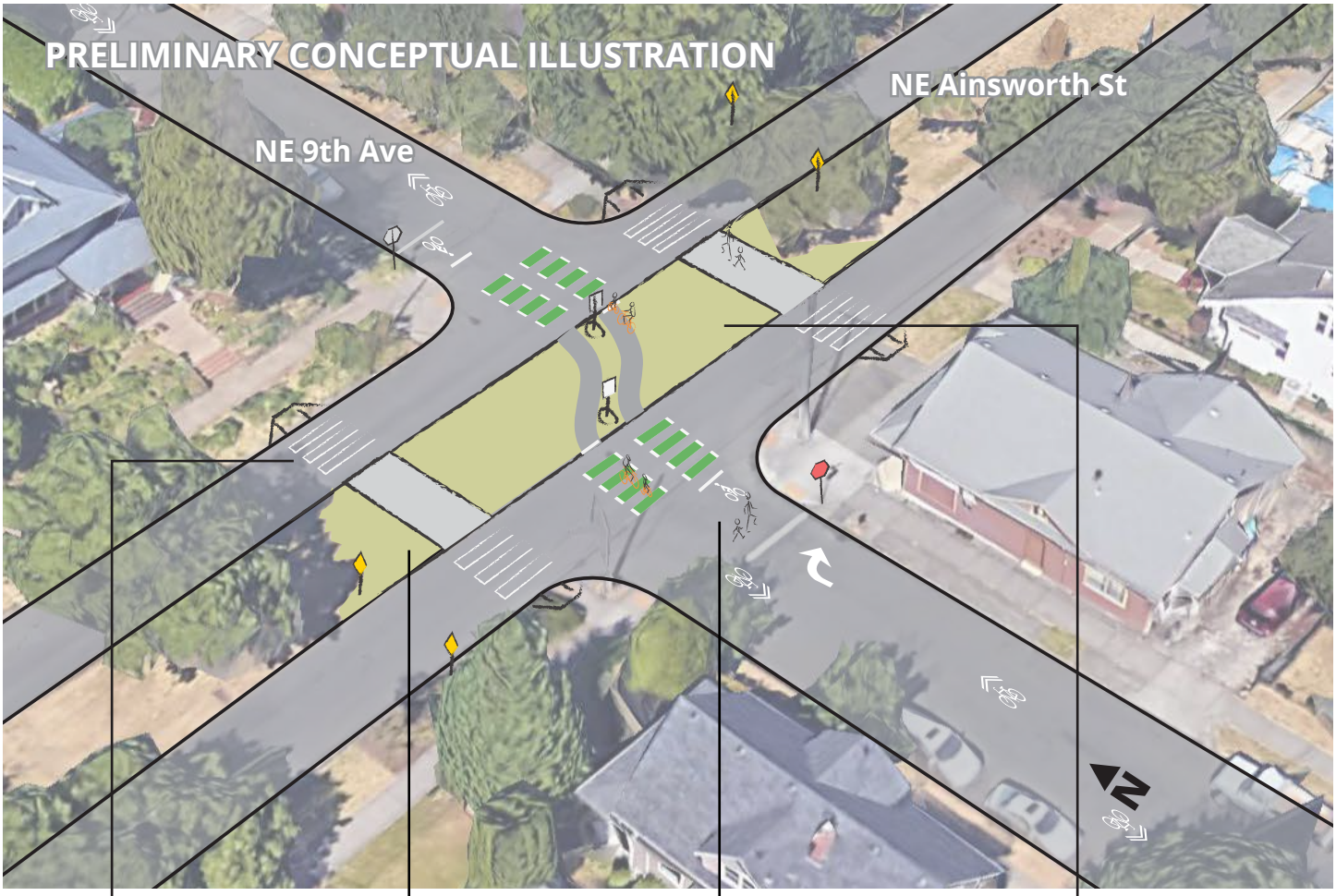

Shorten the crossing distance for pedestrians and add marked crosswalks.

Significant opportunity for landscaping. Potential expansion of the Linear Arboretum or creation of a pocket park like environment.

Shorten the crossing distance for people bicycling and add crossbikes.

Prevents cut through traffic from crossing Ainsworth.

Additional considerations

- This proposal requires coordination with Urban Forestry, Concordia Tree Team, and other community groups with interests with the Ainsworth Linear Arboretum.
- Explore opportunities to partner with community groups to participate in the Adopt a Landscape program for maintenance of new landscaping features.

7TH AVENUE ALIGNMENT

NE 9th & Ainsworth (Option B)

Why this design, why here?

An alternative design at NE Ainsworth St can provide a safer crossing for people walking and biking without extending the tree-lined median. The crossing is less comfortable than the concept design shown in Option A.

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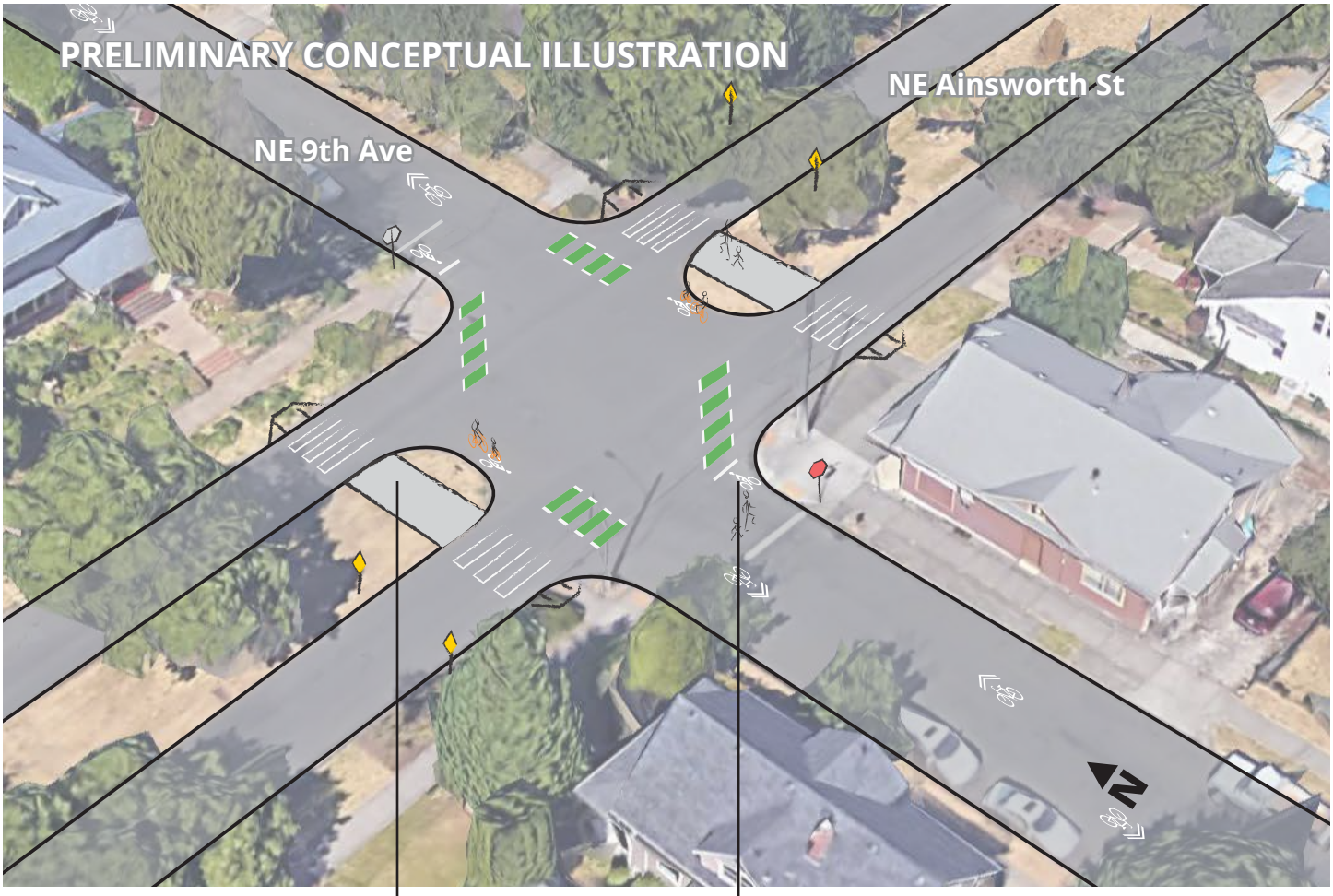

Shorten the crossing distance for pedestrians and add marked crosswalks.

Shorten the crossing distance for people bicycling and add crossbikes.

7TH AVENUE ALIGNMENT

NE 7th & Going

Why this design, why here?

The intersection of NE 7th Ave and NE Going St would be a crossing point for two important neighborhood greenways. People traveling on the neighborhood greenways should be aware of the intersection and potential connection to the larger neighborhood greenway network. A roundabout can be a distinctive feature and allows people driving and biking to circulate at safe speeds without needing to stop.

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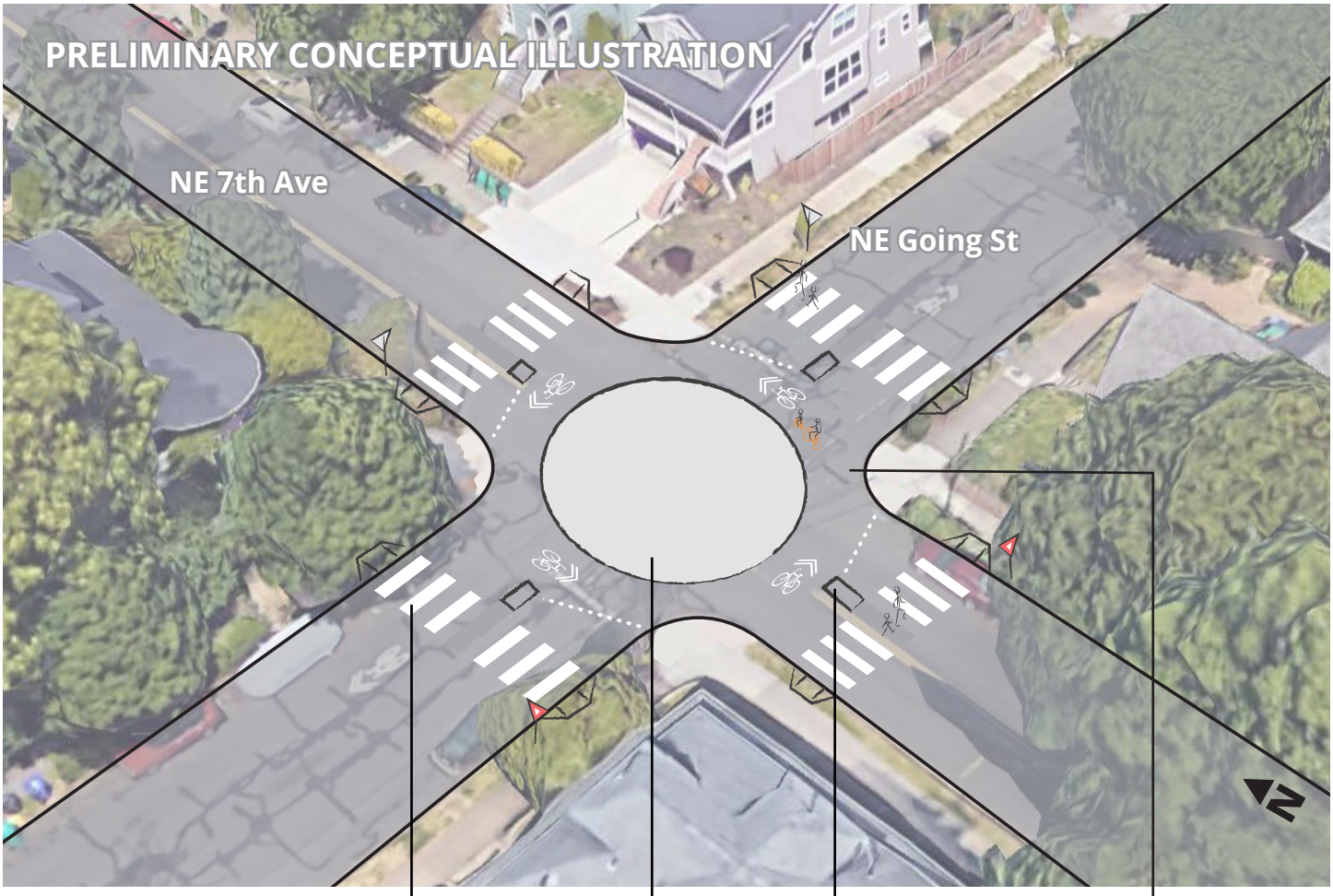

High visibility crosswalks pulled back from the intersection to leave room for vehicles to yield for traffic circle traffic

Mountable mini-roundabout allows access for all vehicles. Large vehicles may need to mount the central island.

Small median islands to shorten pedestrian crossing distances and slow vehicles turning in and out of the traffic circle

A narrow circulating lane requires all vehicles to traverse slowly.

Additional considerations

- Mini roundabouts of this type are new in Portland and may require community education.

7TH AVENUE ALIGNMENT

NE 7th & Two Plum Park

Why this design, why here?

Traffic volumes between NE Prescott St and NE Fremont St are too high to for NE 7th to function as a neighborhood greenway. Two Plum Park offers a unique opportunity to integrate traffic management into existing green spaces. The result is simple and effective, and can strengthen a beloved community asset.

There may be an alternative traffic management approach in this area involving diverters at NE Prescott St and NE Fremont St.

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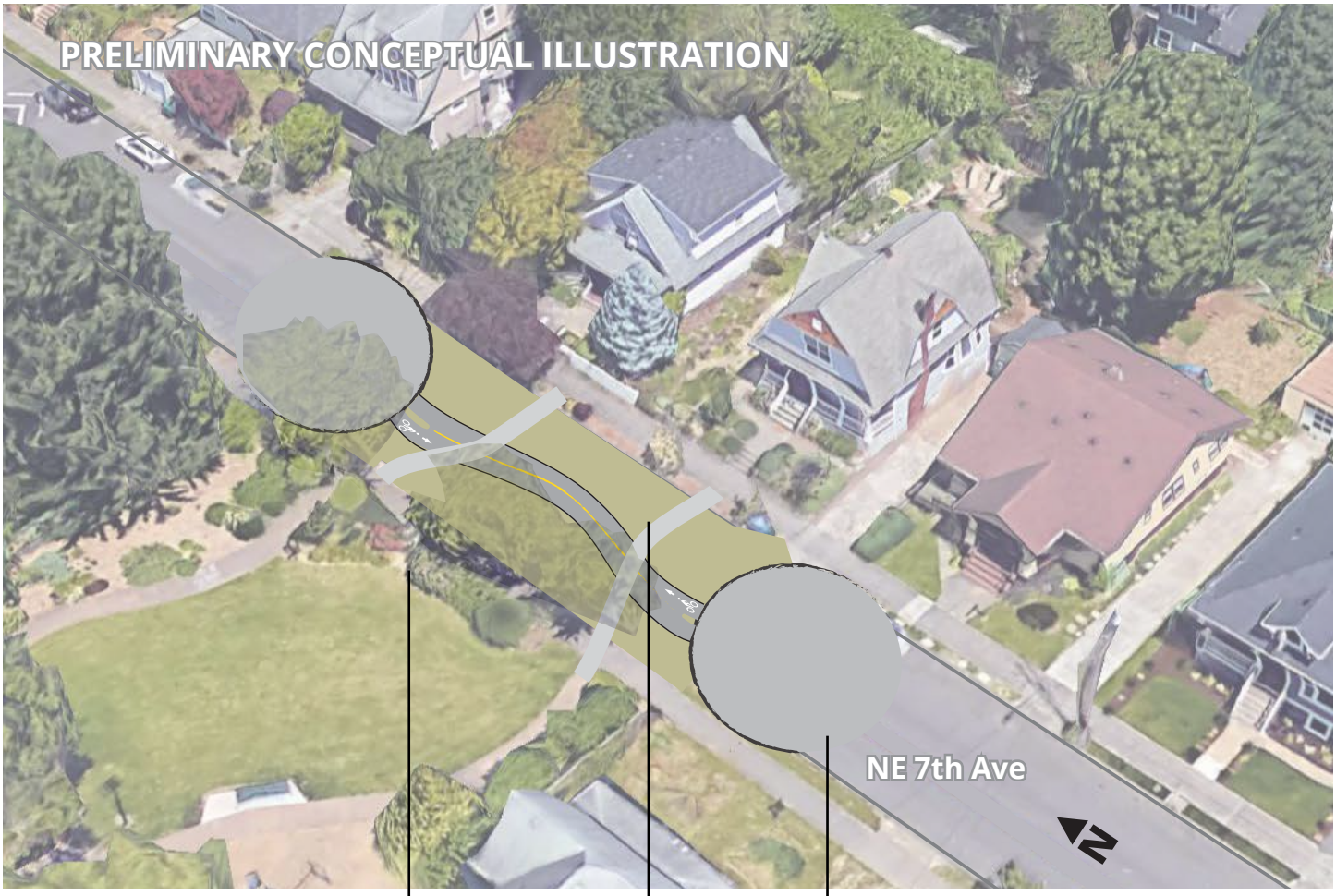

Extend Two Plum Park fully across NE 7th Ave.

Extend pedestrian and bicycle path connections through the larger Two Plum Park

Cul-de-sac allows vehicles to turn around.

Additional considerations

- Requires coordination and collaboration with community groups, adjacent neighbors, and community members with interests with Two Plum Park.

7TH AVENUE ALIGNMENT

NE 7th & Fargo

Why this design, why here?

Traffic volume between NE Fremont St and NE Knott St is too high for NE 7th Ave to function as a neighborhood greenway. Major traffic management at collector streets is challenging due to business access needs. To reduce volumes to appropriate levels, traffic management is needed within the neighborhood. The concept design maintains southbound access at this location, but prohibits northbound travel by motor vehicles. Cut through traffic headed north is re-routed to Martin Luther King Jr Blvd on NE Fargo St.

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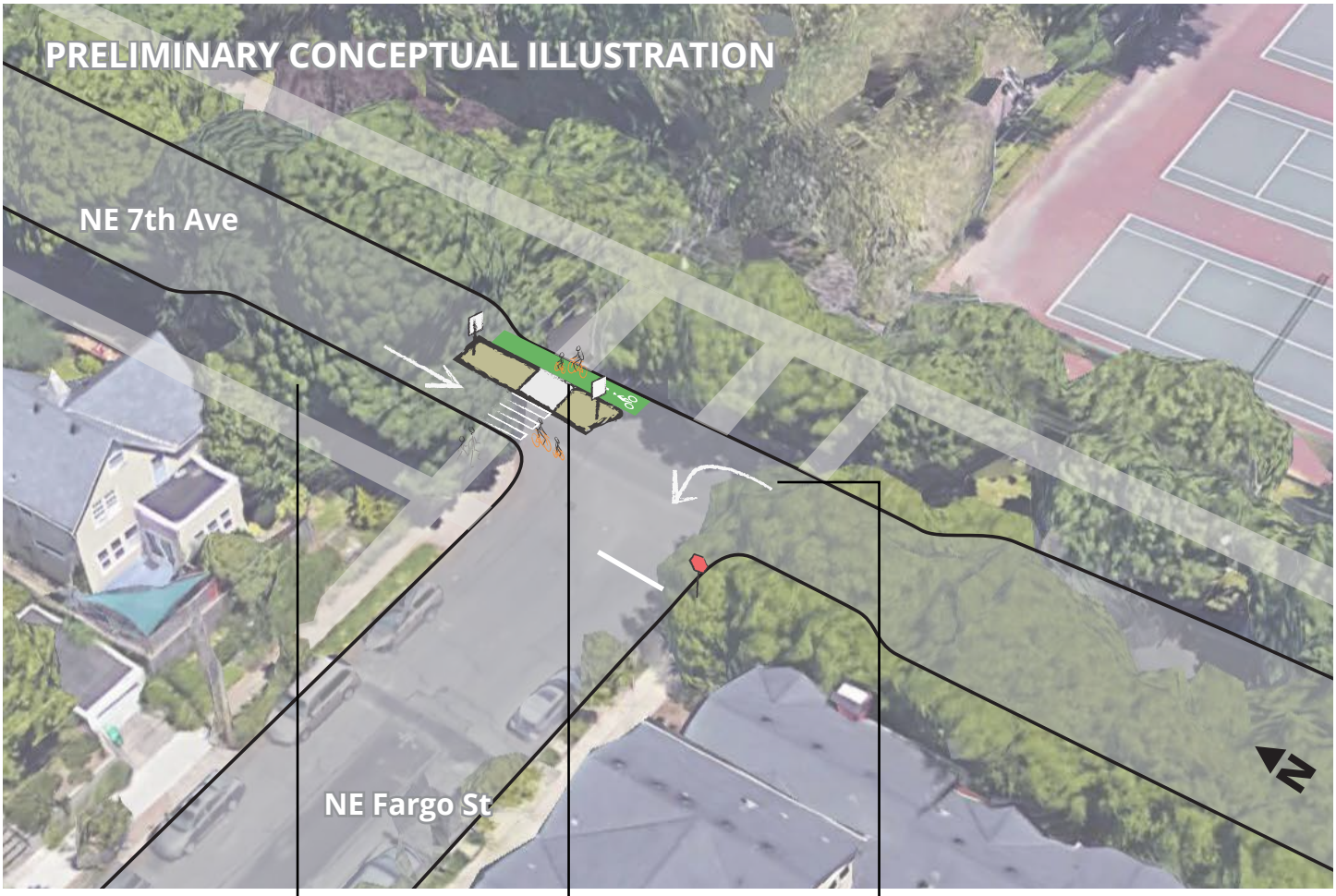

Southbound access from NE Fremont St is maintained.

Opportunity for landscaping to be integrated into the traffic island.

Partial diverter prevents northbound access. People driving north are diverted to Martin Luther King Jr Blvd.

Additional considerations

- Explore opportunities to partner with community groups to participate in the Adopt a Landscape program for maintenance of new landscaping features.

7TH AVENUE ALIGNMENT

NE 7th & Morris

Why this design, why here?

Traffic volume between NE Fremont St and NE Knott St is too high for NE 7th Ave to function as a neighborhood greenway. Major traffic management at collector streets is challenging due to business access needs. To reduce volumes to appropriate levels, traffic management is needed within the neighborhood. The concept design maintains northbound access at this location, but prohibits southbound travel by motor vehicles. Cut through traffic headed south is re-routed to Martin Luther King Jr Blvd on NE Morris St.

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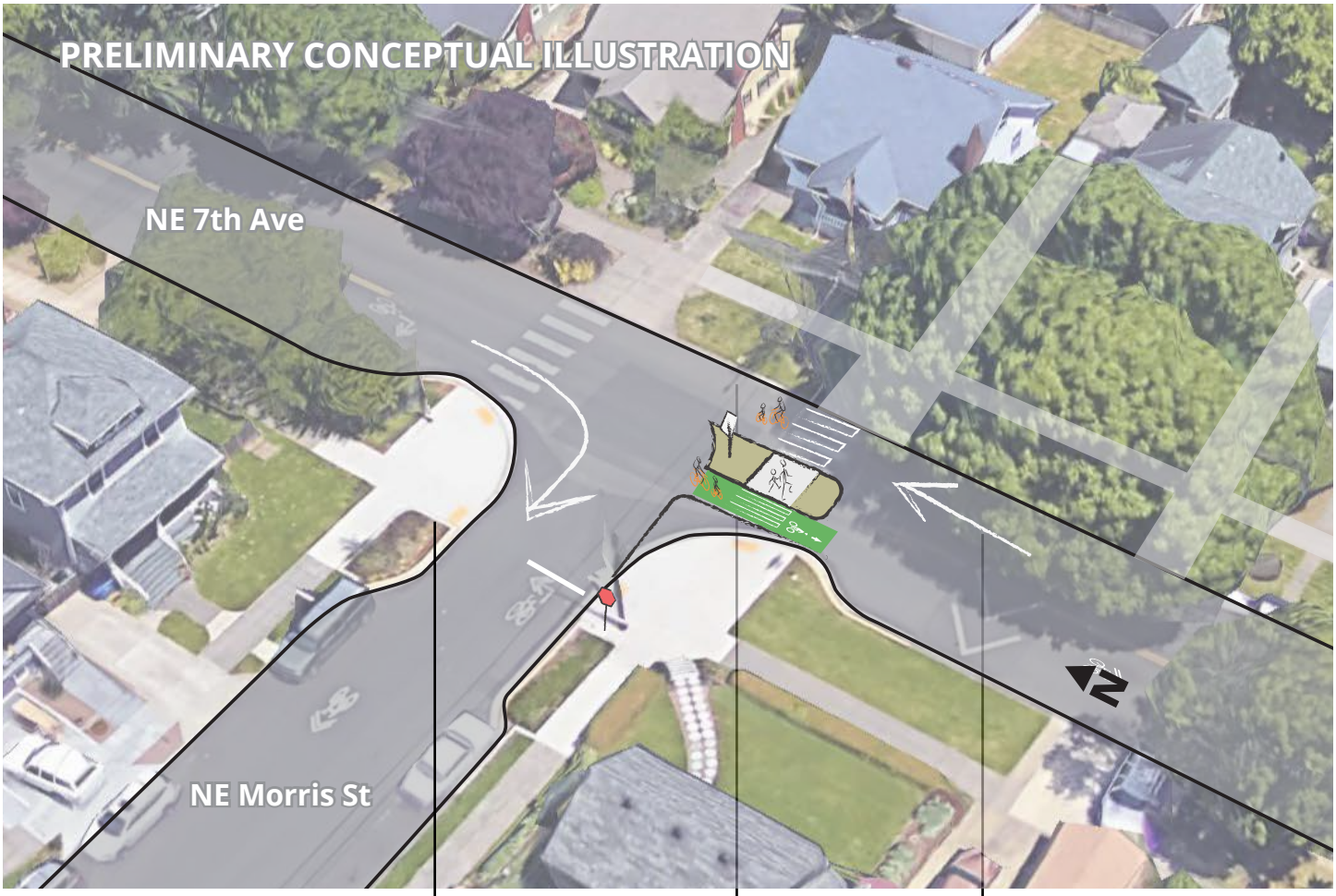

Partial diverter prevents southbound access. People driving south are diverted to Martin Luther King Jr Blvd.

Opportunity for landscaping to be integrated into the traffic island.

Northbound access from NE Knott St is maintained.

Additional considerations

- Explore opportunities to partner with community groups to participate in the Adopt a Landscape program for maintenance of new landscaping features.
- This proposal redirects traffic onto NE Morris St, a neighborhood greenway street. Further analysis should be done to understand impacts to this and other neighborhood greenway streets.

7TH AVENUE ALIGNMENT

NE 7th & Brazee

Why this design, why here?

Traffic volume between NE Knott St and NE Broadway St is too high for NE 7th Ave to function as a neighborhood greenway. To reduce volumes to appropriate levels, traffic management is needed within the neighborhood. The concept design maintains southbound access at this location, but prohibits northbound travel by motor vehicle. Cut through traffic headed north would be re-routed to Martin Luther King Jr Blvd on NE Brazee St.

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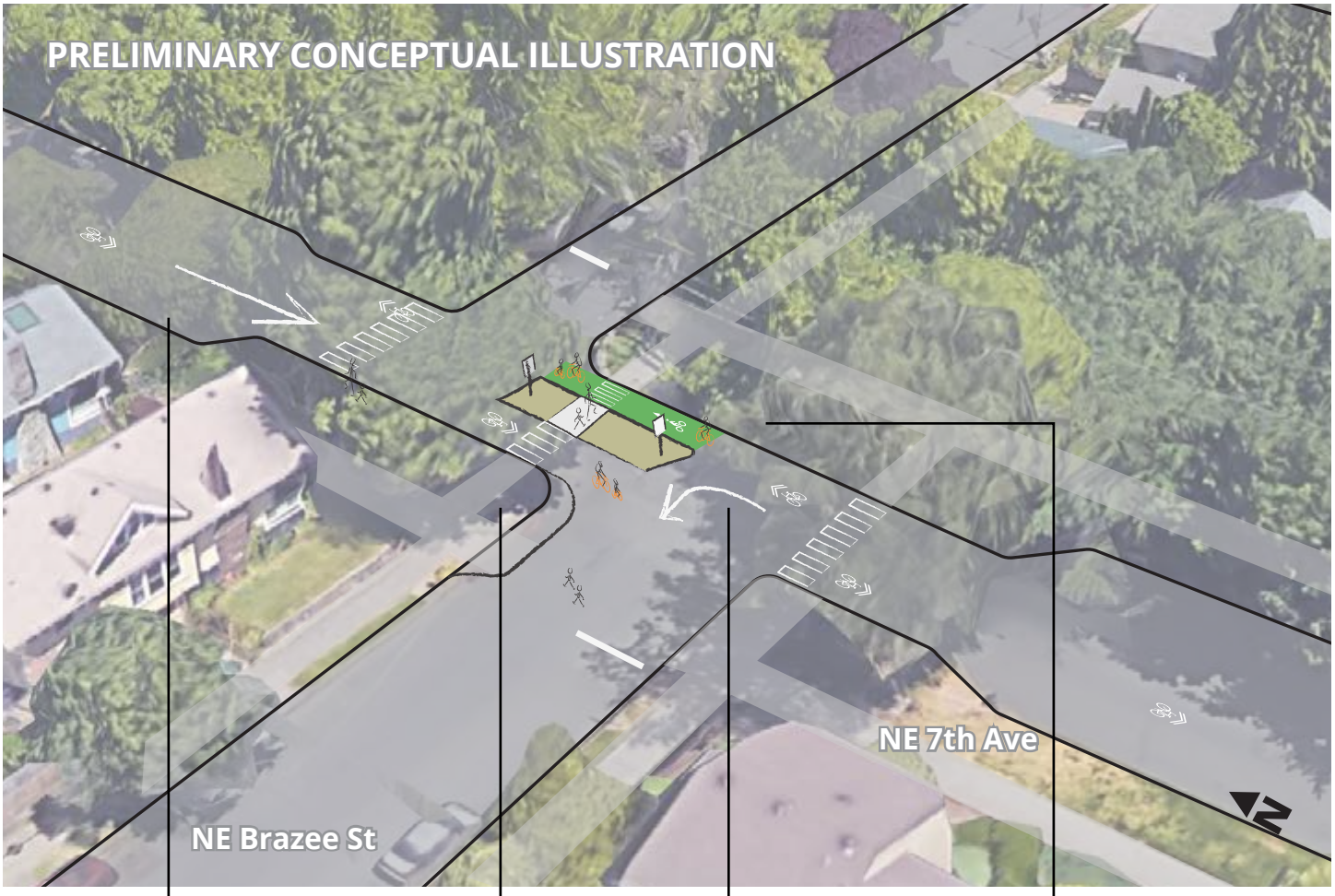

Southbound access from NE Knott St is maintained.

NE Brazee at NE 7th is an important Safe Routes to School Crossing. This design greatly reduces exposure to traffic and increases yielding rates.

Partial diverter prevents northbound access. Cut through traffic driving north is diverted to Martin Luther King Jr Blvd.

Opportunity for landscaping to be integrated into the traffic island.

Additional considerations

- Explore opportunities to partner with community groups to participate in the Adopt a Landscape program for maintenance of new landscaping features.

7TH AVENUE ALIGNMENT

NE 7th & Hancock

Why this design, why here?

Traffic volume between NE Knott St and NE Broadway St is too high for NE 7th Ave to function as a neighborhood greenway. To reduce volumes to appropriate levels, traffic management is needed to limit cut through travel within the neighborhood. Traffic headed north from NE Broadway St is re-routed to Martin Luther King Jr Blvd on NE Hancock St. People traveling south from NE Knott St would be routed to NE Hancock St.

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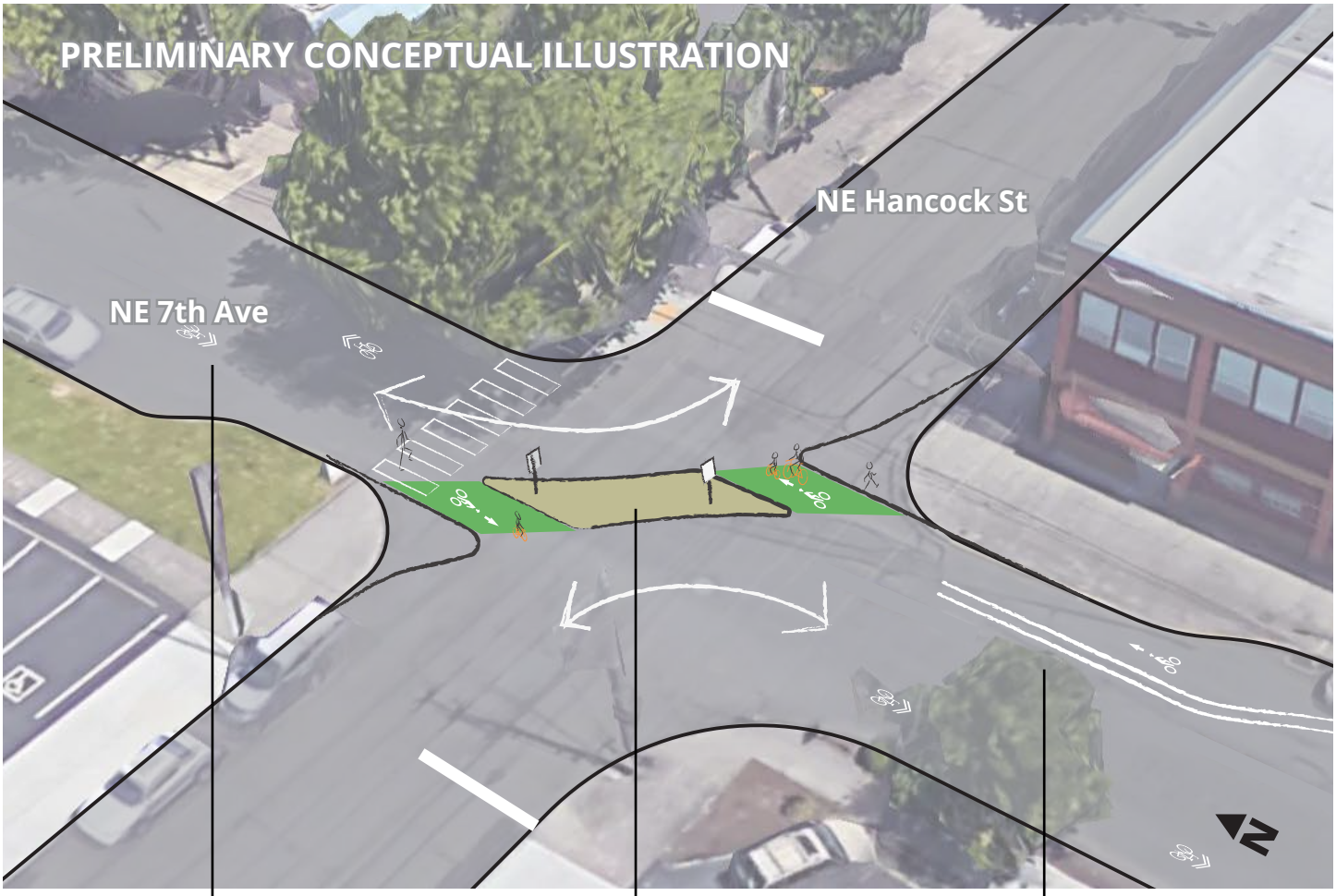


North of NE Hancock St, the traffic volumes will be low enough to meet neighborhood greenway guidelines.

Opportunity for landscaping to be integrated into the traffic island.

Transition from protected bike lane into shared roadway environment north of NE Hancock St.

Additional considerations

- Explore opportunities to partner with community groups to participate in the Adopt a Landscape program for maintenance of new landscaping features.

7TH AVENUE ALIGNMENT

NE 7th - Hancock to Broadway

Why this design, why here?

South of Weidler, NE 7th Ave is designed with wide bike lanes. The design concept extends the northbound bike lane to NE Hancock St, where it transitions into the neighborhood greenway environment. People bicycling southbound travel within the general travel lane.

This conceptual design is for discussion purposes only and does not represent a final design or recommendation.

Configure a protected bike lane northbound on NE 7th Ave.

People on bicycles ride in the lane in the southbound direction.

Most existing on-street parking remains, and is used to protect the bicycle lane.

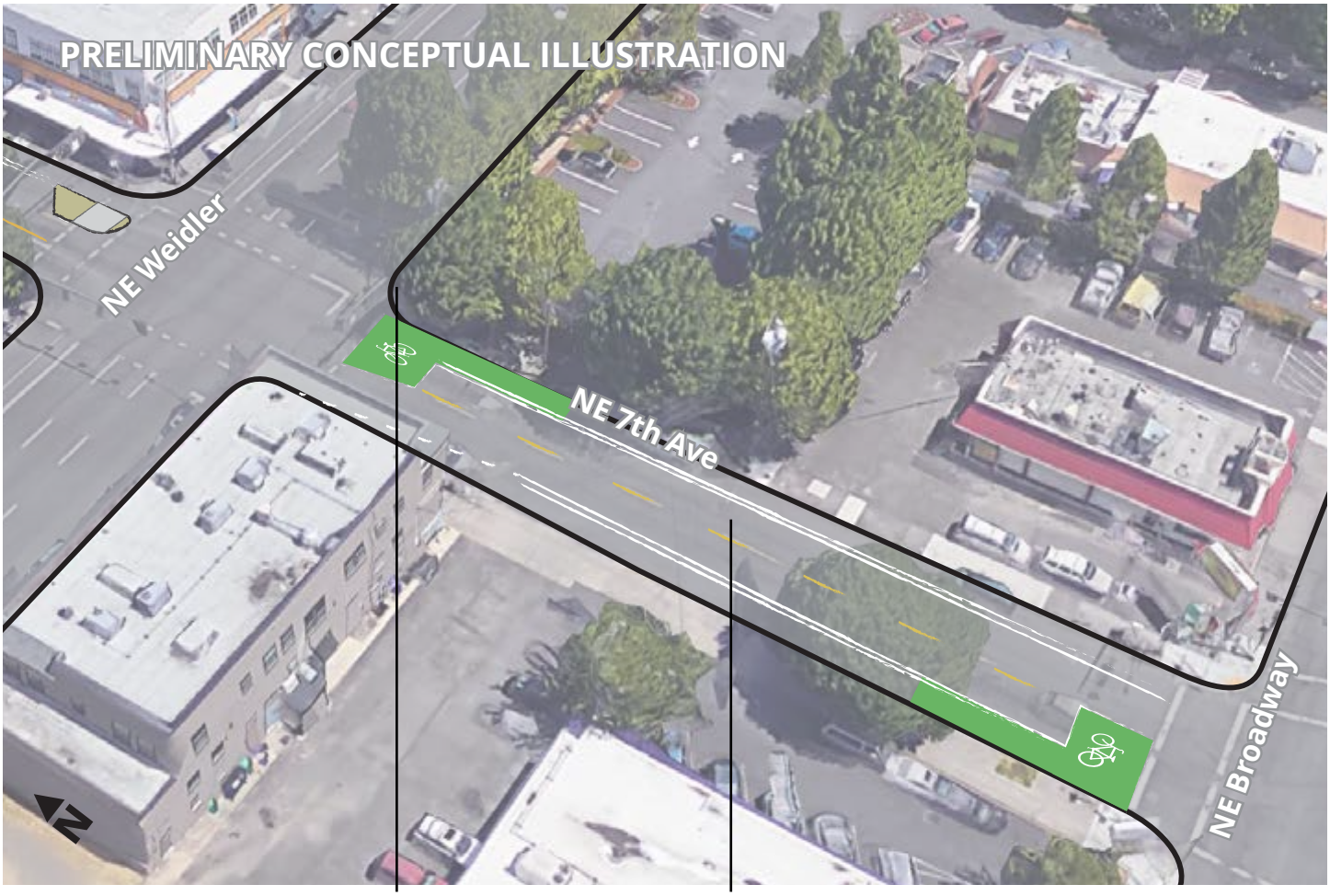
7TH AVENUE ALIGNMENT

NE 7th - Weidler to Broadway

Why this design, why here?

South of Weidler, NE 7th Ave is designed with wide bike lanes. The design concept extends these lanes to NE Broadway, and provides bicycle boxes to simplify circulation with the intersecting bike lanes on NE Broadway/Weidler St. On-street parking would be prohibited on this block.

This conceptual design is for discussion purposes only and does not represent a final design or recommendation.



Bike boxes prioritize bicycle crossings at signalized intersections.

Configure bike lanes on both sides of NE 7th. On-street parking would be prohibited on this block.

Initial Route Analysis

LLOYD TO WOODLAWN NEIGHBORHOOD GREENWAY

Initial results indicate the NE 7th alignment best meets the objectives of the project, but would require careful design of traffic pattern changes and close monitoring of traffic conditions.

Selecting the preferred route for a neighborhood greenway must consider multiple key factors. PBOT applies criteria related to safety, comfort, access, and traffic design to identify which route would best meet our project goals.

PBOT staff performed a preliminary analysis for both routes based on the criteria listed below. This analysis does not prescribe the final route selection, but it is an important step in understanding which route best meets our project objectives.

Criteria	NE 7th	NE 9th	Assessment Notes
Neighborhood Greenway Performance			
Traffic Volume: The alignment must be able to meet guidelines for traffic volume.			The NE 9th option meets traffic volume guidelines today. The NE 7th option requires more significant traffic pattern changes to meet traffic volume guidelines.
Traffic Speed: The alignment must be able to meet guidelines for traffic speed.			Traffic speeds on both streets can be reduced to meet our Neighborhood Greenway guidelines using our standard speed reduction tools.
Street Crossings: The alignment must be able to meet guidelines for major street crossings.			The NE 7th option has traffic signals in place today, offering safer and controlled crossings of collector and arterial streets. The NE 9th option would need more significant upgrades to create safer crossings.
User Experience			
Serves Community Destinations: Proximity to important destinations.			The NE 7th option directly connects to key neighborhood schools, parks, services and retail destinations. The NE 9th option is close, but fails to link many of these destinations.
Direct: The straighter the alignment, the better.			The NE 7th option offers a more direct alignment for more people for a longer distance than the NE 9th option. NE 9th alignment requires out of direction travel at Irving Park, and to connect to NE 7th in the Lloyd neighborhood.
Connected: Convenient connections to other routes in the bicycle network.			The off-set street grid along NE 7th creates a barrier for intersecting neighborhood greenways. The NE 7th option would intuitively connect and resolve the offset routes. The NE 9th option results in awkward connections between connecting neighborhood greenways.
Easy to Follow: Transitions along the route should be simple and straightforward.			The final design needs to connect to the existing bikeway on NE 7th in the Lloyd neighborhood. The NE 7th option does this naturally. The NE 9th option requires additional enhancements to make this connection more intuitive.
Roadway Quality/Grade: The flatter and smoother the route, the better.			The NE 9th option requires around 15% more elevation gain than the NE 7th option. Surface quality on NE 9th is poor, although that may be resolved through road pavement reconstruction.

Initial Route Analysis

LLOYD TO WOODLAWN NEIGHBORHOOD GREENWAY

Criteria	NE 7th	NE 9th	Assessment Notes
Traffic Pattern Changes			
Neighborhood Traffic Patterns: Changes should meet city policies related to diverted traffic.	◑	●	City policies permit neighborhood greenways to redirect neighborhood traffic onto other local streets, and to route cut through traffic back to arterial streets. The NE 7th requires more significant traffic pattern changes than NE 9th.
Property Access Needs: Changes should designed to allow for local access to and from the greater street network.	◑	●	Both options may introduce traffic pattern changes which change access to some properties along the route. The NE 7th option changes access routes for more residents and businesses.
Arterial Traffic Patterns: Changes should understand and consider changes to arterial traffic.	◔	●	The NE 7th option would move the majority of cut through traffic onto adjacent arterials such as Martin Luther King Jr Blvd or NE 15th Ave. The NE 9th option would have few impacts to adjacent arterial streets.
Parking Impacts: Changes should consider impacts to on-street parking.	●	◕	Both options would remove parking as part of safety and crossing enhancements to improve visibility. The NE 7th option has the potential to re-establish parking on both sides of the street, adding over 50 new parking spaces along the corridor.
Policy Support			
Supports Safe Routes to School (SRTS): Ability to address Safe Routes to School needs.	●	◕	Both streets are important priority routes for children getting to school. The NE 7th option would address 8 SRTS crossings. The NE 9th option would address 6 SRTS crossings.
Supports Vision Zero: Ability to support citywide Vision Zero traffic safety goals.	●	◑	Martin Luther King Jr Blvd is a High Crash Corridor for people walking and biking. An adjacent neighborhood greenway route can offer a safer option for people accessing the main street. The NE 7th option's proximity to MLK Jr Blvd makes it a more useful alternate route.
Supports TSP Street Classification: Ability to support citywide transportation system plan classifications.	●	◑	NE 7th is classified as a local street in our Transportation System Plan. Establishing neighborhood greenway features on this street would bring it in-line with transportation system plan expectations of local street design.
Cost Effectiveness			
Construction Costs: Cost for construction should be reasonable and in line with expected neighborhood greenway project costs.	◕	◔	The NE 9th option is roughly twice the cost of the NE 7th option due to the expense of a new path through Irving Park and necessary repaving of the street surface. Refinement of design or cost assumptions may be possible to reduce costs for both options.

Initial Route Analysis Key

- ● Meets or exceeds this criteria.
- ◕ Substantially meets this criteria, or can meet this criteria with minor design enhancements.
- ◑ Partially meets this criteria, or can meet this criteria with moderate design enhancements.
- ◔ Challenging to meet this criteria, but may meet this criteria with significant design enhancements.