



City of Longview

1525 Broadway
Longview, WA 98632
www.ci.longview.wa.us

Agenda

Public Works SubCommittee

Monday, March 20, 2023

5:00 PM

Public Works Conference Room
1st Floor, City Hall

1. CALL TO ORDER
2. ROLL CALL
3. APPROVAL OF MEETING NOTES
23-000881 Meeting notes from January 30, 2023 Special Meeting
4. OLD BUSINESS
5. NEW BUSINESS
23-000883 Complete Street Projects
6. PUBLIC COMMENT
7. ADJOURNMENT - Next meeting April 3rd

**Public Works SubCommittee
Special Meeting
Public Works Conference Room
January 30, 2023 – 5:00 P.M.
NOTES**

- **CALL TO ORDER**

The meeting began at 5:18 pm.

- **ROLL CALL**

The meeting began at 5:18 pm.

Present: Councilmember Ruth Kendall, Councilmember Christopher Ortiz, Councilmember Hillary Strobel, Public Works Director Ken Hash, City Engineer Karl Enyeart, Admin Nancy Vandehey

- **APPROVAL OF MEETING NOTES**

There were no requested changes to the notes.

- **OLD BUSINESS**

- **NEW BUSINESS**

- CAPTIAL PROJECTS UPDATE

Karl Enyeart presented on the following topics:

- Project Boilerplate
 - Project Parameters
 - ARPA Project Updates
 - Current Project List

The group will welcome Karl back next month to continue talks on Capital Projects.

- **PUBLIC COMMENT**

- **ADJOURN**

Councilmember Kendall is unable to make the meeting on March 6th, so the next meeting will be rescheduled to February 27th. The meeting ended at 6:25.



City of Longview

Agenda Summary

Complete Street Projects

- 30th Avenue, Washington Way to Pacific Way
- Olympia Way, 17th Avenue to Ocean Beach Highway
- Hudson Street, Washington Way to 3rd Avenue
- 18th Avenue, Washington Way to Olympia Way
- Beech Street, Oregon Way to Washington Way
- Washington Way, Larch Street to 34th Avenue

Attachments:

1. 2023 January - Complete Streets Look-ahead
2. 30th Ave - CSAC Alternatives Presentation
3. Olympia Way - CSAC Alternatives 11-22-22
4. Hudson St - CSAC Alternatives Presentation
5. 18th concept
6. Beech St - CSAC Alternatives
7. Washington Way Alternatives Analysis Memo

Key: Design

CS = present concept to Complete Streets Advisory Committee

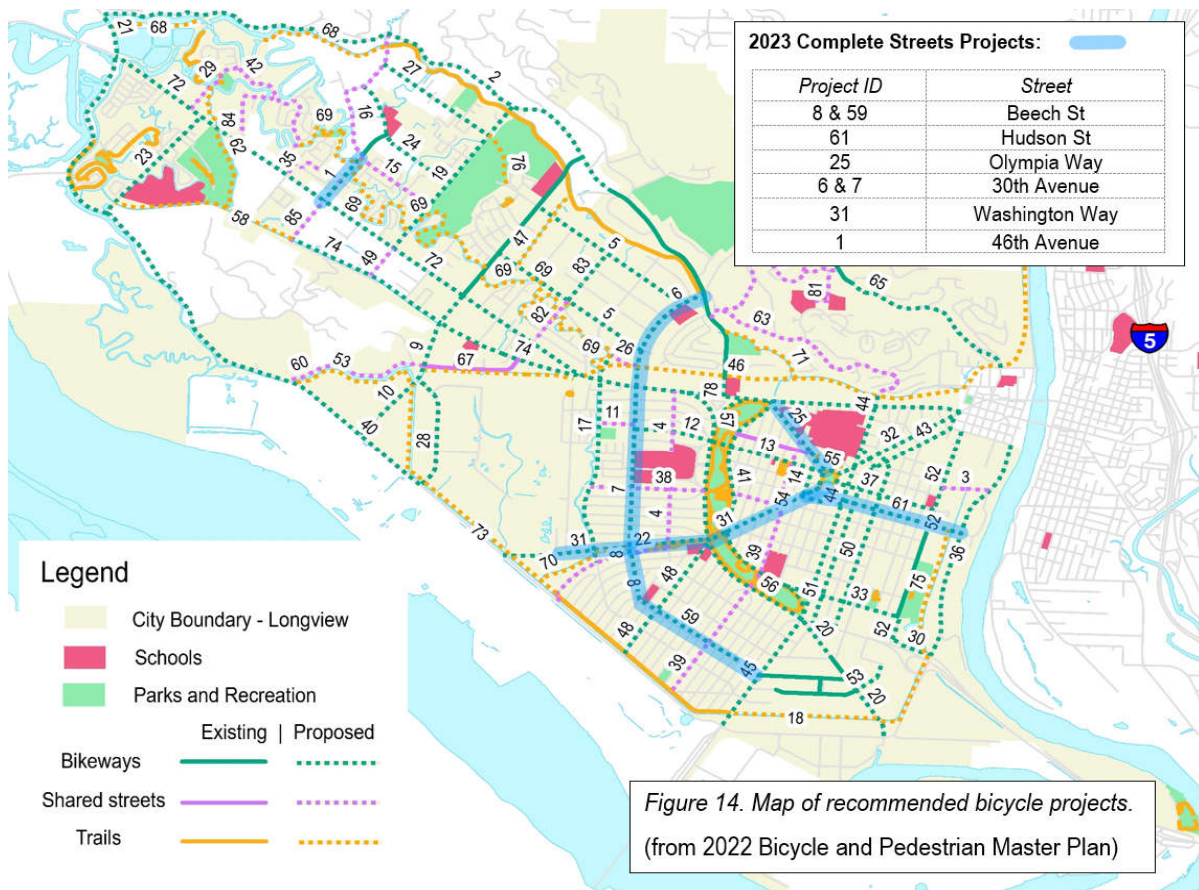
30 = 30% design presented to CSAC

OH = public open house (proposed, unless date is publicized)

CC = Present outreach and alternatives analysis to City Council at workshop

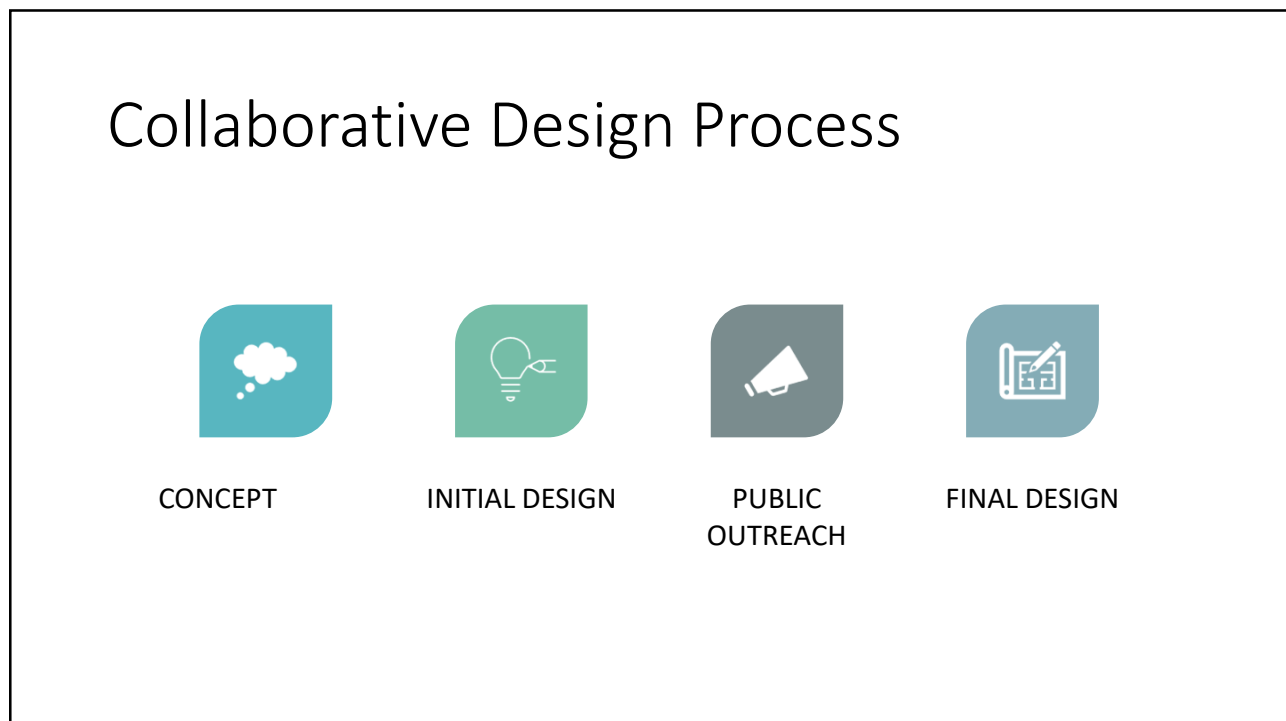
Construction

Project #	Corridor							2023											
		7	8	9	10	11	12	1	2	3	4	5	6	7	8	9	10	11	12
8 & 59	Beech St		CS						30	OH									
61	Hudson St				CS			30		OH									
25	Olympia Way					CS		30		OH									
6 & 7	30th Ave			CS				30		OH									
31	Washington Way	CS	OH						CC										
1	46th Ave																		





1



2

tib.wa.gov/projects/ProjectDetail.cfm?pid=C-W-187(001)-1

Transportation Improvement Board

HOME GRANTS BOARD **PROJECTS** PERFORMANCE SERVICES INFO ABOUT CONTACT

FEATURED PROJECTS PROJECT SEARCH

TIB Project Information

City of Longview's Complete Streets Award C-W-187(001)-1

Summary Information & Schedule Funding **CS Workplan** Pictures Delays Payments

Complete Streets Workplan

Item	Type of Work	Date Added	Est. Cost	Actual Cost	Complete
30th Avenue Bike Lanes Construct bike lanes from Pacific Way to Washington Way (2.1 miles)	Bicycle	Mar 2022	\$125,000	\$ 0	☐
Hudson Street Bike Lanes Construct bike lanes 3rd Avenue to Washington Way (1.0 mile)	Bicycle	Mar 2022	\$170,000	\$ 0	☐
Fixit Bike repair station Construct a Fixit bike repair station at the River Cides transit center	Bicycle	Mar 2022	\$5,000	\$ 0	☐
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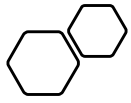
[http://www.tib.wa.gov/projects/ProjectDetail.cfm?pid=C-W-187\(001\)-1](http://www.tib.wa.gov/projects/ProjectDetail.cfm?pid=C-W-187(001)-1)

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Project Overview

- Low-stress, all ages and abilities bike corridor
- 2.1 miles

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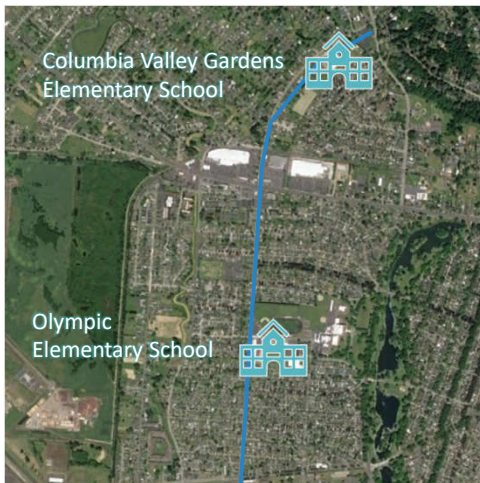


Existing Conditions

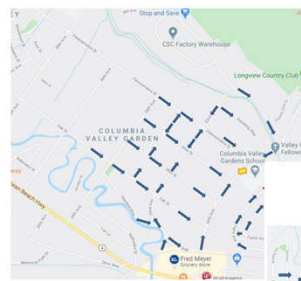


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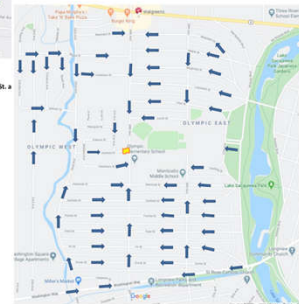
Schools



Columbia Valley Gardens Elementary
Recommended walking paths to school 2020



Olympic Elementary
Recommended walking paths to school 2020

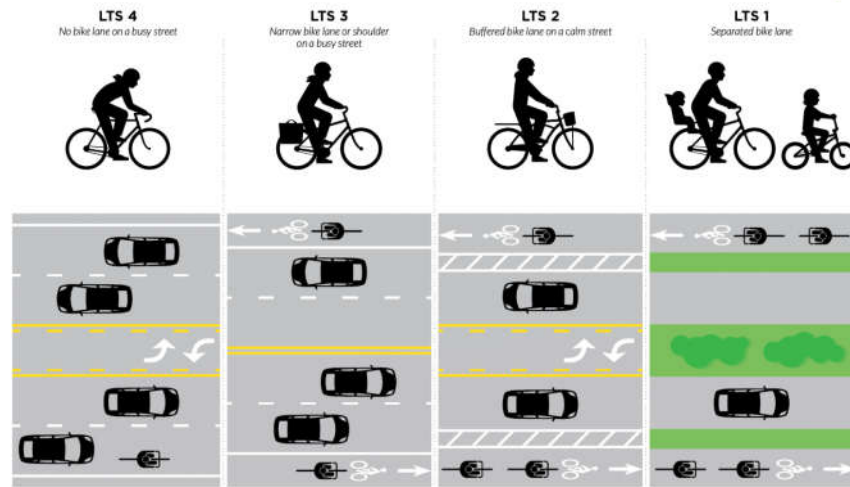


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LEVEL OF TRAFFIC STRESS



INCREASING LEVEL OF COMFORT, SAFETY, AND INTEREST IN BICYCLING FOR TRANSPORTATION



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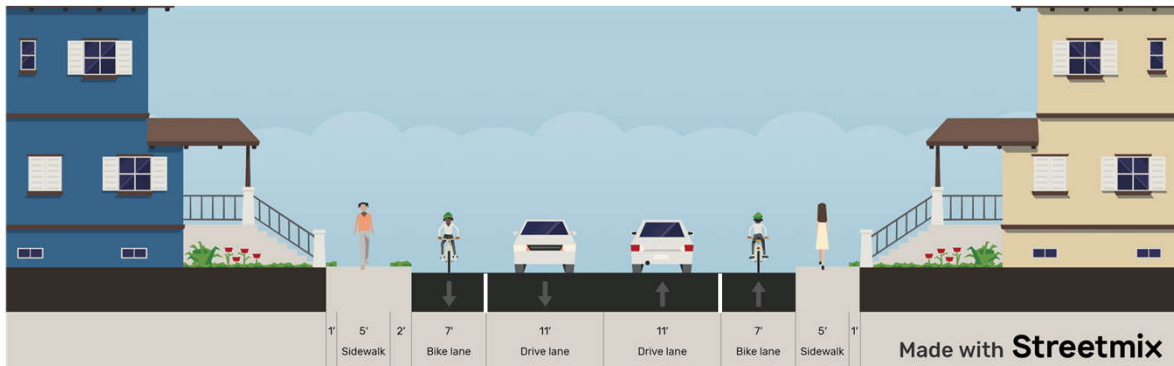
Option A: Wide bike lanes

Pros:

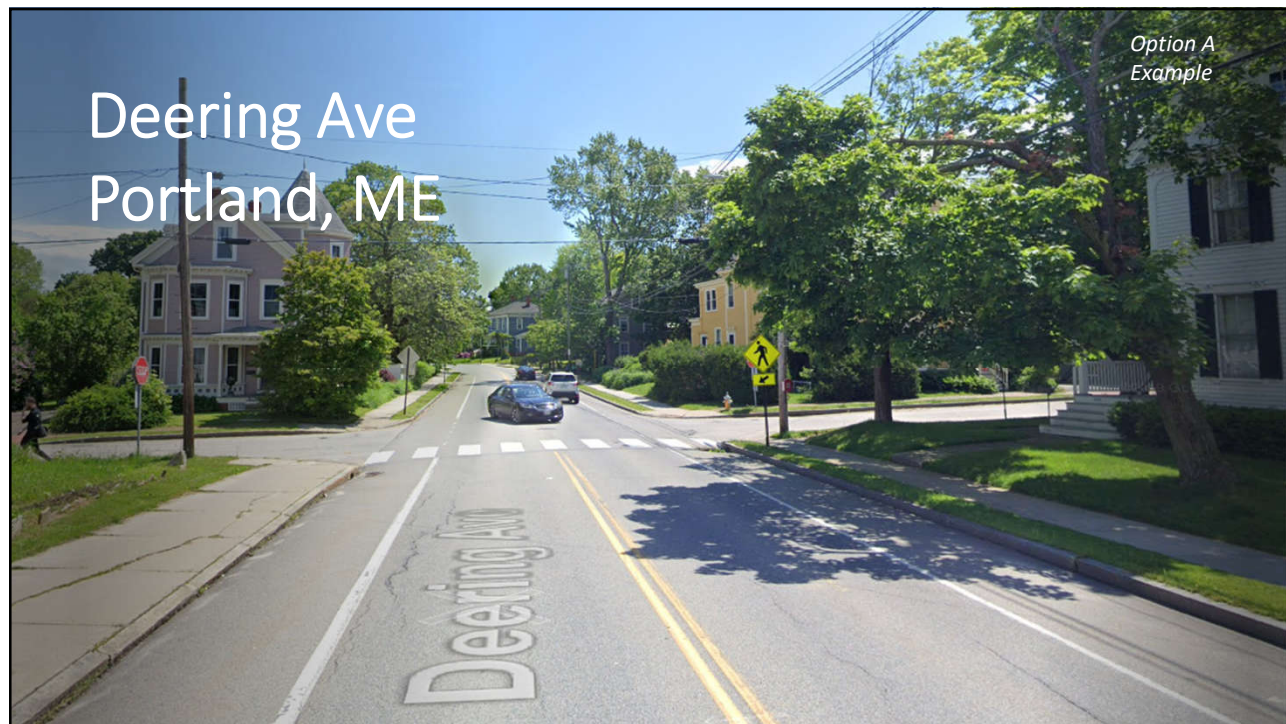
- One-stripe, easier to maintain
- Wide for lower stress

Cons:

- No physical barrier
- No parking



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Option B: Narrow with parking

Pros:

- Parking still allowed on one side, opportunity to alternate sides for traffic calming

Cons:

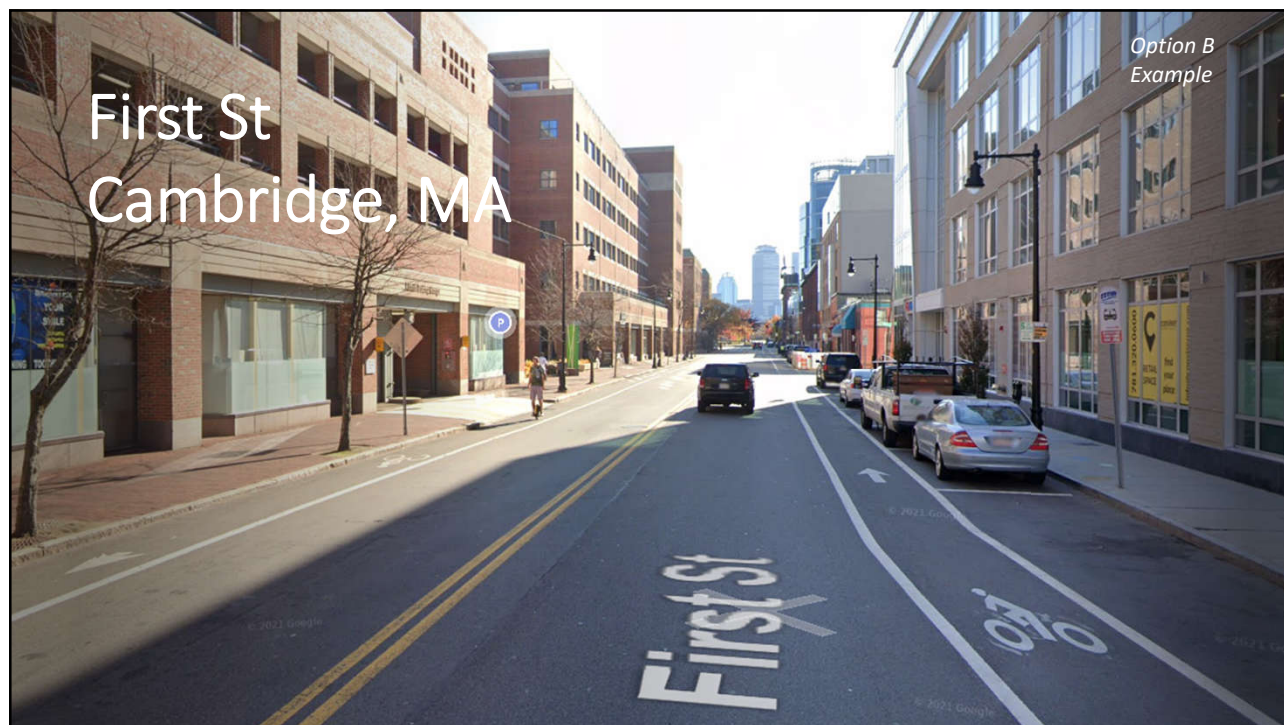
- Higher stress
- Door zone bike lane
- Everyone gets narrower space

Made with **Streetmix**

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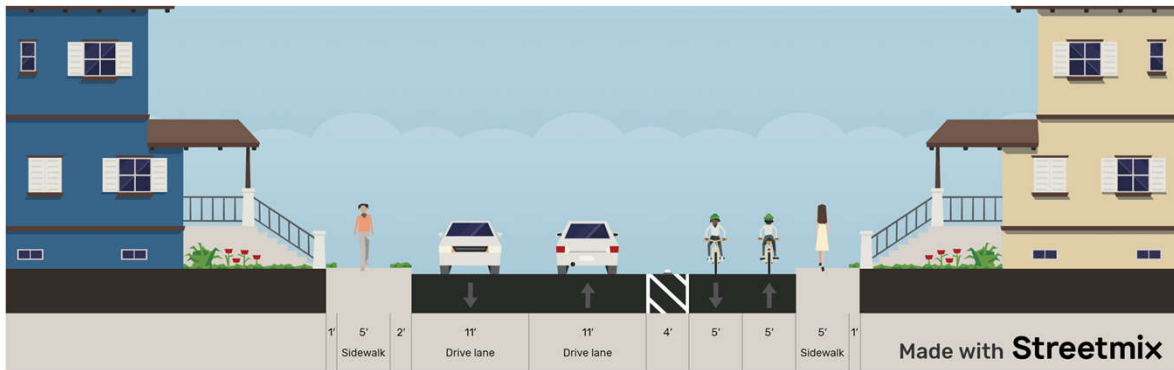
Option C: One-side, two-way

Pros:

- Wider buffer for bikes
- Consolidated on one-side

Cons:

- Driveways and intersections



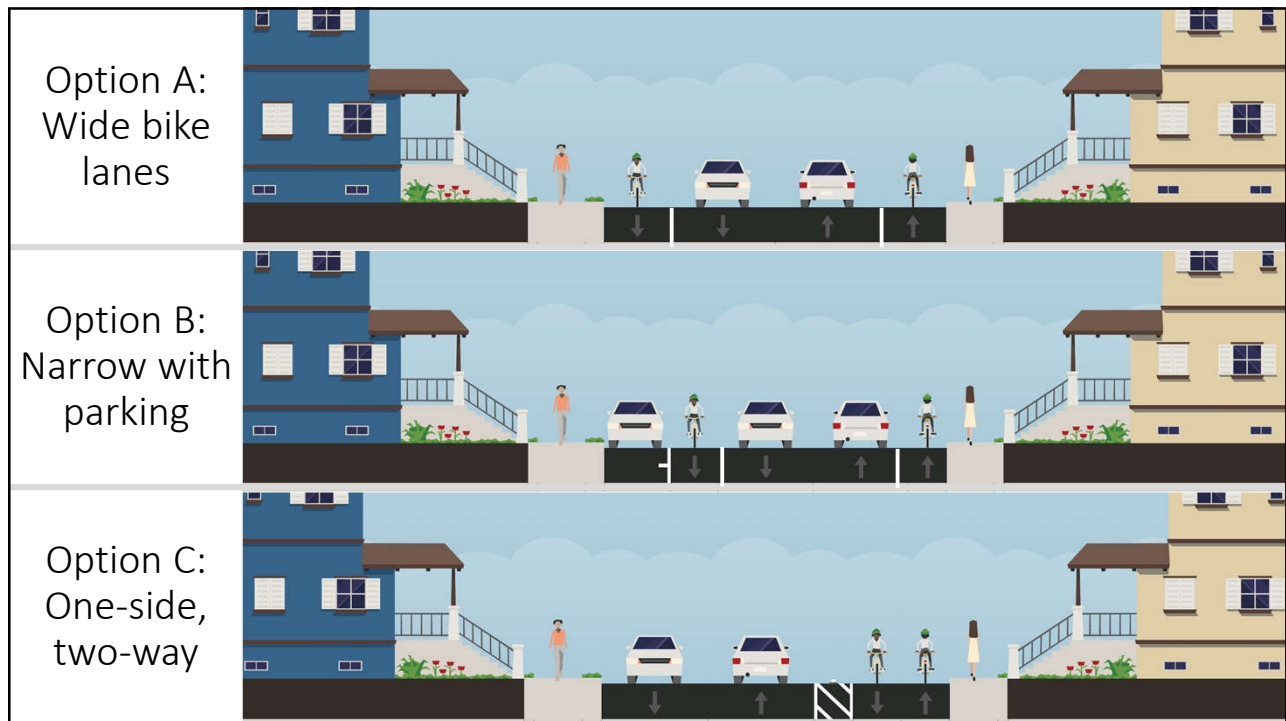
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Project Timeline:



Outreach
Fall 2022



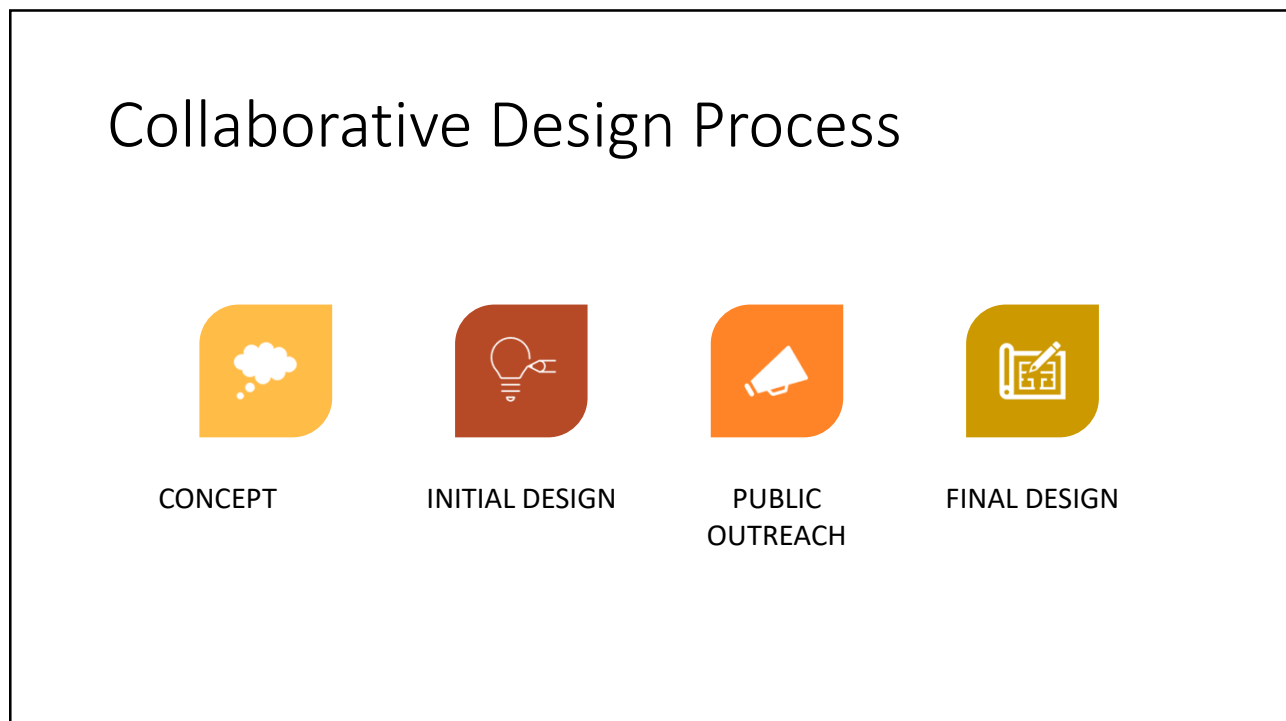
Design
Winter 2022



Construction
Summer 2023



1



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tib.wa.gov/projects/ProjectDetail.cfm?pid=C-W-187(001)-1

Transportation Improvement Board

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Summary Information & Schedule Funding **CS Workplan** Pictures Delays Payments

Complete Streets Workplan

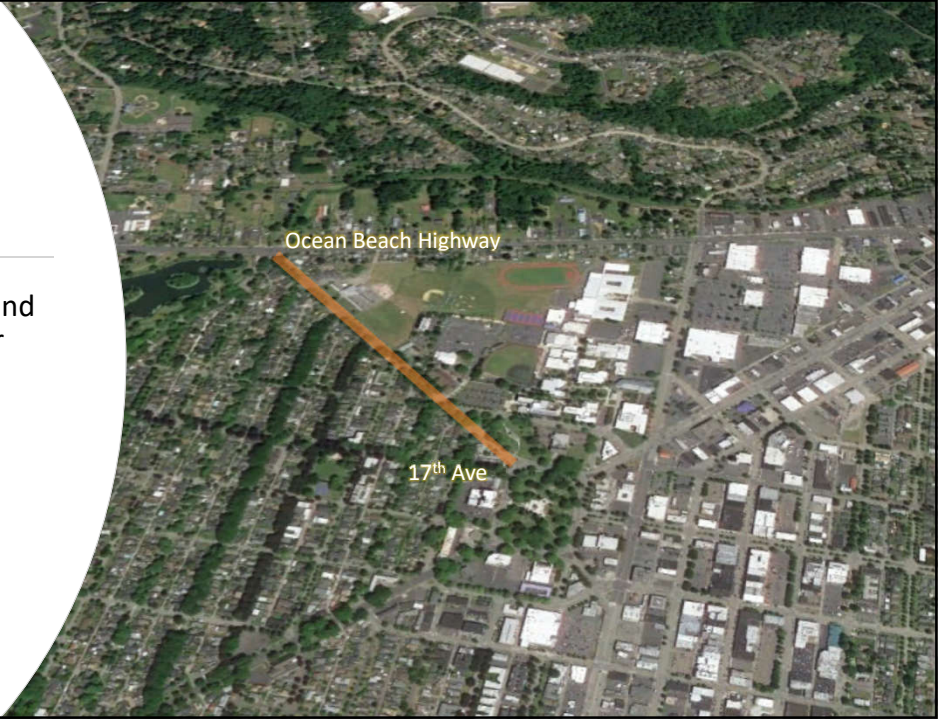
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Project Overview

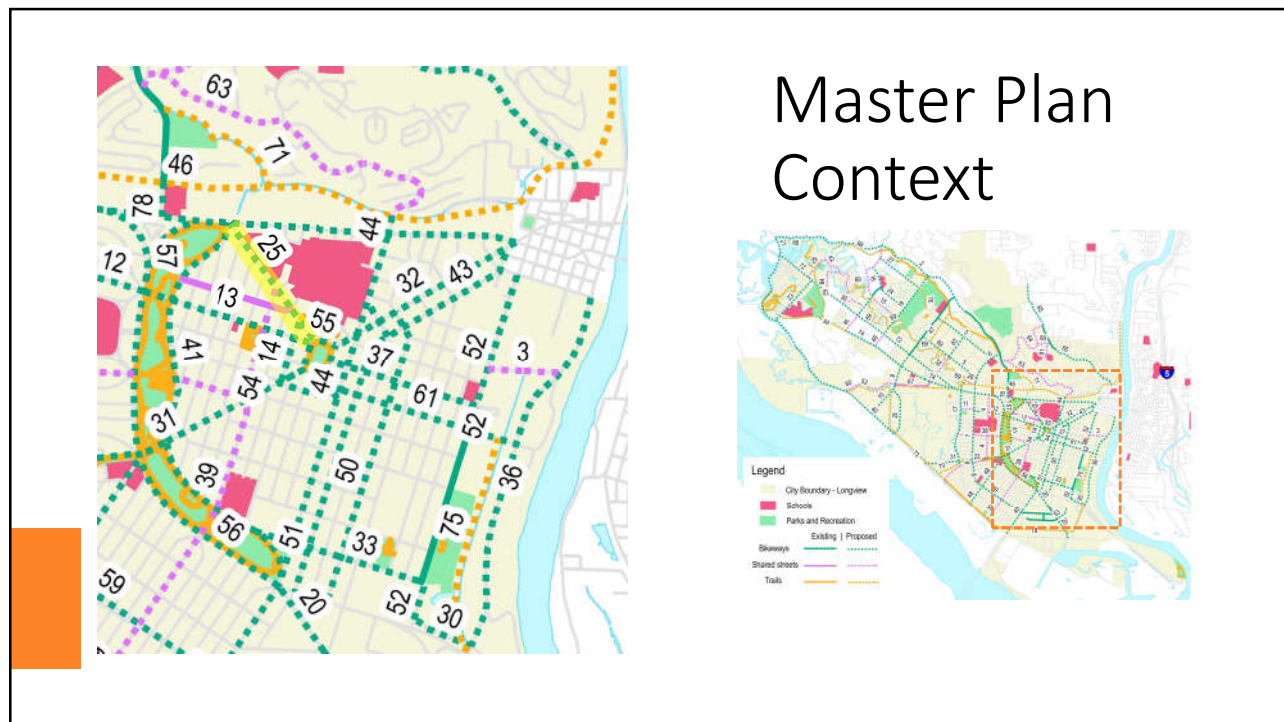
- Low-stress, all ages and abilities bike corridor
- 0.6 miles
- Low cost, striping improvements



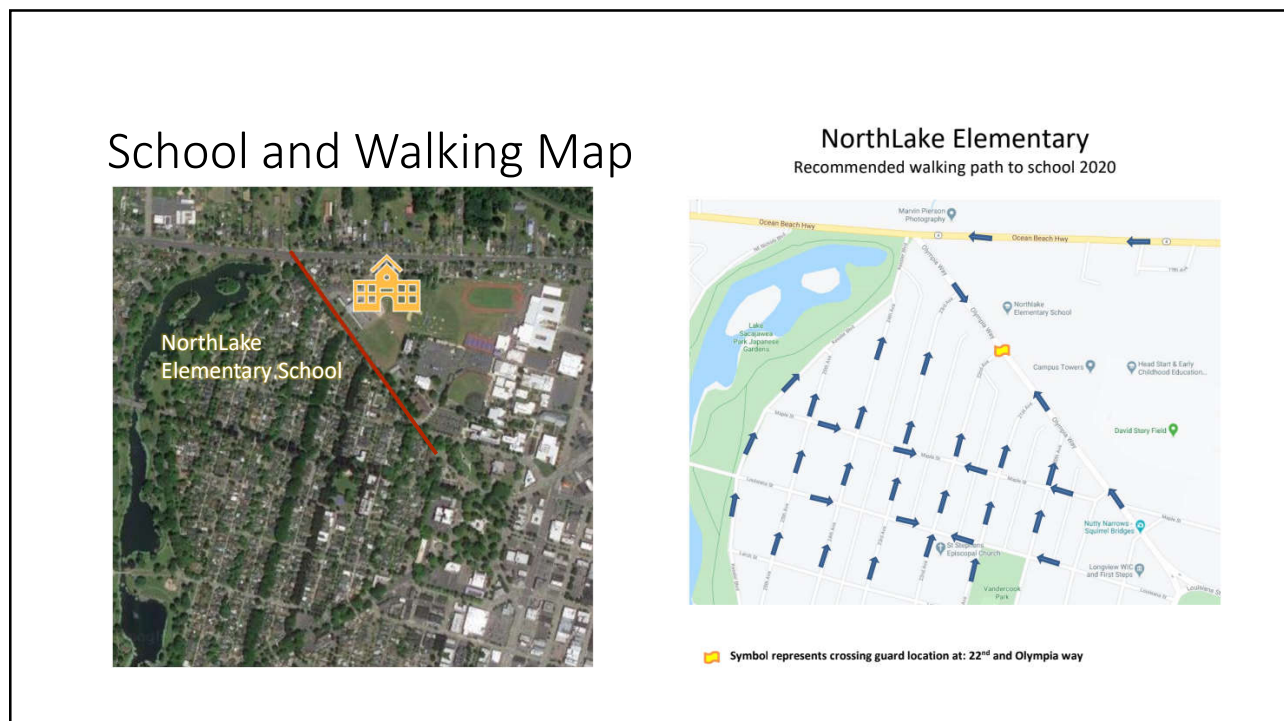
Ocean Beach Highway

17th Ave

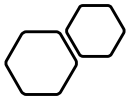
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Existing Conditions

50' street width

Ocean Beach Highway to 17th Ave

** Curb bulb outs at 19th and 20th*



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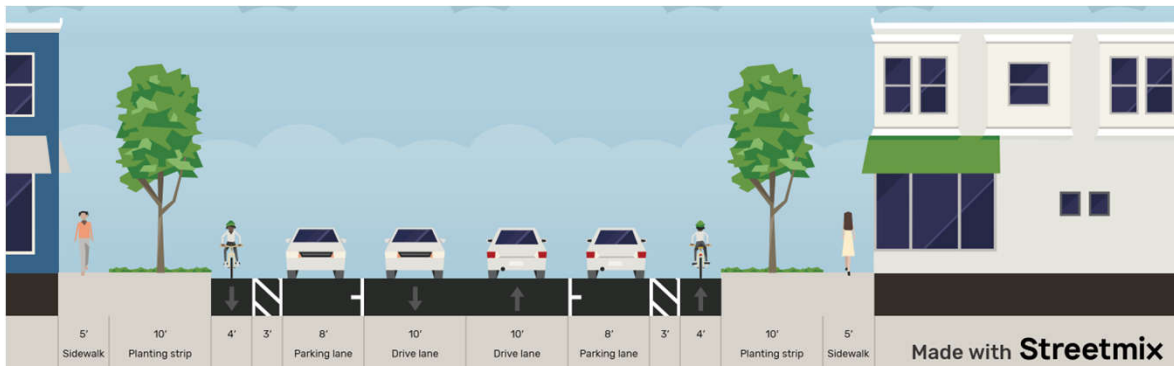
50' street width Option A: Parking-protected on both sides

Pros:

- Lower stress, protected
- School drop-off → less bike/car crossings
- No door zone conflict

Cons:

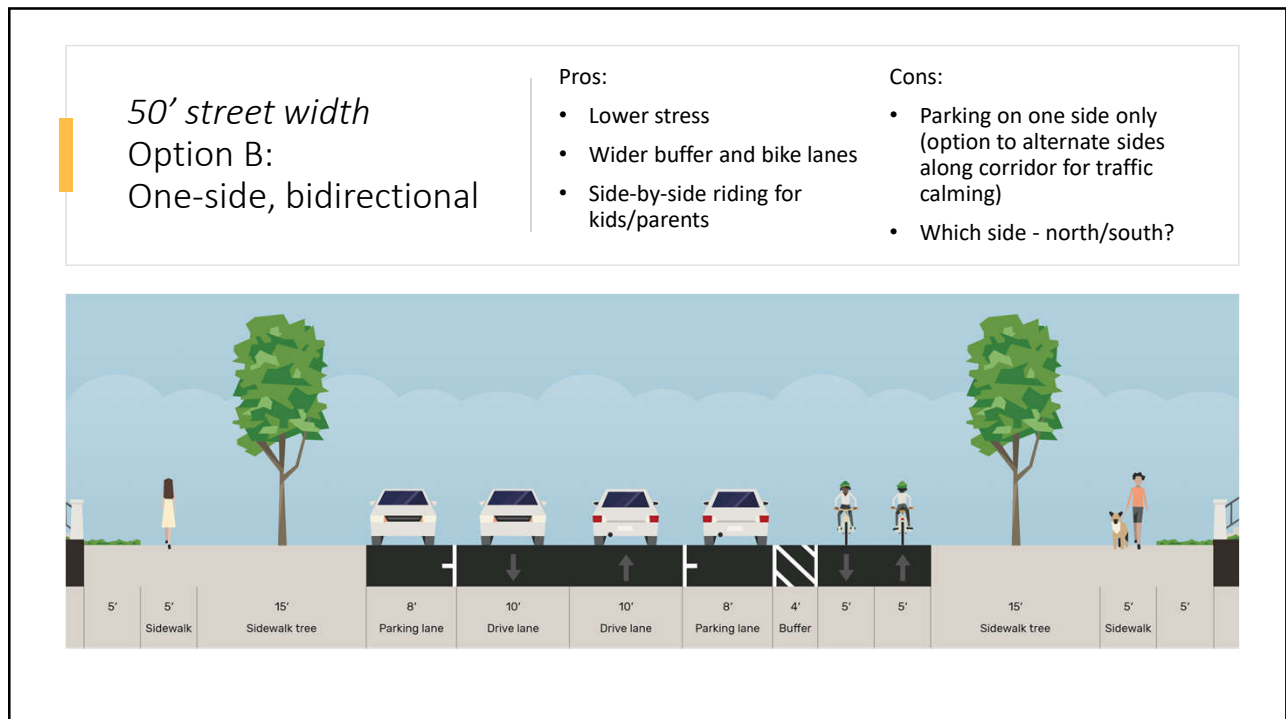
- Width limits side-by-side riding
- Bulbouts: lose 1 or 2 parking spaces at two intersections



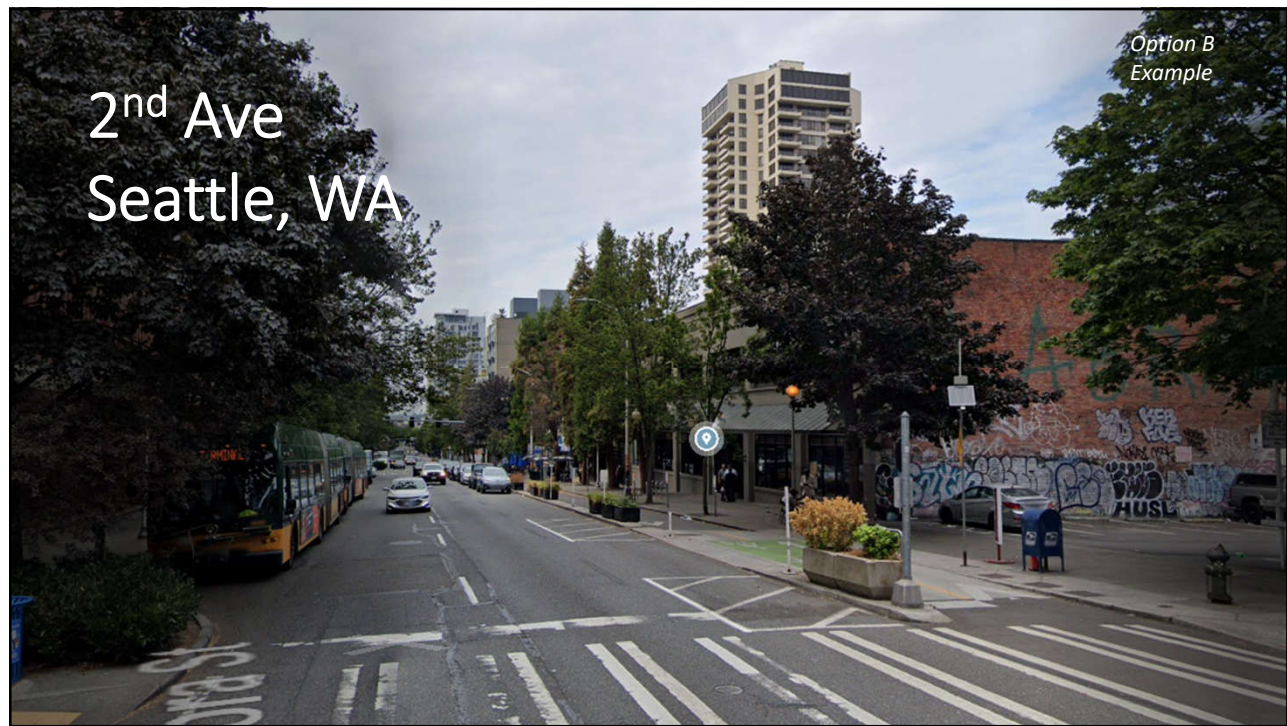
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50' street width

Option C:
Conventional

Pros:

- Parking on both sides
- Everyone gets ample space

Cons:

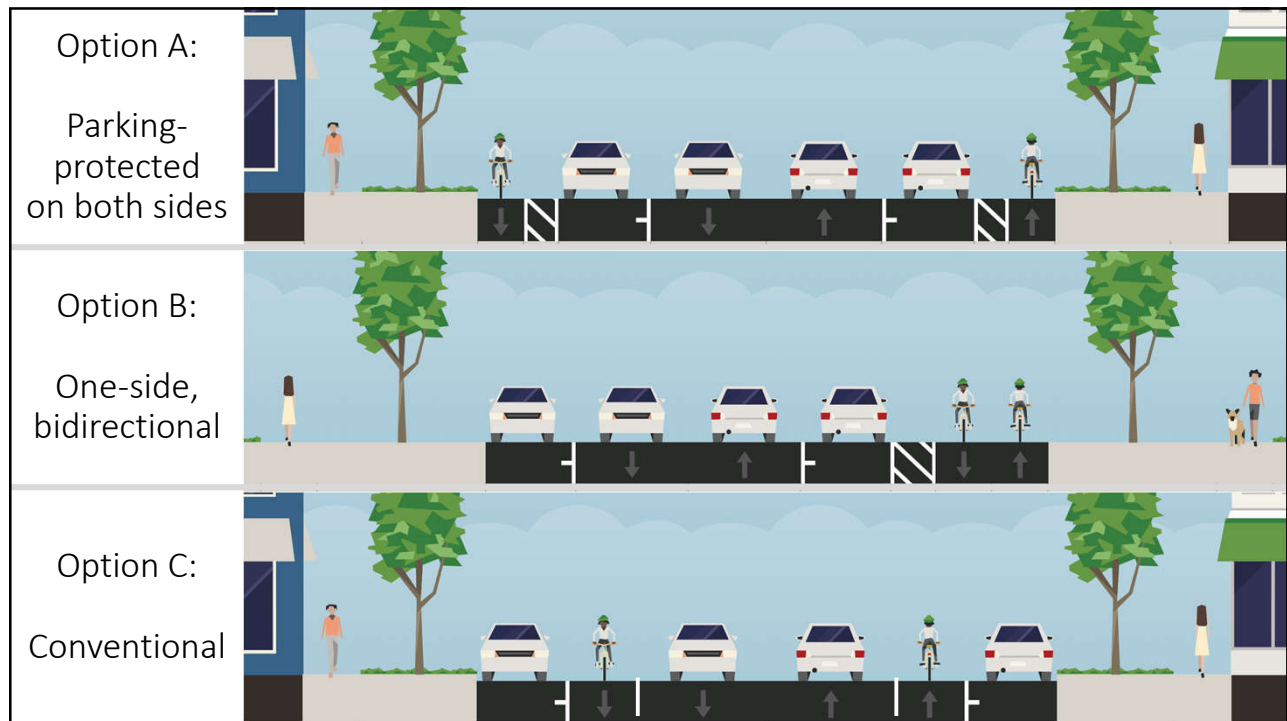
- Higher stress

Made with **Streetmix**

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Project Timeline:



Outreach

Fall 2022



Design

Winter 2022

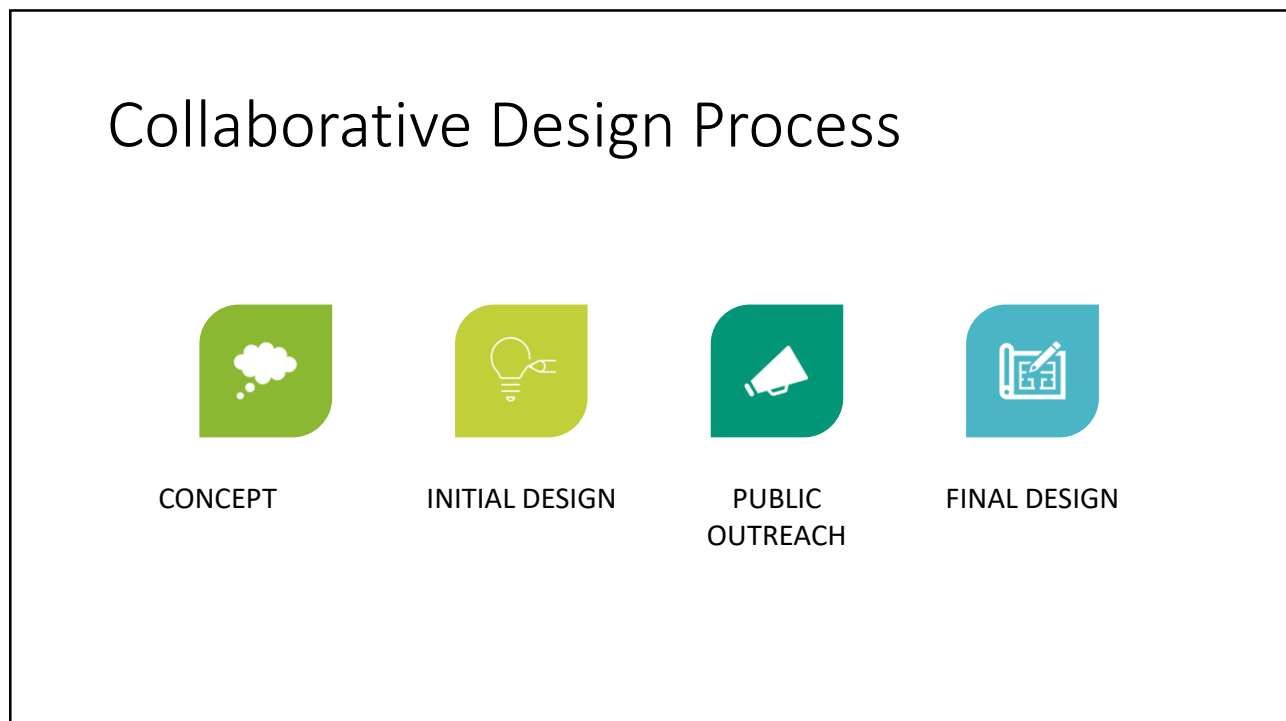


Construction

Summer 2023



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tib.wa.gov/projects/ProjectDetail.cfm?pid=C-W-187(001)-1

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Project Overview

- Low-stress, all ages and abilities bike corridor
- 1.0 miles
- Low cost, striping improvements

Washington Way

15th Ave

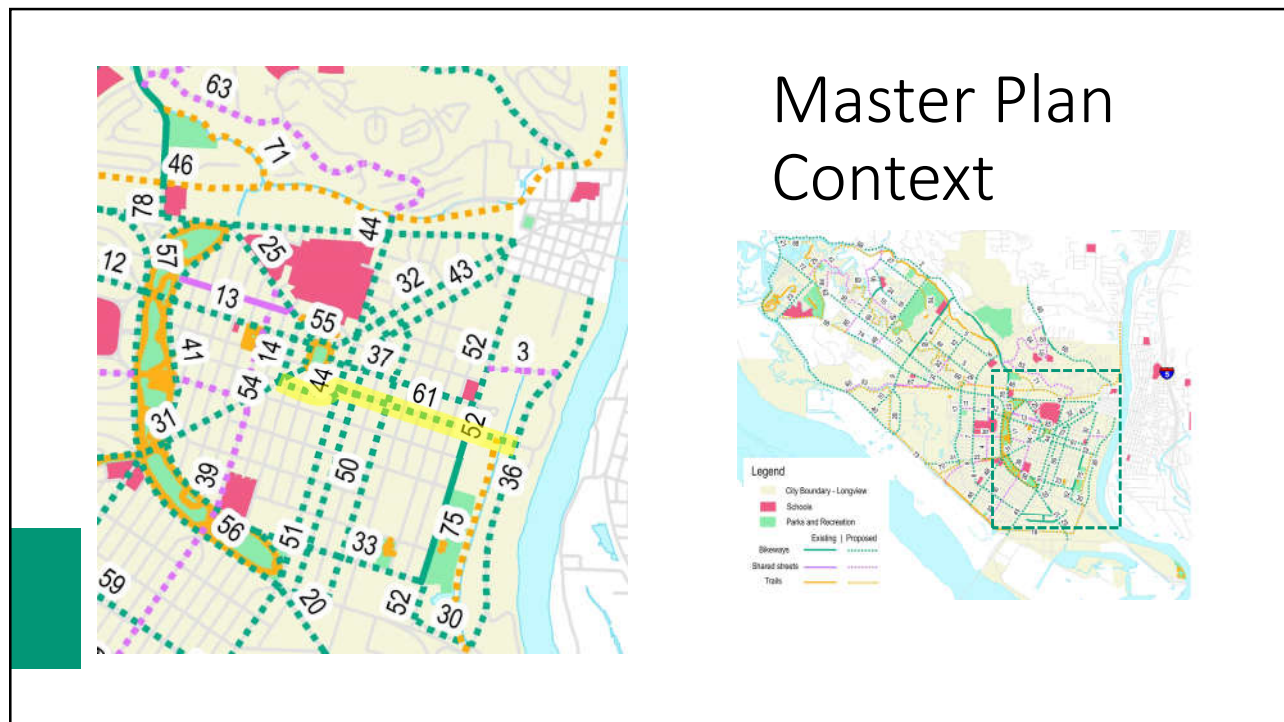
50' street width

7th Ave

3rd Ave

36' street width

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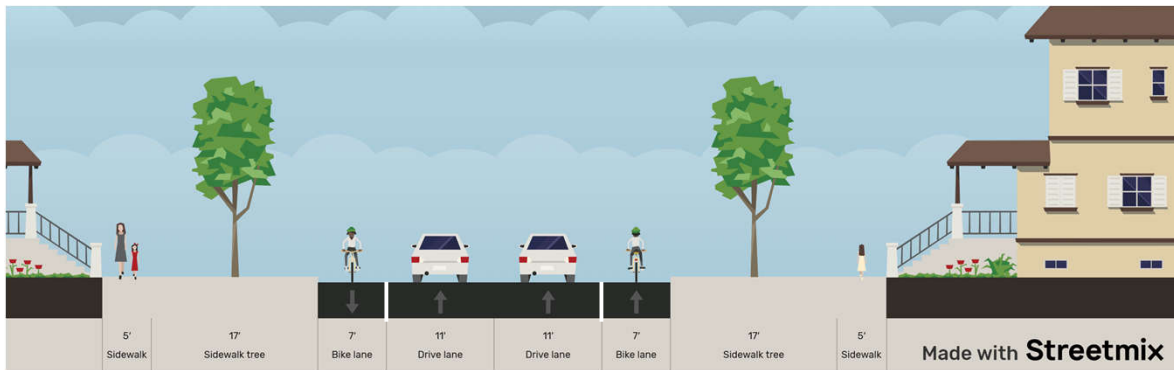
36' street width
Option A:
Wide bike lanes

Pros:

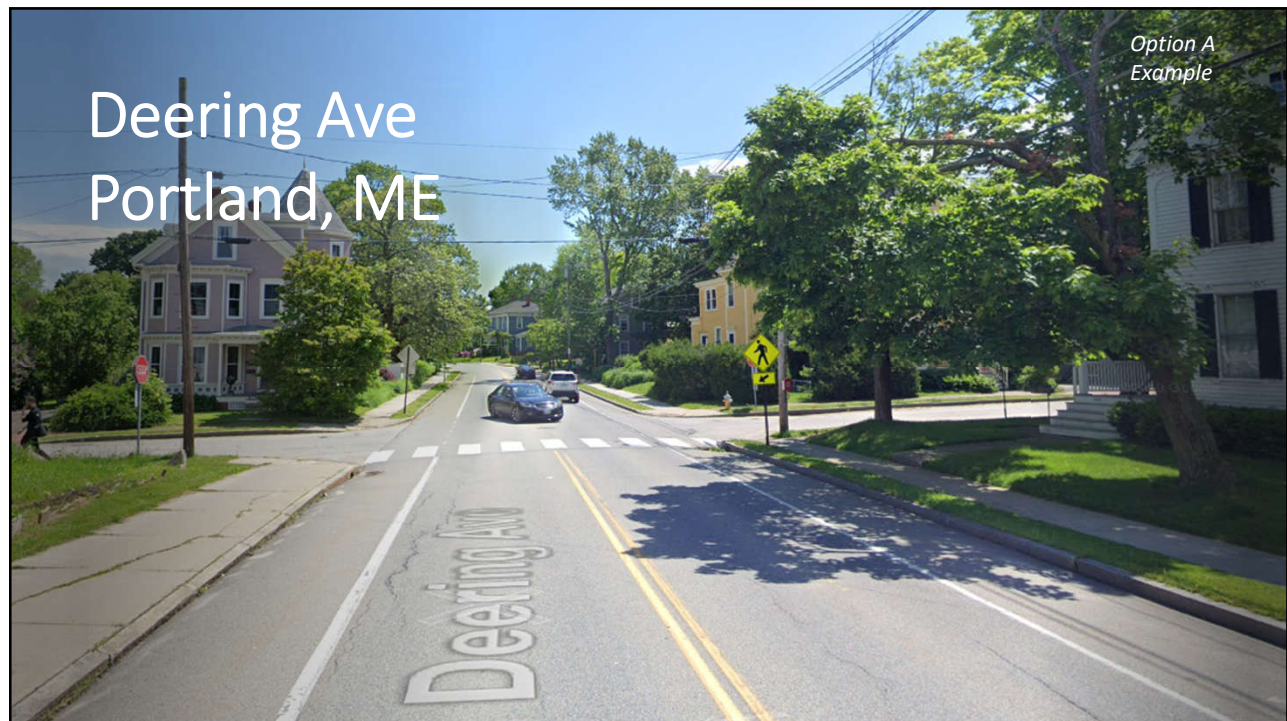
- One-stripe, easier to maintain
- Wide for lower stress

Cons:

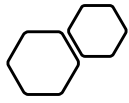
- No physical barrier



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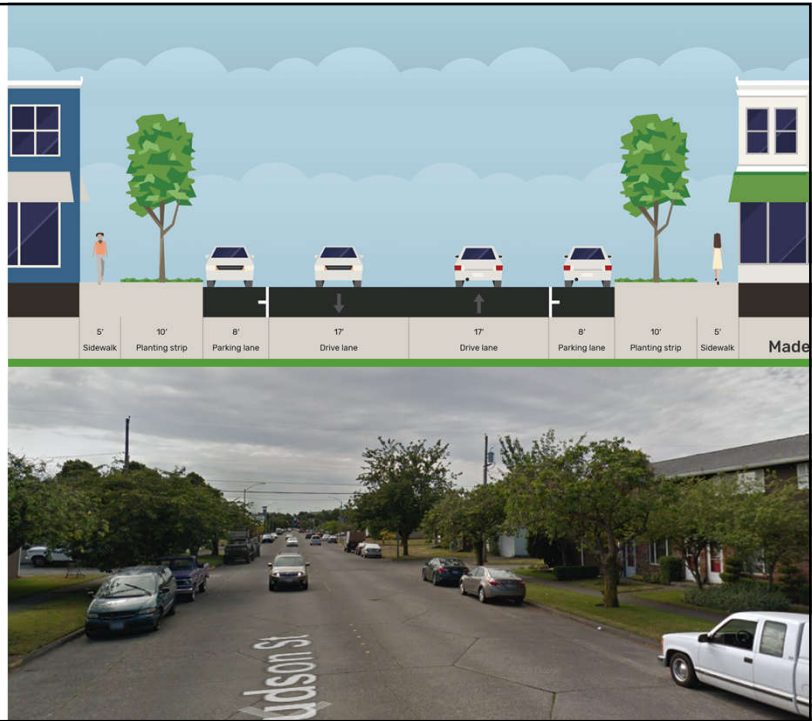
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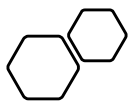
Existing Conditions

50' street width

7th Ave to 12th Ave



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Existing Conditions

50' street width

12th Ave to Washington Way



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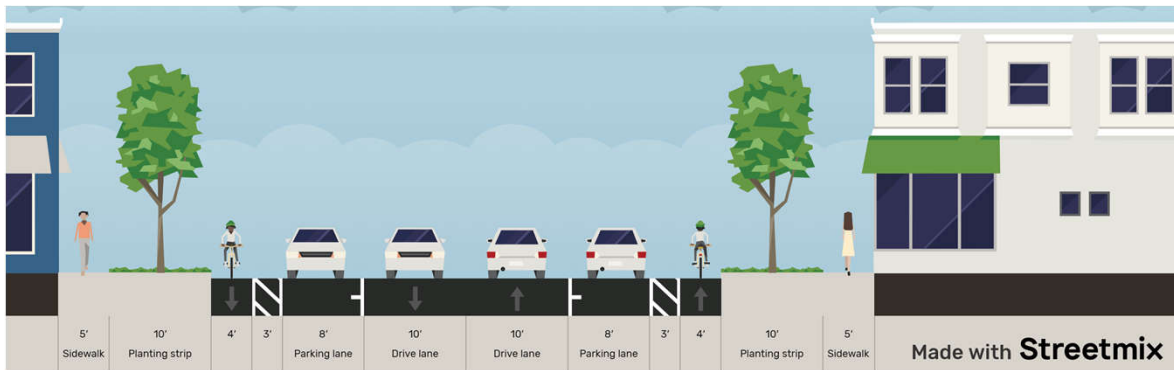
50' street width
Option A:
 Parking-protected
 on both sides

Pros:

- Lower stress, protected
- Parking allowed on both sides

Cons:

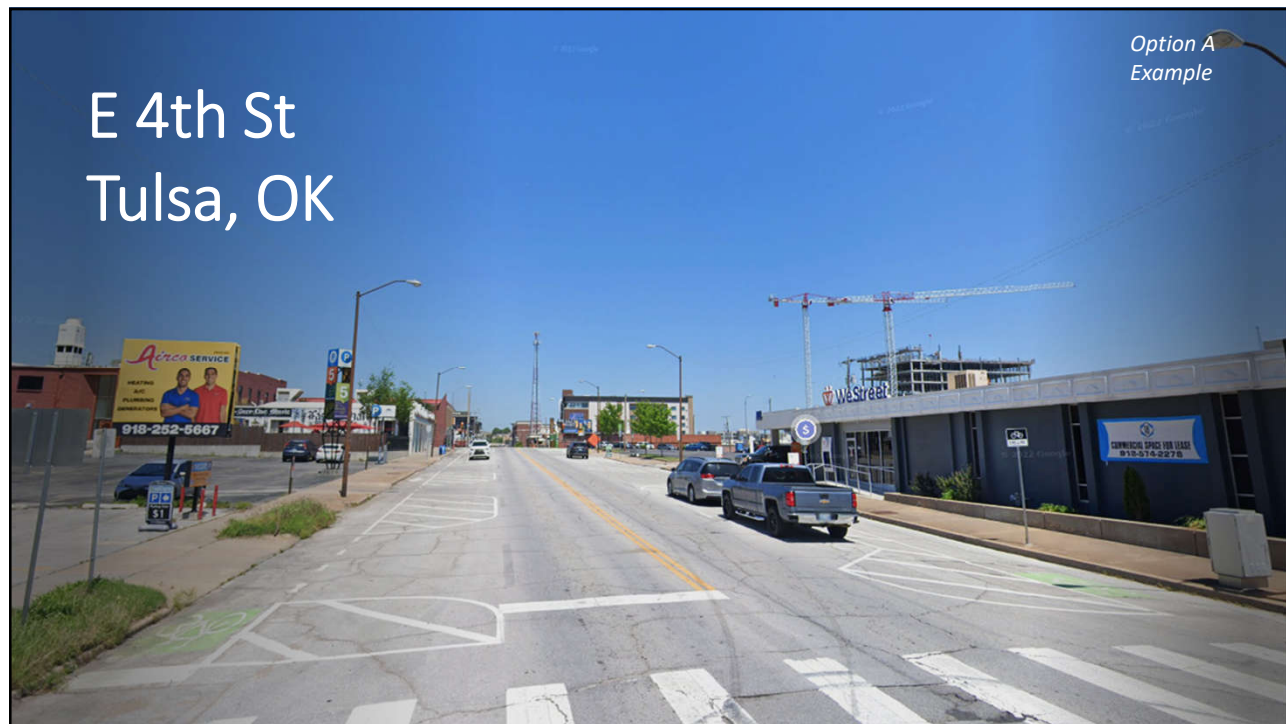
- Everyone gets narrower space



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50' street width

Option B:
Parking protected
on one side

Pros:

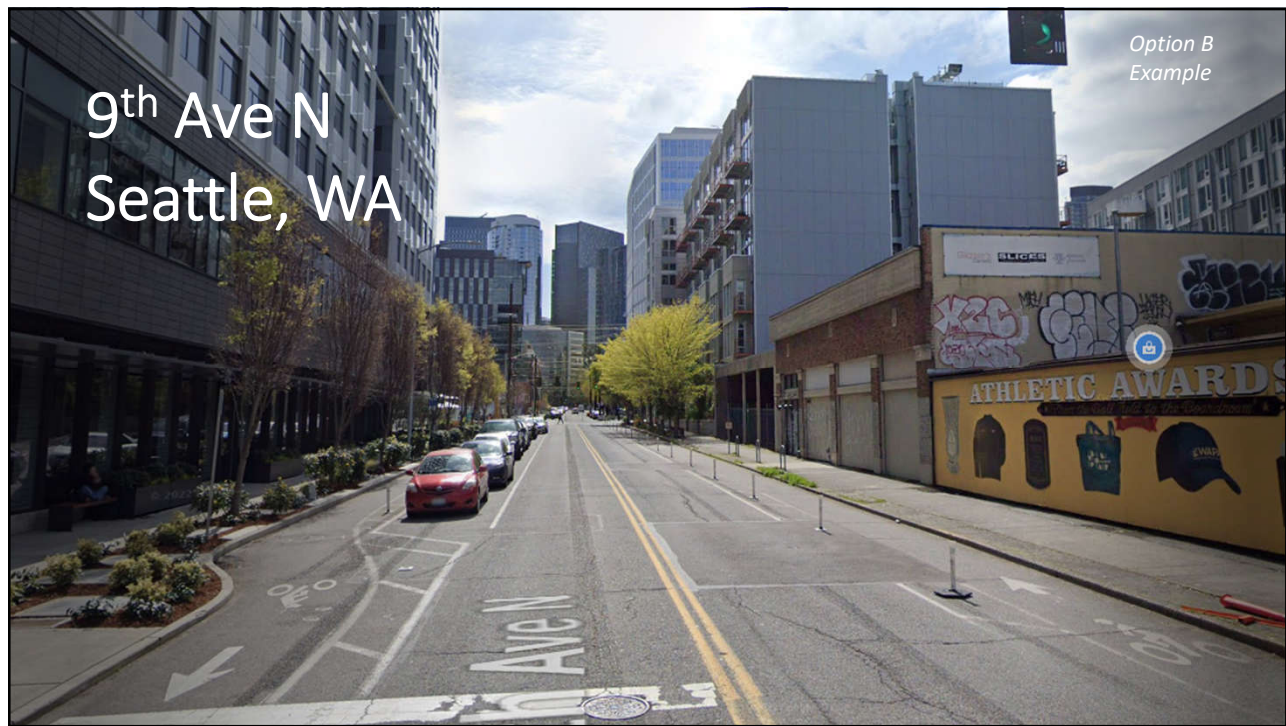
- Lower stress
- Wider buffer and bike lanes
- Everyone gets more space

Cons:

- Parking on one side only (option to alternate sides along corridor for traffic calming)

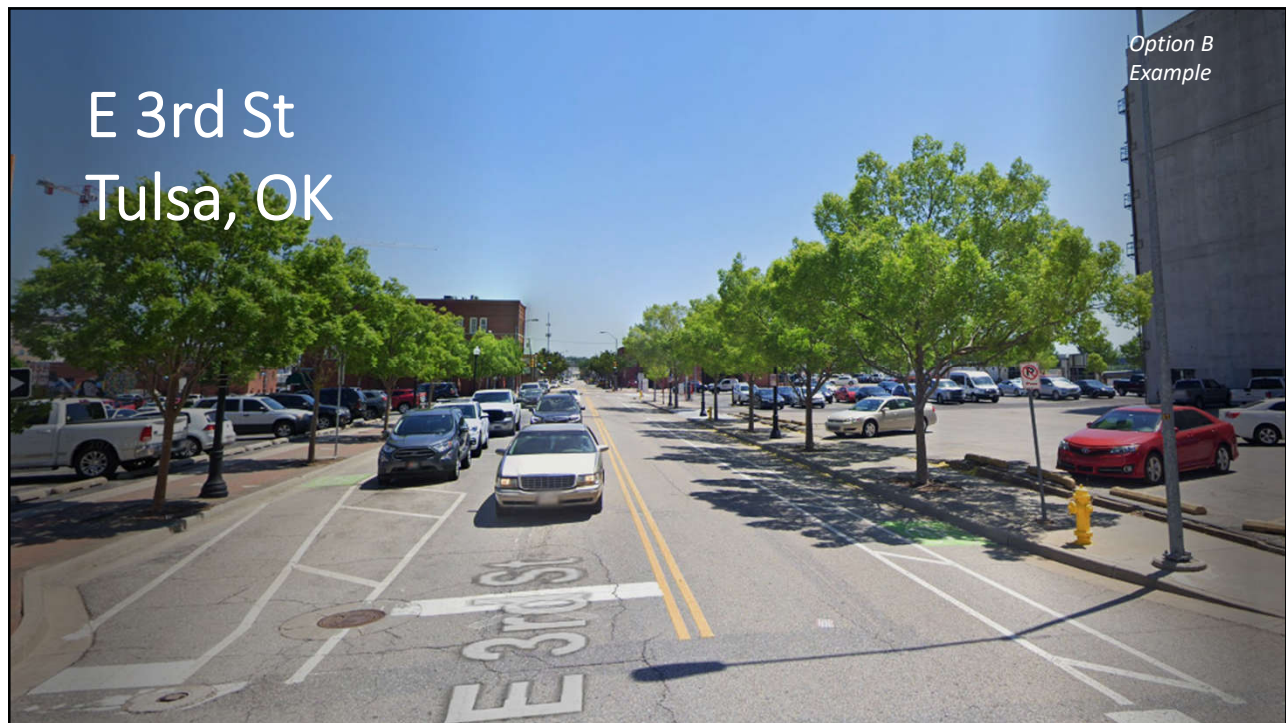
Made with **Streetmix**

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Option B
Example

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Option B
Example

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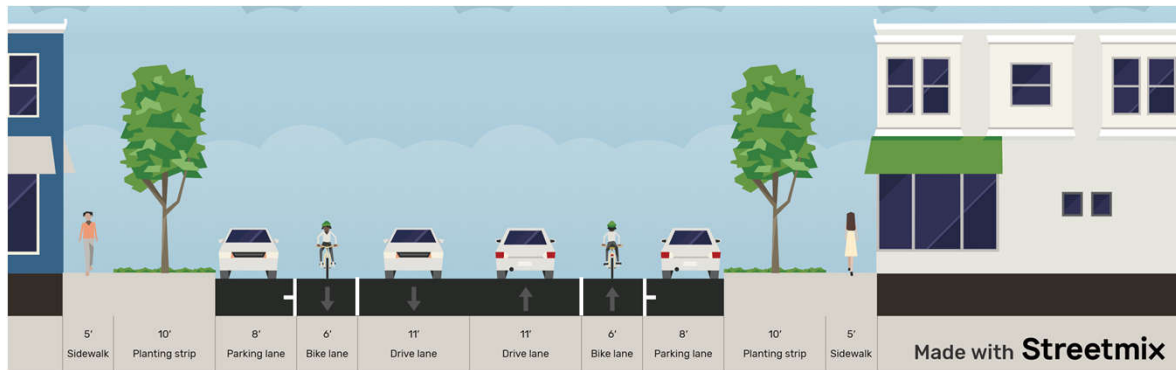
50' street width Option C: Conventional

Pros:

- Parking on both sides
- Everyone gets ample space

Cons:

- Higher stress



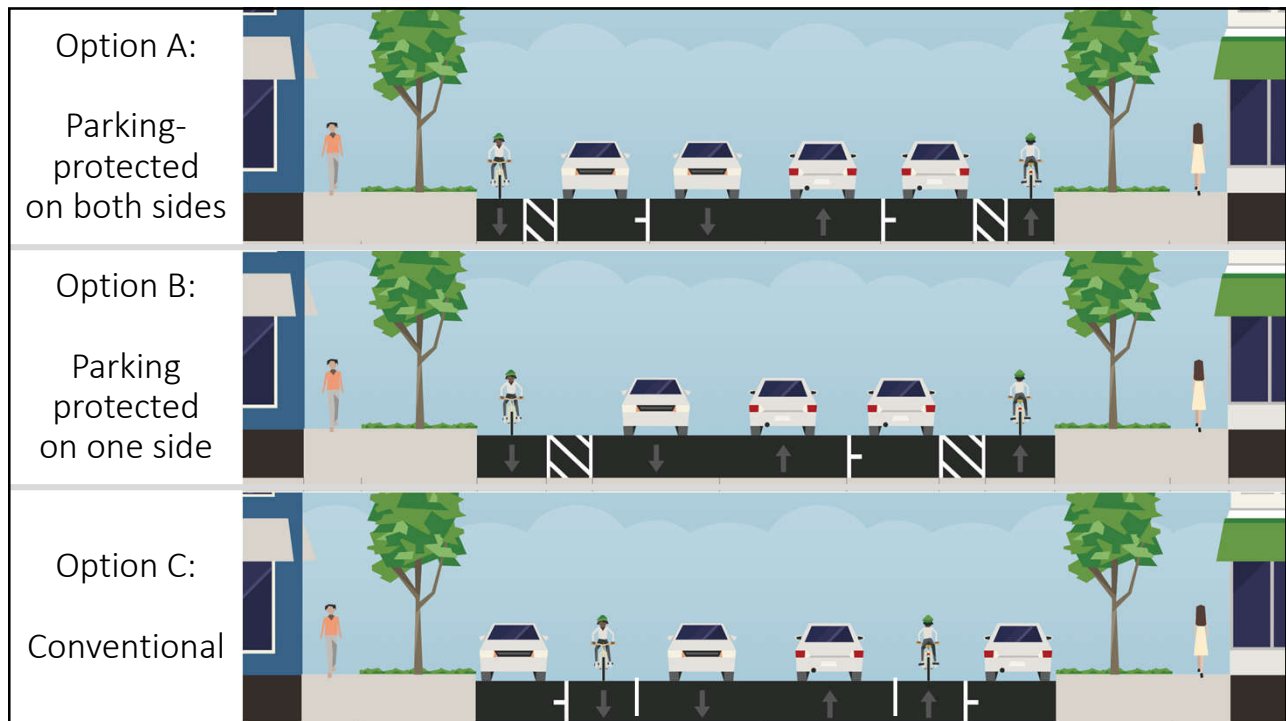
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Project Timeline:



Outreach

Fall 2022



Design

Winter 2022



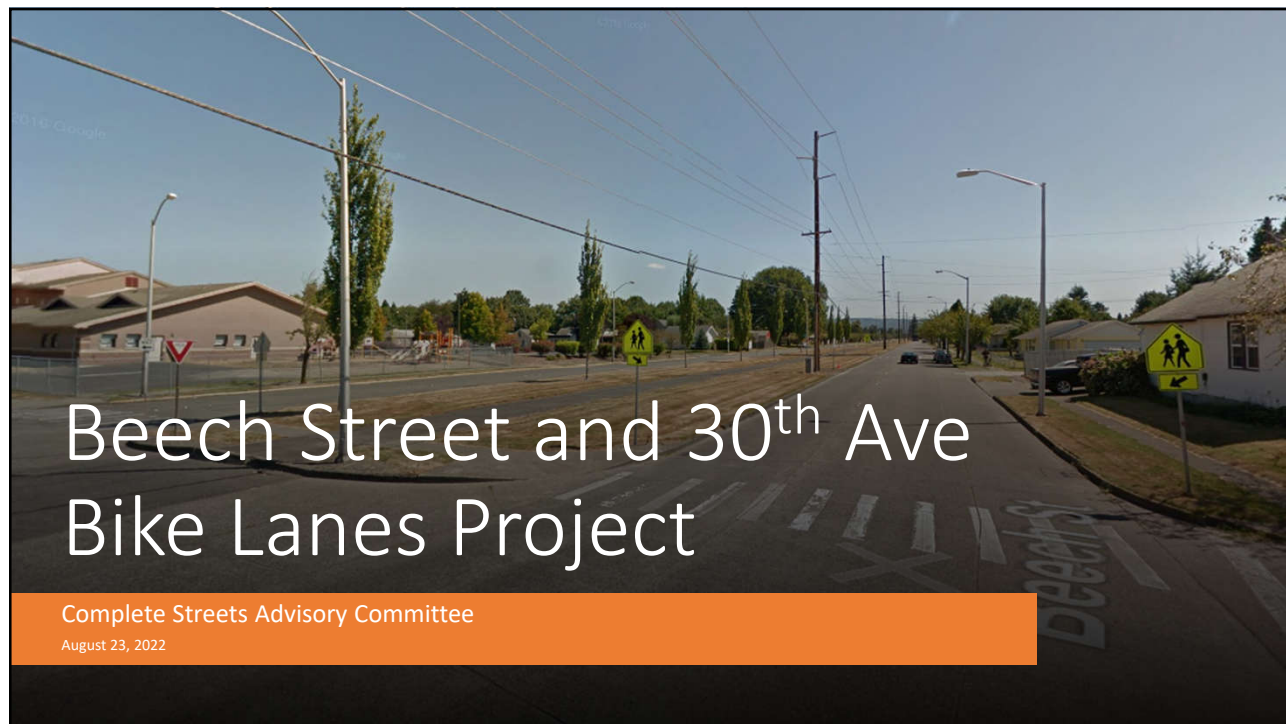
Construction

Summer 2023

18th Avenue

Olympia Way to Washington Way

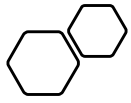
<i>Street width = 50'</i>				
Treatment ID	Description	Application	Potential Locations	Example Cross-section
50A	Parking-protected bike lanes	When parking is required on both sides of street AND traffic volume is high	Vandercook Way, from Washington Way to 12th Ave Olympia Way, from Civic Circle to Ocean Beach Hwy 7th Ave 12th and 14th St	



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Existing Conditions

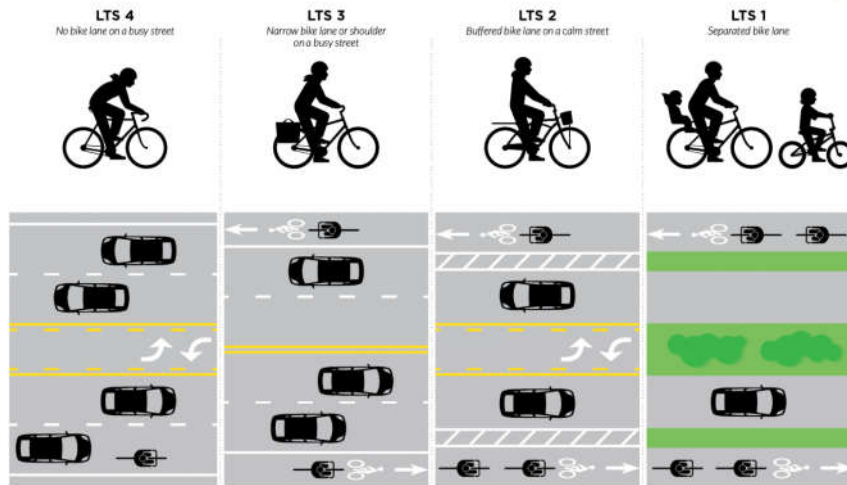


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LEVEL OF TRAFFIC STRESS



INCREASING LEVEL OF COMFORT, SAFETY, AND INTEREST IN BICYCLING FOR TRANSPORTATION



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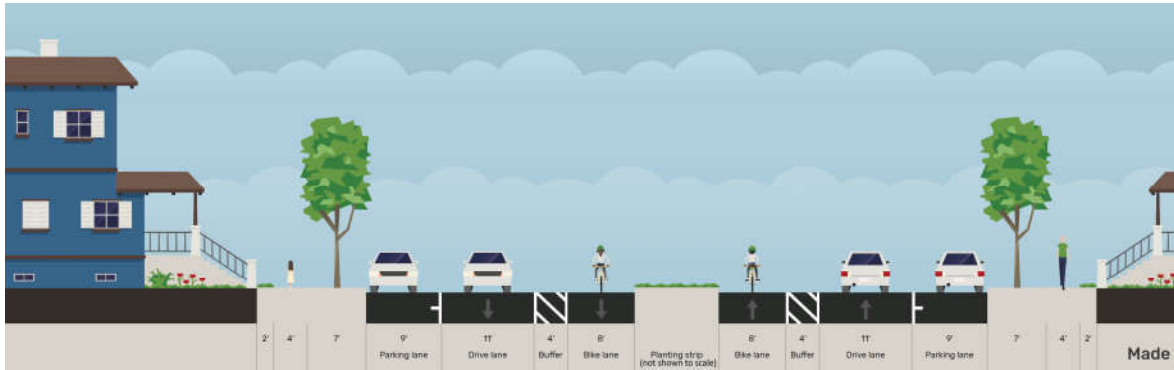
Option A: Left-side

Pros:

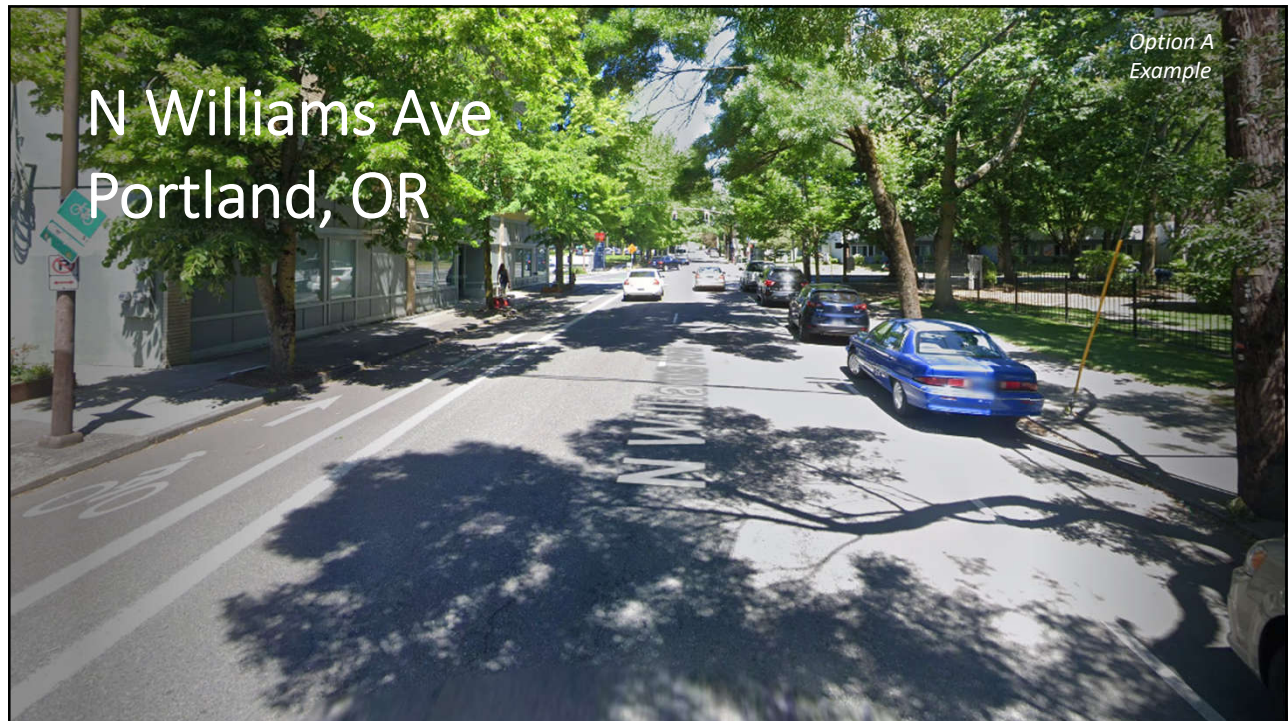
- Easier left turns for bikes
- Bike more visible to driver
- No "door-zone"
- No bus-bike mixing

Cons:

- Difficult right turns for bikes
- Transition to right-side bike lane at Oregon Way



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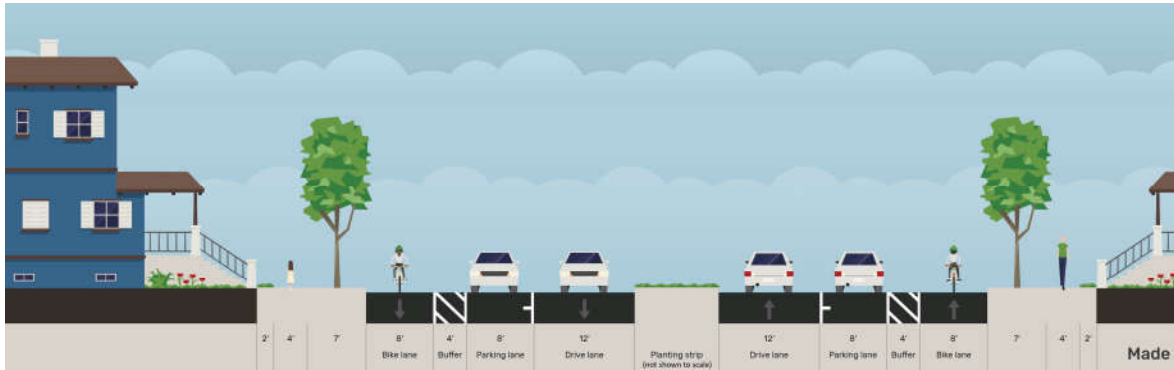
Option B: Parking-protected

Pros:

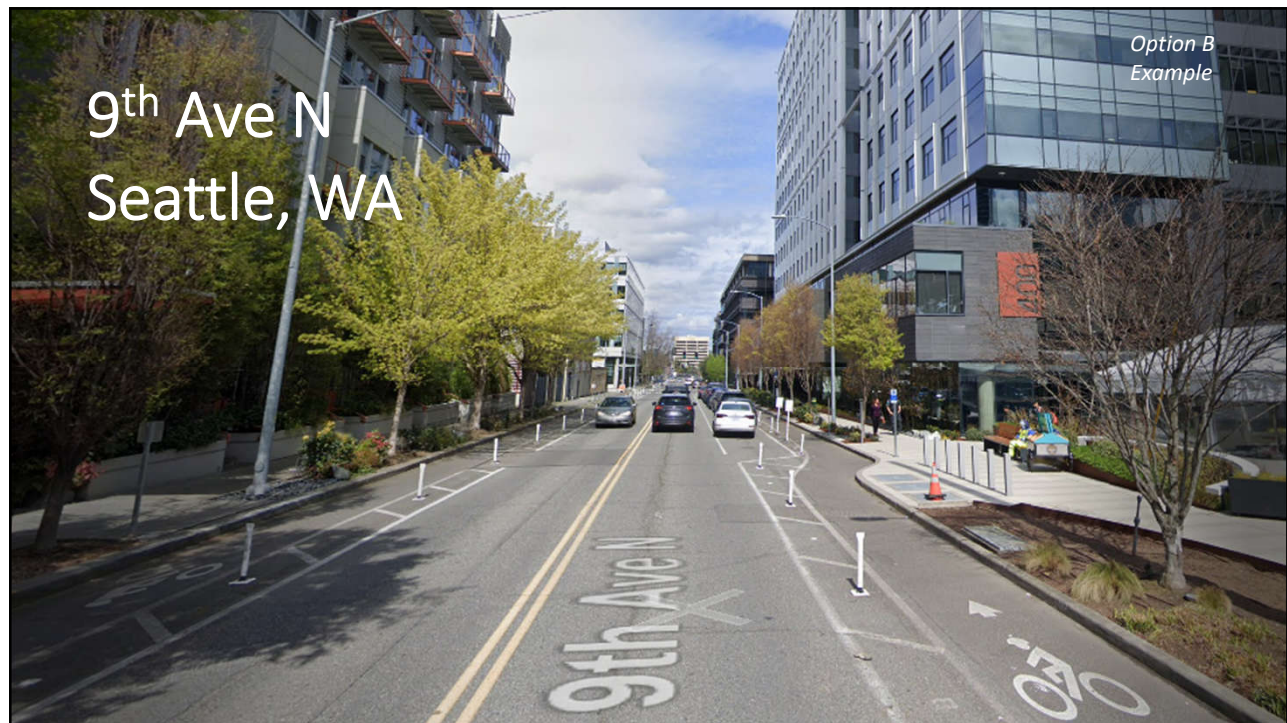
- Parking provides extra protection
- Closer to “Dutch” design
- Low risk of “door-zone”

Cons:

- Parking education
- Bus-bike mixing
- Need left-turn queuing space



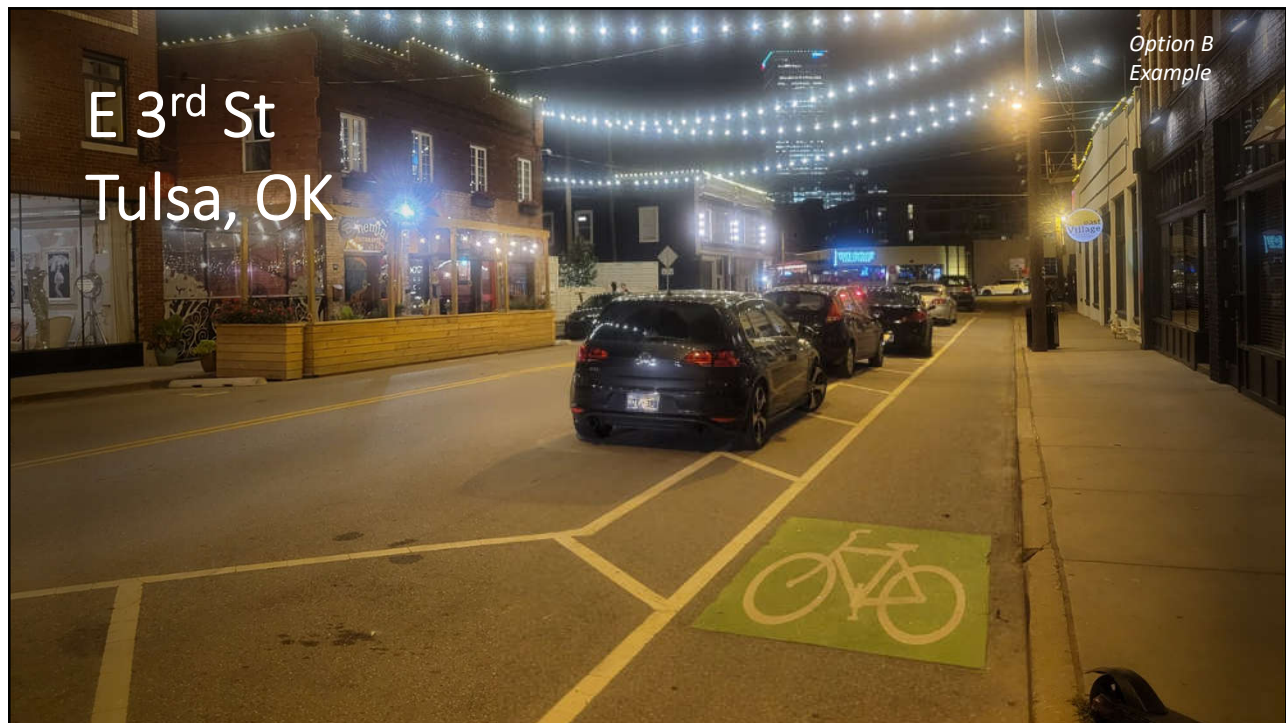
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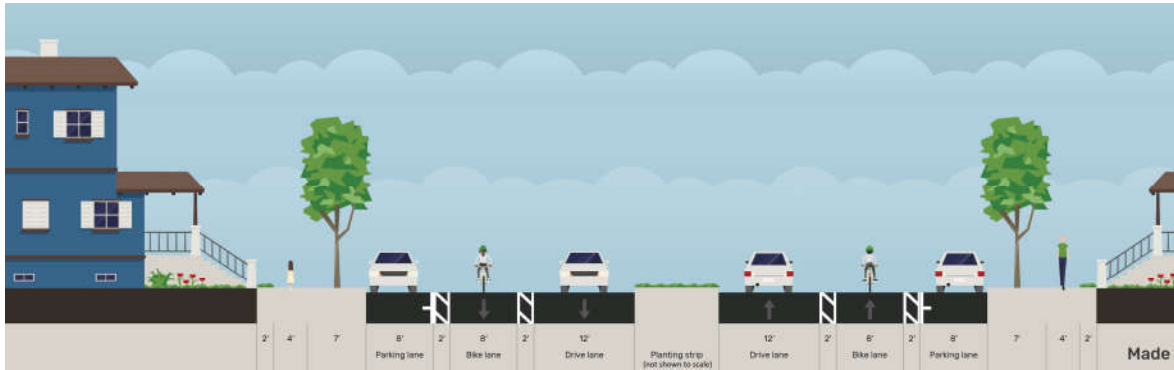
Option C: Buffered

Pros:

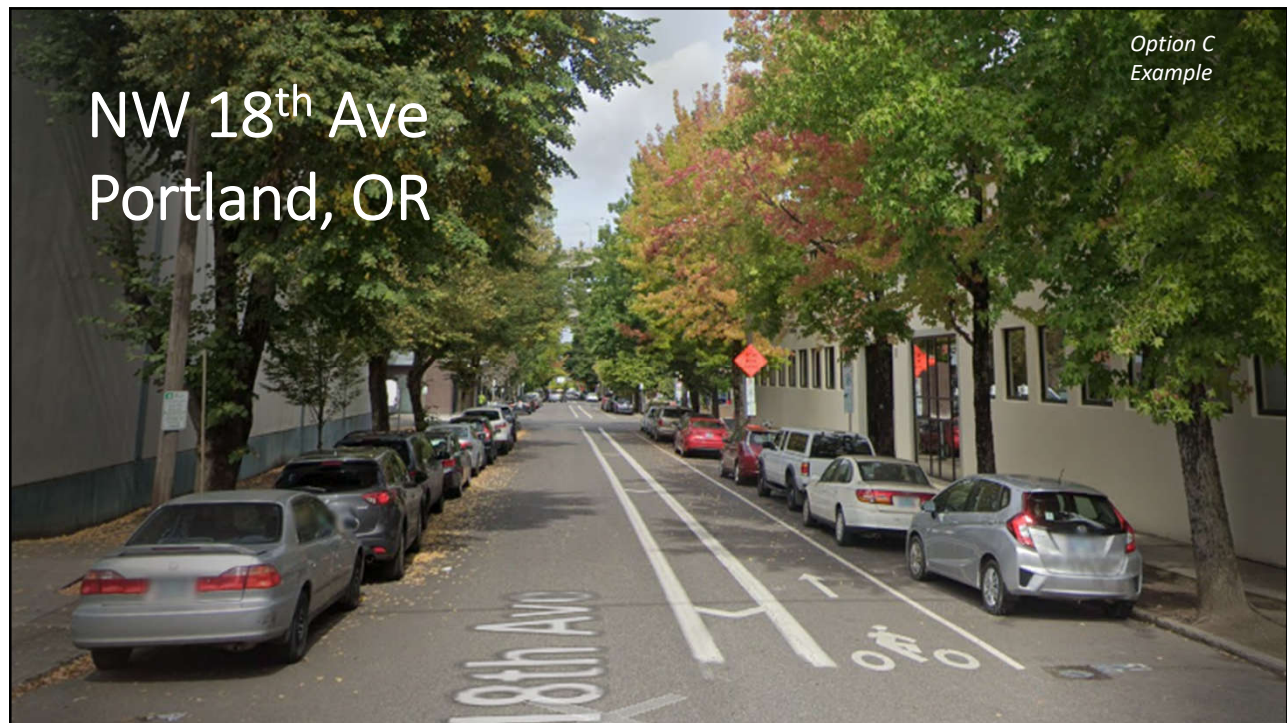
- Parking stays the same

Cons:

- Less protection/separation
- More striping to maintain
- Bus-bike mixing



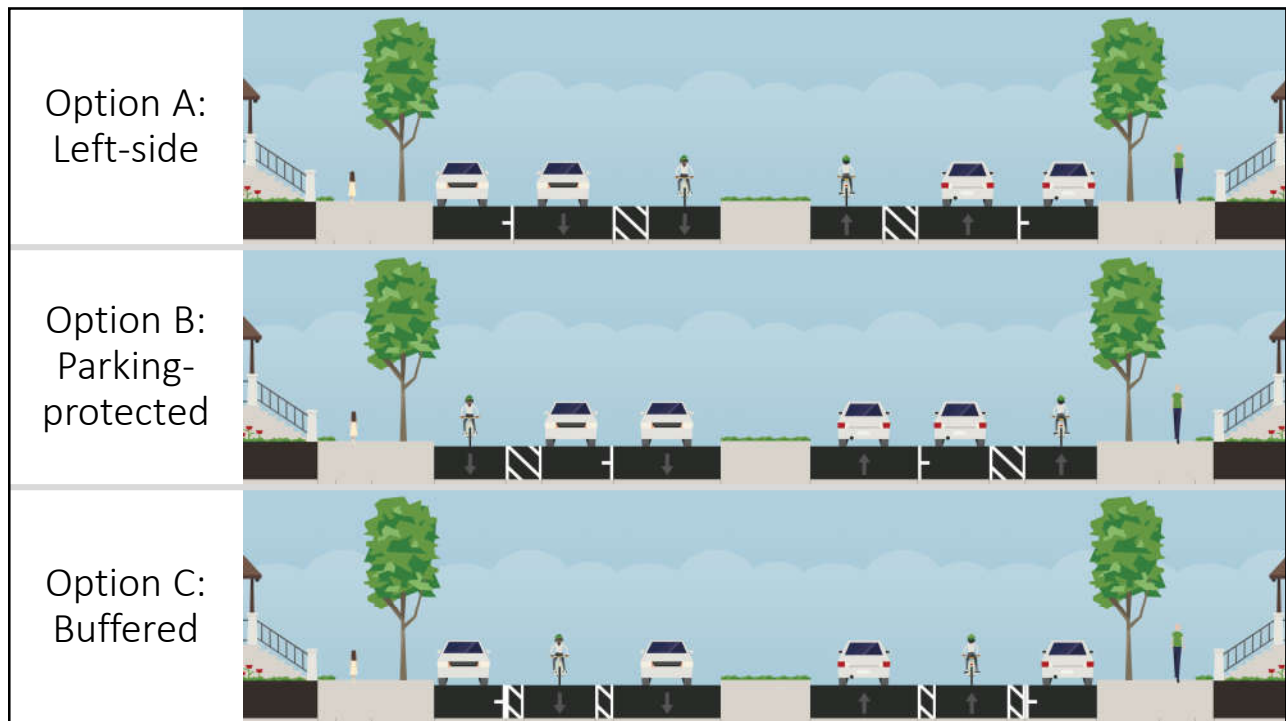
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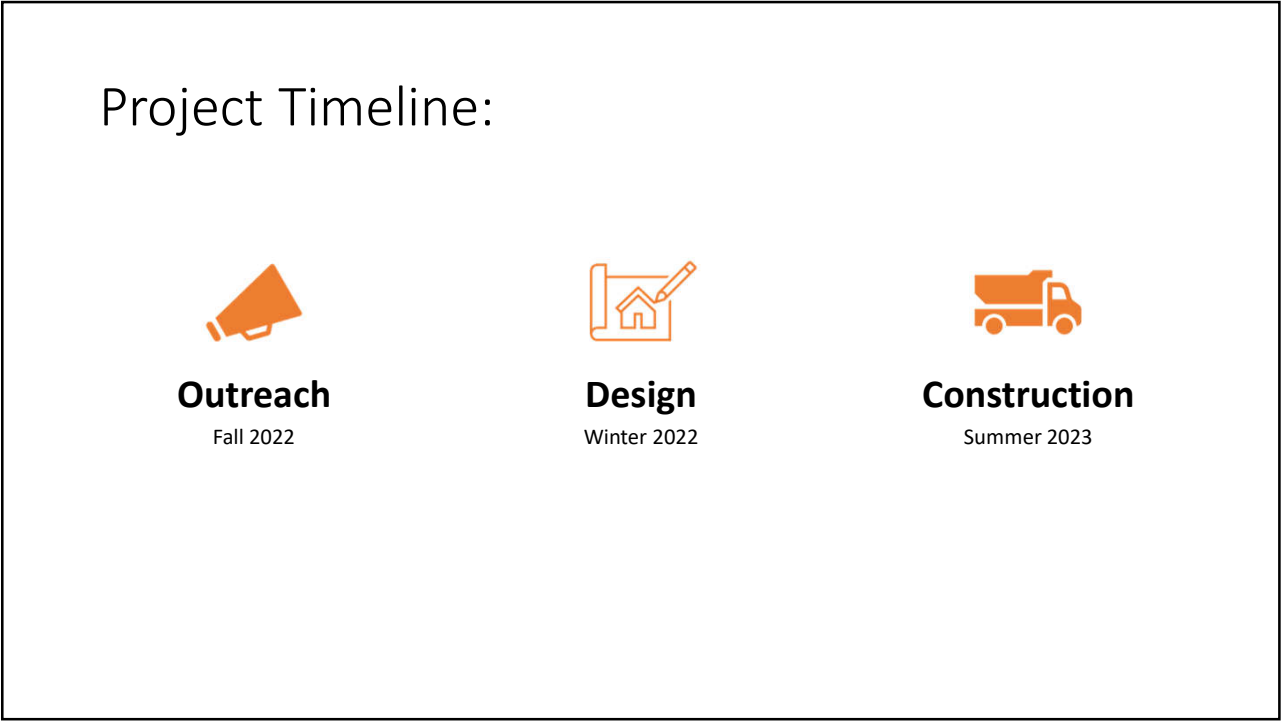
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MEMORANDUM

TO: Morgan Palmer, Public Works, City of Longview

FROM: Jason Irving and Mahsa Eshghi, MacKay Sposito
Justin Sheets, DKS Associates

RE: **Washington Way Complete Street Project - Alternatives Analysis**

DATE: January 25, 2023

Overview

The Washington Way Complete Streets Project (project) area includes Washington Way from RA Long Square (Larch Street) to 34th Avenue (length of 1.6 miles). A map of the project area is included below in Figure 1.

In 2021 the City of Longview (City) submitted a grant application to the National Highway System (NHS) Asset Management Program and was successfully awarded \$4.794M in federal grant funding with no local funding match required. The majority of the grant will be used for construction costs to address the poor pavement conditions within the project area. The pavement improvements also trigger additional federal and state requirements such as the need to construct Americans with Disabilities Act (ADA) compliant curb ramps at all intersections. Improving pavement conditions and safety are the primary project goals and represent the majority of the project design and construction costs.

Through past traffic studies, the City identified Washington Way as a key candidate for a street striping reconfiguration. High speeds, frequent crashes, and associated neighborhood complaints were common along Washington Way in the past. The awarded grant funding will provide for repaving of Washington Way. This provides the City with an opportunity to, at a relatively low cost (less than 5% of the awarded grant funding), reconsider the existing roadway striping configuration for the purpose of enhancing:

- Operations and safety of vehicles, pedestrians, and bicyclists
- Installation of traffic calming (speed reduction) measures
- Multi-modal connectivity, and
- Advancing the City's future vision for a network of complete streets that are safe and accessible for all users

This memorandum summarizes:

- A. Proposed Project Improvements
- B. Project area history and existing conditions
- C. Conceptual roadway striping reconfiguration options development and refinement
- D. Traffic operations and safety
- E. Project early public outreach summary
- F. Engineer's estimate of the probable construction cost for each alternative
- G. Roadway striping reconfiguration Alternative Analysis for Options A, B, and C and restriping to match existing
- H. Project Team Recommendations

Figure 1- Project Area



A. Proposed Project Improvements

The project improvements are generally confined within the existing curb lines, with the exception of new ADA curb ramps, and generally include:

- Approximately 1.6 miles of roadway resurfacing anticipated to consist of diamond grinding, hot mix asphalt (HMA) overlay, and/or portland cement concrete panel (PCCP) replacement.
- Striping modifications to the existing four-lane roadway to possibly allow for the addition of buffered bicycle lanes, left-turn pockets, parking stalls, other roadway striping and signage, and consideration of traffic calming measures.
- Upgrading all non-compliant ADA curb ramps along Washington Way and within the project limits described above.

- Signal modifications and design to improve operations, reduce delays, and accommodate possible new roadway striping configuration at the intersections of Washington Way and 20th, Kessler, 30th, and 32nd.

B. Project Area History and Existing Conditions

Washington Way within the project area was originally constructed in 1957-1958. Historically, this section of the roadway was widened to a consistent four lanes and has experienced heavy traffic loads, serving as a primary arterial for trucks and commuters from the city center to the Port of Longview. Roadway maintenance activities have included HMA overlays over the PCCPs, minor concrete patch repairs, crack sealing, and chip sealing.

Existing conditions generally consist of two travel lanes in each direction and an approximate curb-to-curb width varying from 48 feet to 60 feet. The roadway within the project area is in relatively poor condition and includes rough roadway surfacing caused by pavement age, cracking and failure, non-ADA-compliant sidewalk ramps, and a lack of safe bicycle facilities.

In January 2012, the City conducted a City Wide Pavement Management Analysis to determine the existing pavement conditions for the City's 36 miles of major roadways (arterials and collectors) and 102 miles of residential roadways. The analysis was used to refine the City's long-term pavement management program including prioritizing and estimating the cost of roadway maintenance and capital project investments.

The analysis included assessing the pavement condition within the Washington Way project area. Pavement condition is often measured by scoring two indexes, the International Roughness Index (IRI) and the Pavement Condition Index (PCI).

IRI - The IRI measures roadway roughness by estimating the ride quality and amount of vertical movement a driver experiences while traveling the roadway. The Federal Highway Administration (FHWA) considers a roadway with an IRI of less than 95 in/mi to be in good condition, 96 to 170 in/mi is considered acceptable, and greater than 170 in/mi is considered poor. **The average IRI within the project area is 269 in/mi which is considered very poor.**

PCI - The PCI is a numerical value between 0 and 100 that is used to indicate the general condition of a pavement section. 85 to 100 is considered good, 70 to 85 satisfactory, 55 to 70 fair, and 40-55 poor. Values below 40 are considered very poor, serious, or complete pavement failure. **The average PCI within the project area is 50 which is considered poor.**

The following images highlight existing conditions within the project area.

Existing Rough Roadway Surfaces



PCCP Cracking and Failure West of Nichols Boulevard



PCCP Reflective Cracking Through HMA Overlay



Lack of ADA Compliant Curb Ramps



Lack of Safe Bicycle Facilities



Lack of Traffic Calming/Vehicle Speed Reduction Measures



In September 2022, geotechnical and pavement design consultant, NV5, completed field investigations to assess existing pavement conditions further and provide pavement reconstruction/resurfacing recommendations. The existing pavement conditions are summarized below, and the full pavement engineering report can be found in Appendix D.

Existing roadway pavement sections consist of the following:

- **34th Street to Delaware Street (0.4 miles)** - 7.5 to 8.5-inch thick PCCP over 2 to 9.5-inch thick aggregate base
- **Delaware Street to Nichols Boulevard (0.5 miles)**
 - Eastbound lane 7 to 8-inch thick PCCP over 0 to 3.5-inch thick aggregate base
 - Westbound lane 2-inch thick HMA over 6-inch thick PCCP and little to no aggregate base
- **Nichols Boulevard to Kessler Boulevard (0.1 miles)** - 9.5-inch thick PCCP over 8.5-inch thick aggregate base. This section of the roadway was reconstructed in 2014-2015 as part of the Washington Way Bridge Replacement project.
- **Kessler Boulevard to Larch Street (0.6 miles)** - 2.3 to 4-inch thick HMA over 5.8 to 7.7-inch thick PCCP and no aggregate base

The following images show the typical existing roadway configurations east and west of Nichols Boulevard.

Washington Way Typical Roadway Configuration East of Nichols Boulevard



Washington Way Typical Roadway Configuration West of Nichols Boulevard**C. Conceptual Roadway Striping Configuration Options
Development and Refinement**

On July 26, 2022, six conceptual roadway striping reconfiguration options were presented to the City of Longview's Complete Streets Advisory Committee (CSAC) and City engineering staff. Examples of how each option has been implemented in other Cities were provided along with a review of options assessment criteria such as cost, safety, and maintenance considerations.

Committee members and City staff were asked to provide feedback and prioritize their top three preferred alternatives. Please see Appendix B for a full memorandum summarizing the committee presentation, feedback received, and voting results.

Based on committee feedback and voting, the following alternatives (ranked in order of voter preference) were selected to be included for a more in-depth alternatives analysis.

Option C (Option 6) - Three-Lane Roadway with Two-Way Buffered Bike Boulevard

Option B (Option 3) - Three-Lane Roadway with Buffered Elevated Bike Lane and Mountable Curb

Option A (Options 1/2) - Three-Lane Roadway with Buffered Bike Lane and Traffic Separator

In addition to the three options presented above, as part of this alternatives analysis the consultant team assessed a fourth alternative that considers restriping the roadway to match the current striping on Washington Way (the "no-build" alternative).

D. Traffic Operations and Safety Analysis Results

In fall of 2022 DKS Associates completed an operation and safety analysis for the three selected options and a no-build alternative. The results of the analysis are shown below. The full analysis report is included in Appendix A.

DKS' study concluded that each of the three proposed alternatives will provide the following benefits:

- Increased safety for all users
- Improved pedestrian and bicycle connectivity
- Minimal impact on the vehicular traffic level of service (LOS)

Increased Safety Through Roadway Striping Reconfiguration

As each of the three striping reconfiguration options proposes to add a two-way left turn lane and bicycle infrastructure that is separated and/or protected from motor vehicles, traffic safety performance for all users is expected to be improved as compared to existing conditions. Modifying the striping configuration from the existing four lanes to a proposed three-lane scenario is expected to result in increased safety due to traffic calming and speed reduction along the corridor. Vehicle speeds have a direct correlation to traffic safety, particularly crash severity. For example, a pedestrian struck by a vehicle traveling 25 mph has a 10% chance of suffering a fatal or serious injury. However, at 40 mph this jumps to 75%. Speed is also a major factor in bicyclist comfort, with higher speeds resulting in a higher level of traffic stress for bicyclists, reducing safety and discouraging bikers from using the corridor.

The project area currently has a relatively high frequency of unsignalized intersections (12) and a very high frequency of commercial and residential driveways (75+). One of the primary safety concerns for roadway striping configuration is the risk of rear-end collisions due to the lack of a dedicated turn lane for vehicles to utilize when turning off of Washington way at intersections and into driveways. The proposed roadway striping reconfiguration options each add a new two-way left turn lane, which has been proven to reduce rear-end collisions and total crashes that occur at driveways and unsignalized intersections.

The conversion of a 4-lane (existing Washington Way condition) to 3-lane cross-section with two-way left turn lane is known to provide safety benefits for the corridor. Recent literature from Lim and Fontaine (2022) suggests a Crash Modification Factor of 0.62 for total crashes and 0.36 for fatal and injury crashes. **This is equivalent to a 38% reduction in total crashes and a 64% reduction in fatal and injury crashes.** For intersections (signalized and unsignalized) where a turn lane was added, the CMF is 0.65 (crash reduction of 35%). Bike lanes or buffered bike lanes were also added to the study sites as a part of the roadway reconfigurations.

Also, reconfiguring striping for the addition of bike lanes will provide dedicated space for bicyclists that is separate from motor vehicles and pedestrians. This will result in fewer vehicle/bicyclist conflicts and increased multi-modal options.

Traffic Operations Analysis

Analysis for traffic operations was performed for each of the three roadway striping reconfiguration options and compared against traffic operations under the existing striping configuration. The analysis determined that changes in the roadway striping configuration are expected to have minimal impact on motor vehicle level of service and delay. Four of the six study intersections showed no change in the level of service in the 2043 design year peak hour compared to the No Build scenario. Two of the intersections (Washington Way/30th Avenue and Washington Way/32nd Avenue) went from LOS B in the No Build to LOS C for each alternative. This resulted in an additional average delay of 5 seconds per vehicle in 2043. The volume-to-capacity (v/c) ratio, LOS, delay, and queuing results are summarized in the transportation analysis report included in Appendix B. The analysis indicates that all intersections operate at LOS C or better in the future Build or No Build scenarios. Per the Highway Capacity Manual, LOS C is a condition where the average vehicle faces delays of 20 to 35 seconds. Some vehicles will be forced to stop at the signal, but many will make it through without stopping.

Due to the relatively low traffic volumes along Washington Way, a three-lane cross-section is adequate to accommodate existing and future projected traffic volumes along the corridor. The existing average daily traffic (ADT) volumes range from 5,800 to 7,600 vehicles per day (vpd) along the corridor with volumes expected to increase to roughly 10,000 in the 2043 design year. Guidance from FHWA's Road Diet Informational Guide and other organizations has shown that roadways in these ADT ranges are good candidates for the roadway striping modification options proposed for this project. Research from Kentucky Transportation Center suggests that the proposed roadway reconfigurations can be effective for corridors with up to 23,000 vpd.

In summary, the proposed roadway striping reconfiguration options will not increase vehicle delay at three of the five study intersections. While the proposed striping reconfiguration is estimated to add a small amount of vehicle delay (5 seconds) by 2043 for two of the five study intersections, it is anticipated to provide significant safety benefits, a 35%+ reduction in total crashes and 64% reduction in severe crashes, to pedestrians, bicyclists, and vehicles through a reduction in overall crash numbers and severity.

E. Project Early Public Outreach Summary

This section summarizes public outreach completed for the project through October 2022. The project team outlined a two-phase community outreach approach to ensure the public is adequately informed and have multiple opportunities to provide meaningful input on the project design. Phase 1 (Early Outreach) kicked off in July 2022 and ran through early October 2022, and Phase 2 (Design Alternatives) will follow in early 2023.

The goals of the early outreach phase are to:

1. Inform the community about the project purpose, timeline, and anticipated outcomes;
2. Set expectations, build trust, and answer questions;

3. Gather community feedback on their experience of current conditions, the preliminary design options available and ranking of those options, and specific areas of concern within the project area.

Through a mix of digital and in-person engagement, the project team:

- Drove over **920 pageviews** to the virtual open house and more than **45 attendees** to the in-person open house;
- Generated **148 survey responses**;
- Distributed postcard mailers to **387 residences and businesses within the project area**;
- Sent email communication to **19 key stakeholders** including community organizations, churches, and schools; and
- **Visited every residence and business** along the 1.6-mile stretch of the project area, leaving over **190 door hangers** and engaging in **37 one-on-one conversations** through door-to-door outreach.

Overall, six key themes emerged across all early outreach efforts:

- There is a strong desire to address vehicle speeding concerns in the corridor;
- Community members are supportive of Washington Way roadway improvements;
- Mixed response regarding proposed biking access improvements;
- Aging trees present a safety concern for some residents;
- Need to improve traffic flow;
- Maintaining on-street parking on Washington Way is a low priority for community members who engaged with the project so far.

On August 25, 2022, the project team held an in-person open house at the RA Long Square gazebo. As noted above, more than 45 community members attended this event. Project background and goals information was presented, and three stations were set up to present and discuss preliminary roadway striping reconfiguration options with the community. Attendees were asked to rank their preferred option and **Preliminary Design Option C, a two-way protected bike boulevard, received overwhelming support from attendees.**

A copy of the full early outreach report including feedback data and survey results can be found in Appendix C.

F. Engineer's Estimate of Probable Construction Cost

The City of Longview has received a \$4.79M federal grant of which \$3.8M will be used for the construction of Washington Way improvements.

Construction cost estimates are as follows:

Option A: 3-Lane Roadway with Buffered Bike Lane; alternatively, 2-Lane Roadway with On-Street Parking & Buffered Bike Lane - **\$4.5M**

Option B: 3-Lane Roadway with Elevated Bike Lane - **\$6.2M**

Option C: 3-Lane Roadway with Buffered Bike Boulevard; alternatively, 2-Lane Roadway with On-Street Parking & Buffered Bike Boulevard - **\$4.6M**

Combination of Option A and Option C: 3-Lane Roadway with Buffered Bike Lane for the eastern segment of the corridor, and 3-Lane Roadway with Buffered Bike Boulevard for the western segment of the corridor - **\$4.6M**

Combination of Option B and Option C: 3-Lane Roadway with Elevated Bike Lane for the eastern segment of the corridor, and 3-Lane Roadway with Buffered Bike Boulevard for the western segment of the corridor - **\$5.4M**

No Build Option (restripe to match existing conditions): Match to the Existing 4-lane Roadway, No Bike Lane - **\$4.5M**

Cost Estimate Summary Key Considerations:

- The majority of project costs are related to the pavement rehabilitation construction included within all options
- Option B's cost is significantly higher than the other options
- Project costs for Option A or C are nearly the same as the match existing option
- If Option B and C are combined, the design and construction cost will decrease as compared to Option B alone

G. Roadway Striping Reconfiguration Alternative Analysis for Options A, B, and C and Restriping to Match Existing

The three preferred cross-sections, Option A, B, and C, and an option to restripe the roadway to match the existing configuration, were analyzed with consideration to the following criteria:

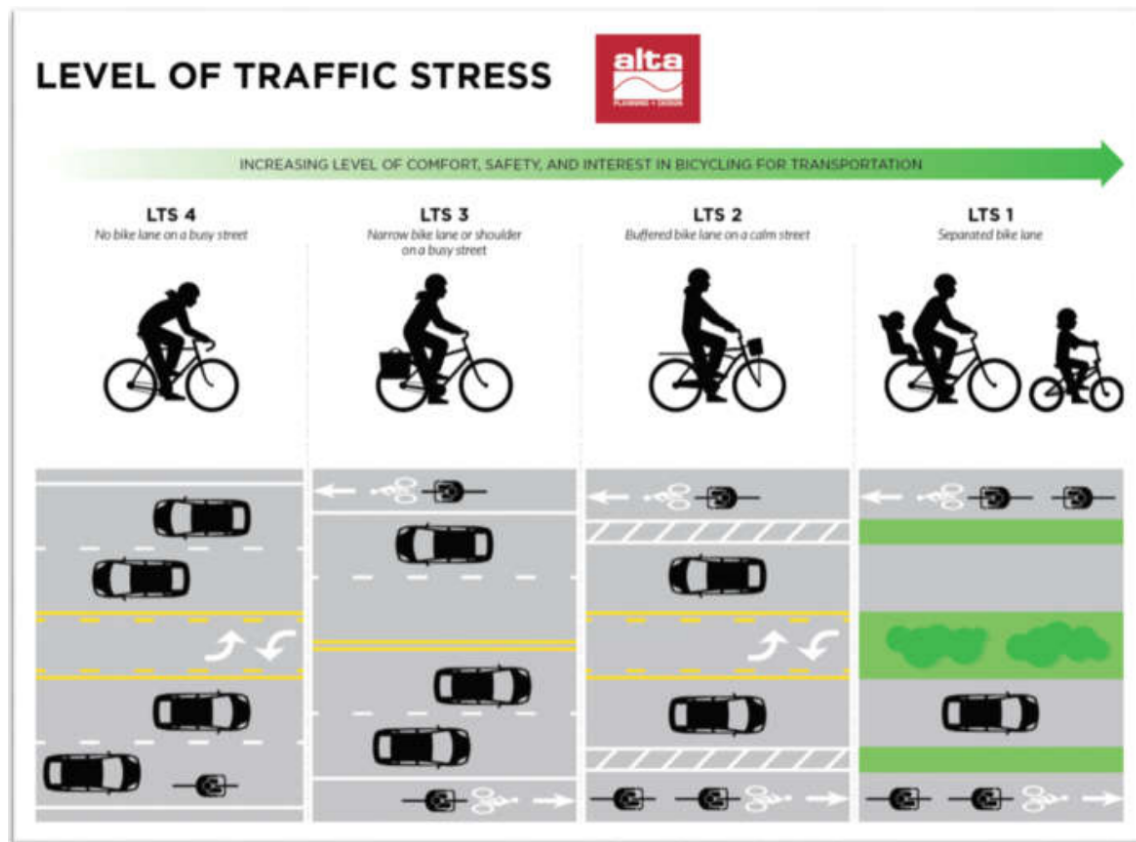
- Bicyclist Level of Traffic Stress (LTS)
- Traffic Calming (speed reduction)
- Traffic Safety and Operations
- Construction Cost (with a goal of fully funding construction utilizing the NHS federal grant)
- Long-term Maintenance Cost (reducing the number of lanes lowers the future maintenance cost because the vehicles are confined to a smaller pavement area)
- Opportunity for On-Street Parking
- Safe driveway access and minimizing conflicts with bicyclist

Bikeway stress is measured in terms of LTS and assigns a score that indicates how stressful a roadway's vehicle traffic is on bicyclists. The scoring ranges from 1, the least stressful, to 4, the most stressful. The percentage of bicycle users that are anticipated to use a bike facility correlates to the LTS score as follows:

LTS 4 - High stress, suitable for use by 1% of the population
 LTS 3 - Moderate stress, suitable for use by 10% of the population
 LTS 2 - Low stress, suitable for use by 60% of the population
 LTS 1 - Very low stress, suitable for use by 98% of the population

As identified in the City of Longview's 2022 Bicycle and Pedestrian Master Plan (BPMP), Longview's vision is a bikeway network for people of all ages and abilities. Longview's goal is to develop a network of bikeways that meet the LTS 1 standard for all ages and abilities. The following graphic from the BPMP shows examples of LTS levels.

Longview Level of Traffic Stress (LTS) Measurements and Example Street Cross-Sections



Common Improvements

Common improvements that are proposed for all options including the no build option include:

- Roadway pavement restoration and new roadway striping
- New ADA compliant pedestrian ramps
- Adequate traffic flow and intersection operation
- Minor stormwater modifications
- No impacts to existing landscaped areas between the curb and sidewalks, including preservation of existing trees
- No impacts to the existing sidewalks

Common improvements not included with the no build option but included with the three proposed roadway striping reconfigurations include:

- Roadway striping reconfiguration to provide bicycle facilities for both commuters and recreational users with a low level of traffic stress (LTS 2 or better)
- Complete street for all modes of transportation
- Traffic calming to reduce vehicle speeds and increase safety

A summary of characteristics, and pros and cons for each option are presented below, with construction cost estimate and recommendation provided in the next section.

Option A: 3-Lane Roadway with Buffered Bike Lane

Option A proposes common complete street improvements (see Figure 4). The roadway section includes a travel lane in each direction, a two-way left turn lane at the center, and buffered bike lanes on both sides. Where the safety benefits of a center turn lane would not be greatly compromised, on-street parking could be incorporated for individual stakeholders instead of the two-way left turn lane (see Figure 5).

Option A, Pros:

- Lowest design and construction costs.
- Low long-term maintenance cost
- Opportunities for on-street parking

Option A, Cons:

- This option provides LTS 2, but can be improved to LTS 1 with the addition of a physical and/or visual traffic separators such as raised pavement markers.
- Recreational bicyclists, especially children, may prefer utilizing the sidewalk if this option remains LTS 2. This could present conflicts between pedestrians and bicyclists.

Figure 4: Option A 3-Lane Roadway with Buffered Bike Lane



Figure 5: Option A 2-Lane Roadway with On-Street Parking & Buffered Bike Lane



Option B: 3-Lane Roadway with Elevated Bike Lanes

Option B proposes elevated bike lanes (typically three-inch elevation) to vertically separate the bike facility from vehicular lanes (see Figure 6). The roadway section includes a travel lane in each direction, a two-way left turn lane at the center, and elevated bike lanes on both sides. Where appropriate, on-street parking could be incorporated instead of the two-way left turn lane.

Option B, Pros:

- Provides the best Level of Traffic Stress, LTS 1
- Adequate bike facility for both commuter and recreational bicyclists
- Enhanced traffic safety by providing a vertical separation between bike lanes and the travel lanes

Option B, Cons:

- This option has the highest construction cost primarily due to the need to construct new curb between the bicycle and vehicle lanes and grading impacts to adjacent driveways
- Additional stormwater, and grading modifications are needed
- There will be limited opportunities for on-street parking
- The rolled curb separating vehicular traffic from the elevated bicycle lane may collect debris and increase the need for street sweeping maintenance

Figure 6: Option B 3-Lane Roadway with Elevated Bike Lanes



Option C: 3-Lane Roadway with Buffered Bike Boulevard

Option C proposes a two-way directional bike boulevard (see Figure 7). The roadway section also includes a travel lane in each direction, a two-way left turn lane at the center, and a buffered bike boulevard on the south side of the roadway. On-street parking could be incorporated instead of the two-way left turn lane (see Figure 8) where that approach balances safety and operations with the on-street parking needs of individual stakeholders. This option proposes the bike boulevard be located on the south side of the roadway due to less driveways and cross streets. Additionally, the bike boulevard would be adjacent to the Longview Skate Park, Cloney Park, and other recreational opportunities along the south side of Washington Way.

Based on feedback received from the Longview CSAC and through public outreach, an additional alternative is being considered that is a combination of Option C & A or Option C & B. As discussed above, the preferred location for Option C is along the south side of Washington Way from 32nd Avenue to Nichols Boulevard due to limited driveways and cross-streets and the location of major attractors such as the Longview Skate Park. To minimize the number of conflict points between turning vehicles at access points and bicyclists, Option A or Option B can be considered for the eastern corridor segment, from Nichols Boulevard to Larch Street.

Option C, Pros:

- Second lowest construction cost. Only a 2% increase in project costs when compared to Option A or the Match Existing Option.
- Provides the best Level of Traffic Stress, LTS 1
- Provides adequate bike facility for both commuter and recreational bicyclists
- Provides opportunities for on-street parking (where it is adequate and safe to provide on-street parking for individual stakeholders)

Option C, Cons:

- Medium maintenance cost such as the need for green paint at major intersections for traffic safety
- Introduces a counter-flow bicycle movement that may not be intuitive or expected by many drivers (i.e. permissive turning movements from Washington Way or a cross street may not expect or look for, a westbound bicyclist on the south side of the road)
- May require crossing Washington Way twice for westbound bicycles with north side destinations
- The construction and maintenance costs will increase if physical separation is desired at the buffered area. Physical barrier options other than planter boxes will be considered to address operation and maintenance concerns related to watering and maintaining planter boxes and potential fixed object crashes. Note that vertical separators are not feasible for the on-street parking alternative.
- If physical barriers are added within the buffered area, it will increase fixed object potential crashes.

Figure 7: Option C 3-Lane Roadway with Buffered Bike Boulevard



Figure 8: Option C 2-Lane Roadway with On-Street Parking & Buffered Bike Boulevard



Restripe to Match Existing: 4-Lane Roadway with no Bike Lanes (“No-Build”)

This option will restripe Washington Way to match the existing configuration which consists of four travel lanes (two in each direction) and no bicycle lanes. This option is not recommended by the consultant team, as it does not address current safety concerns and is not in alignment with the City of Longview’s long-term planning documents. Washington Way is identified as a bicycle corridor project in the 2022 Bicycle and Pedestrian Master Plan.

Pros:

- Does not require drivers to change behavior (drivers are familiar with the existing road configuration and don’t need to adjust their driving behavior with the new road dedicating part of the road to bicyclists, providing short-term benefits)
- Lowest cost; however, it is nearly the same cost as Option A
- Level of comfort is the same for drivers
- Speeds are maintained

Cons:

- Does not facilitate vehicular driver behavior changes to improve safety such as traffic calming to reduce vehicle speeds
- Highest Level of Traffic Stress, LTS 4
- Does not provide traffic calming to reduce vehicle speeds
- Does not provide dedicated bicycle facilities and a complete street roadway
- Will not provide a two way left turn center lane to reduce total crash numbers and severity

Alternative Analysis Evaluation Summary

The three alternatives and a fourth option to restripe the roadway to match existing conditions (no build) were analyzed against various criteria relevant to project needs and goals as summarized below in Table 2.

Table 2 – Alternative Analysis Evaluation Summary

Analysis Criteria	Option A	Option B	Option C	No Build
Bicycle Level of Traffic Stress ¹	1 or 2	1	1	4
Traffic Calming (Speed Reduction)	Med	Med	Med	None
Traffic Safety Improvements	Med	High	Med	None
Construction Cost	Low	High	Low	Low
Long-Term Maintenance Cost	Low	High	Med	Low
Opportunity for On-Street Parking	High	Low	High	Low
Public Acceptance	Med	Low	Med	High

¹ As defined by Chapter 6 of the Longview Bike and Pedestrian Master Plan

H. Project Team Recommendation

Based on the results of the traffic safety and operations analysis, early phase public outreach results, and this alternatives analysis the project team recommends the following:

Washington Way from 34th Avenue to Nichols Boulevard (west corridor segment):

Implement Option C to reconfigure roadway striping to three lanes (two travel lanes and a two-way left turn lane) and a two-way buffered bike boulevard. The consultant team

recommends locating the two-way bike boulevard on the south side of Washington Way due to the minimal intersection and driveway connections on that side of the roadway. This location provides greater operations and safety for bicyclists and vehicles as compared to locating the bike boulevard on the north side where there are significantly more intersections and driveway connections to Washington Way. The recommendation for this section of the corridor is based on the following benefits and results:

- Highest ranked option by the community at the August 25, 2022, open house and the City's Complete Streets Advisory Committee
- Estimated 35%+ overall crash reduction and 68% reduction in severe/fatal accidents by adding a two-way left turn lane
- Traffic calming to reduce vehicle speeds and level of traffic stress for bicyclists and pedestrians
- Identified as the preferred option by City of Longview operations and maintenance staff
- Minimal increase in construction cost as compared to the no build option
- Bicycle facility connections to future planned complete street projects to implement bicycle facilities to the north and south on 30th Avenue and Beech Street (which received federal grants in 2022)
- Meets Longview's vision for complete streets and safe multi-modal access for all users, including providing LTS 1 for bicyclists

Washington Way from Nichols Boulevard Larch Street (east corridor segment):

Implement Option A to reconfigure roadway striping to three lanes (two travel lanes and a two-way left turn lane) and buffered bike lanes on both sides of Washington Way adjacent to the curb line. Where appropriate based on operations, safety, and stakeholder needs (e.g. churches), on-street parking could be incorporated instead of the two-way left turn lane. Although the community identified Option C as the preferred striping reconfiguration option, a bike boulevard is not appropriate in this section of the corridor due to the high number of intersections and driveways which decreases the benefits and safety of a bike boulevard. The recommendation for this section of the corridor is based on the following benefits and results:

- Second highest ranked option by the community at the August 25, 2022, open house
- Balances the community's striping reconfiguration option preferences with site constraints, safety, and operations for this section of the corridor.
- Estimated 35%+ overall crash reduction and 68% reduction in severe/fatal accidents by adding a two-way left turn lane
- Traffic calming to reduce vehicle speeds and level of traffic stress for bicyclists and pedestrians
- Maintainable with the selection of an appropriate buffer lane traffic separator that provides visual and physical separation while allowing for street sweeping and snow plow operations
- The lowest construction cost even lower than restripe to match existing condition

- Meets Longview's vision for complete streets and safe multi-modal access for all users, including providing LTS 1 for bicyclists with the addition of traffic separators (e.g. raised pavement markers)

Appendix

Appendix A - Traffic Safety Memo (by DKS)

Appendix B - August 1, 2022 Complete Streets Advisory Committee Presentation
Memorandum

Appendix C – Early Outreach Report and Survey Results (by Point North)

Appendix D – Report of Pavement Engineering Services (by NV5)