Hillsboro OREGON

Oregon Department of Transportation

OR 8: Oak/Baseline/10th Avenue Corridor Study (K18004)

Public Advisory Committee (PAC) Meeting #6

Meeting Agenda

- Introductions
- Since We Last Met
- Community Workshop #2
- **TM#5 – Concepts Evaluation**
- General Discussion
- Next Steps

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Introductions

- Name
- Representing agency/organization
- Role

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Since We Last Met

- Final TM#4 – Development of Design Concepts
- Special Meetings
  - *Preliminary Operations Findings*
  - *Active Transportation + Transit*
- Community Outreach & Open House #2
- Draft TM#5 – Concepts Evaluation

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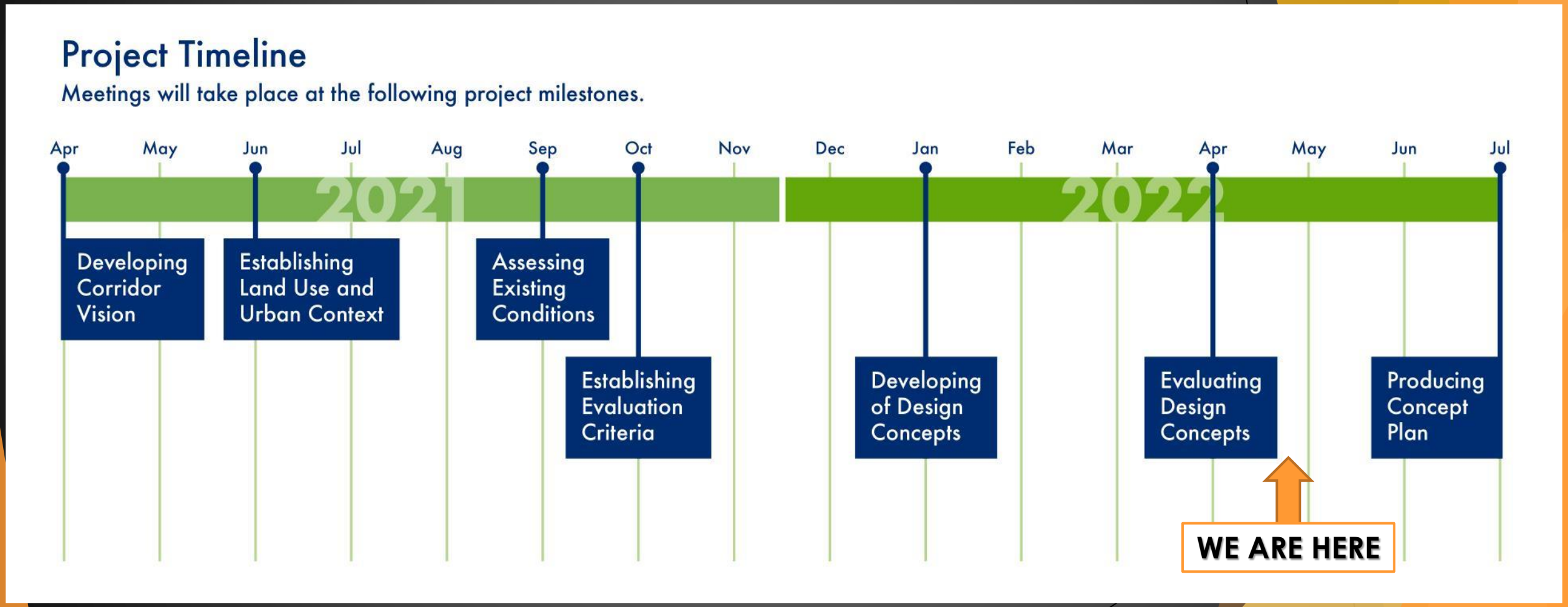
Project Schedule



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Community Outreach & Open House #2

Placeholder for Karla

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TM#5 – Concepts Evaluation

- Design Concepts Overview
- Alternatives Evaluation
  - Evaluation Criteria and Performance Measures
  - Preliminary Findings
  - Preliminary Conclusions & Recommendation
- Next Steps

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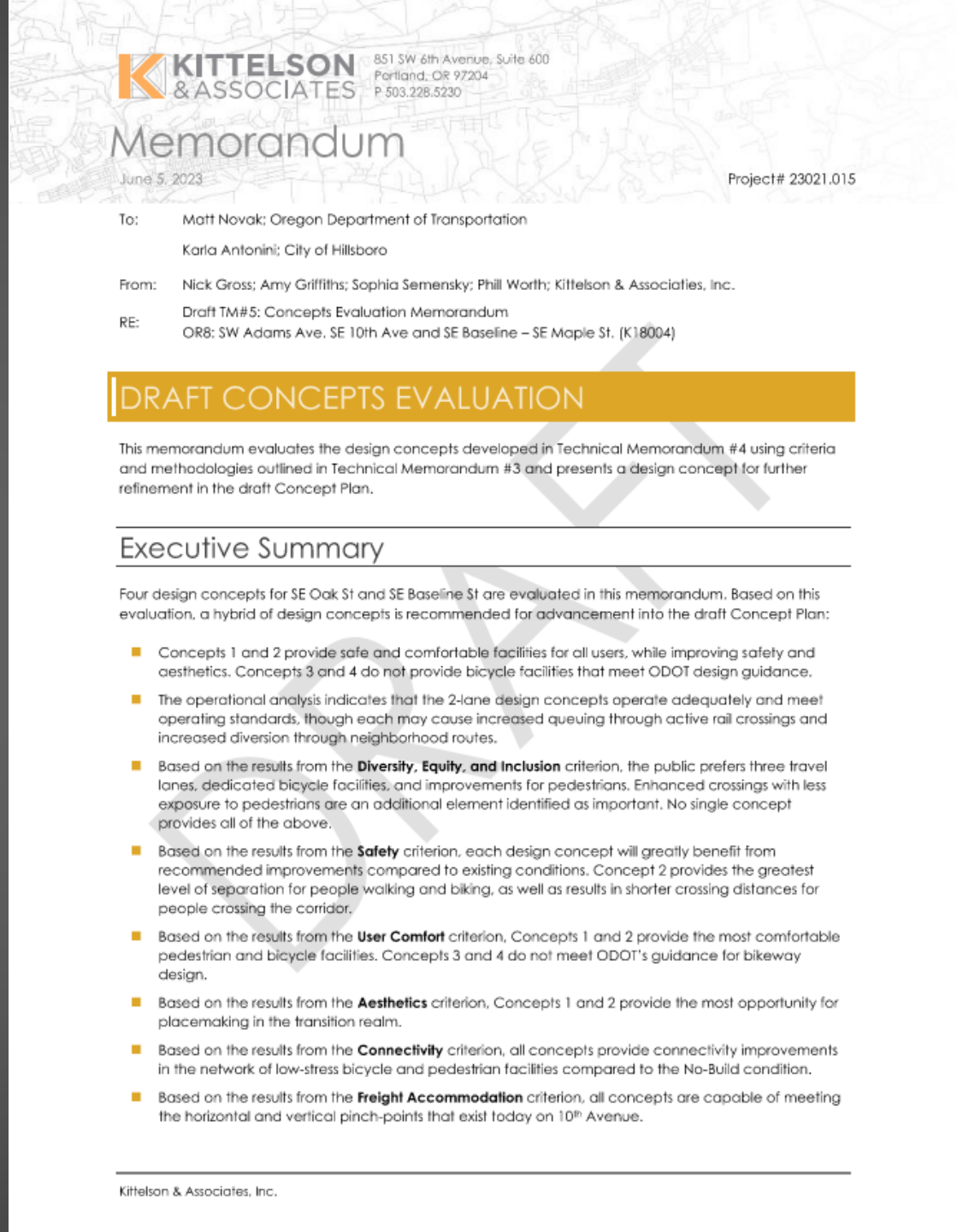

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Memorandum

June 5, 2023

Project# 23021.015

To: Matt Novak; Oregon Department of Transportation
Karla Antonini; City of Hillsboro

From: Nick Gross; Amy Griffiths; Sophia Semensky; Phill Worth; Kittelson & Associates, Inc.

RE: Draft TM#5: Concepts Evaluation Memorandum
OR8: SW Adams Ave, SE 10th Ave and SE Baseline – SE Maple St. (K18004)

DRAFT CONCEPTS EVALUATION

This memorandum evaluates the design concepts developed in Technical Memorandum #4 using criteria and methodologies outlined in Technical Memorandum #3 and presents a design concept for further refinement in the draft Concept Plan.

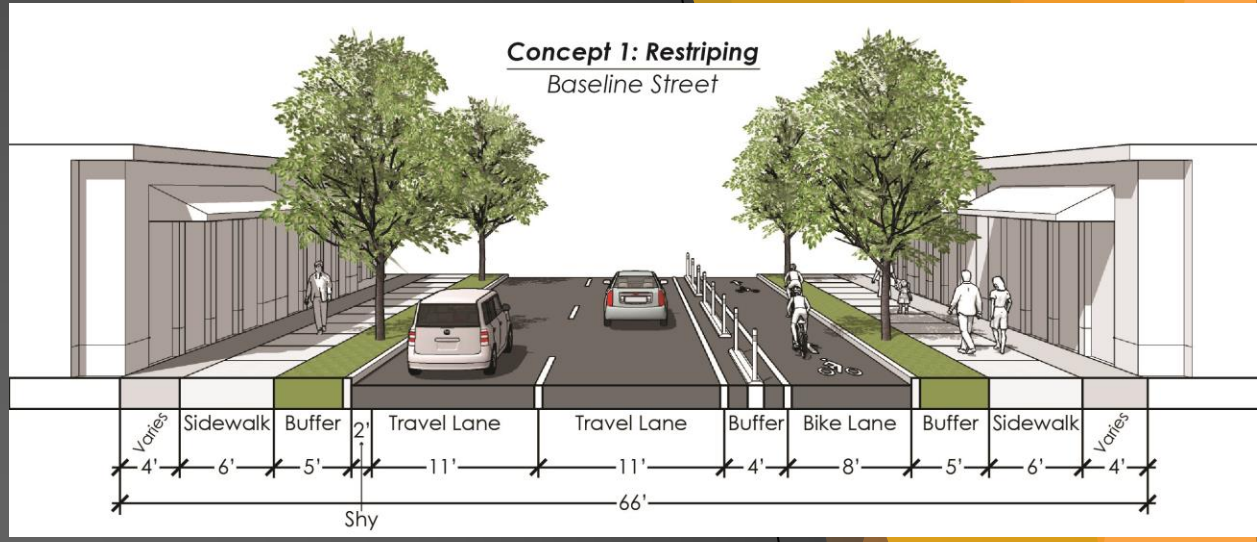
Executive Summary

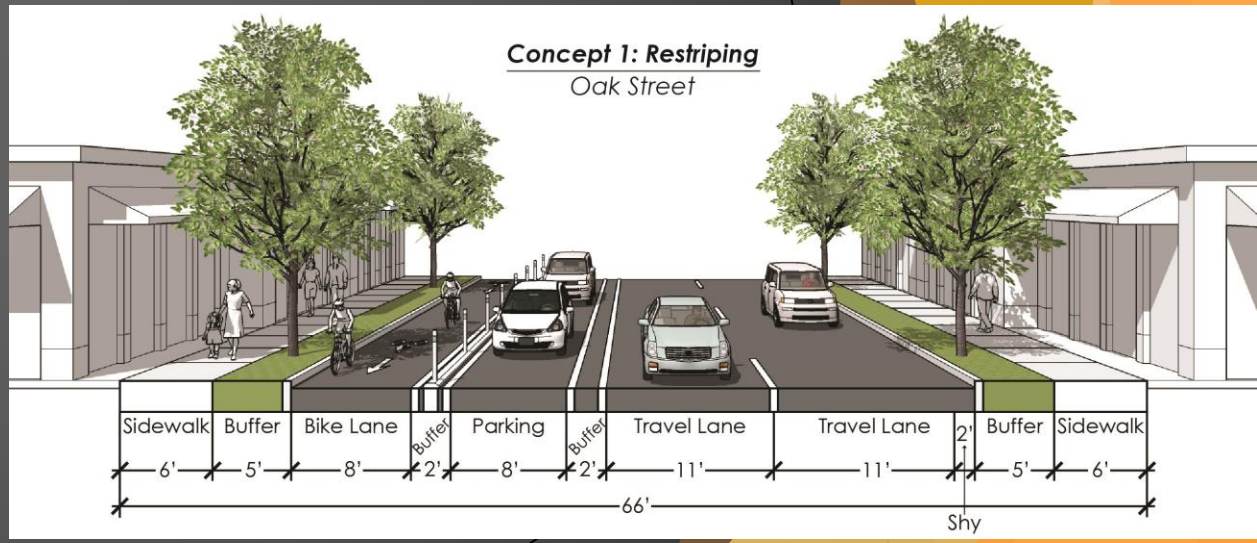
Four design concepts for SE Oak St and SE Baseline St are evaluated in this memorandum. Based on this evaluation, a hybrid of design concepts is recommended for advancement into the draft Concept Plan:

- Concepts 1 and 2 provide safe and comfortable facilities for all users, while improving safety and aesthetics. Concepts 3 and 4 do not provide bicycle facilities that meet ODOT design guidance.
- The operational analysis indicates that the 2-lane design concepts operate adequately and meet operating standards, though each may cause increased queuing through active rail crossings and increased diversion through neighborhood routes.
- Based on the results from the **Diversity, Equity, and Inclusion** criterion, the public prefers three travel lanes, dedicated bicycle facilities, and improvements for pedestrians. Enhanced crossings with less exposure to pedestrians are an additional element identified as important. No single concept provides all of the above.
- Based on the results from the **Safety** criterion, each design concept will greatly benefit from recommended improvements compared to existing conditions. Concept 2 provides the greatest level of separation for people walking and biking, as well as results in shorter crossing distances for people crossing the corridor.
- Based on the results from the **User Comfort** criterion, Concepts 1 and 2 provide the most comfortable pedestrian and bicycle facilities. Concepts 3 and 4 do not meet ODOT's guidance for bikeway design.
- Based on the results from the **Aesthetics** criterion, Concepts 1 and 2 provide the most opportunity for placemaking in the transition realm.
- Based on the results from the **Connectivity** criterion, all concepts provide connectivity improvements in the network of low-stress bicycle and pedestrian facilities compared to the No-Build condition.
- Based on the results from the **Freight Accommodation** criterion, all concepts are capable of meeting the horizontal and vertical pinch-points that exist today on 10th Avenue.

Concept 1 - Restriping

- Baseline Street
  - **Removal of a travel lane** to fit a bicycle facility.
  - **Buffer with vertical flex posts between the bike lane** and the travelway.
- Oak Street
  - **Removal of a travel lane** to fit a bicycle facility.
  - Parking is shifted away from the curb to create a "**parking protected bike lane**" on the south side of the road.
  - Buffers are provided on both sides of parking.





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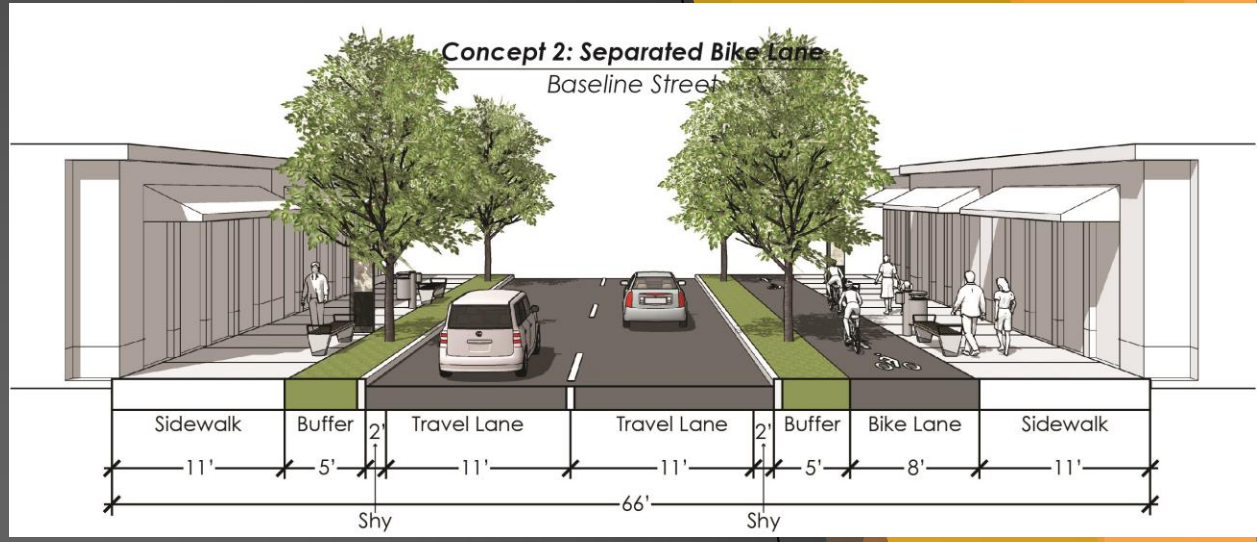
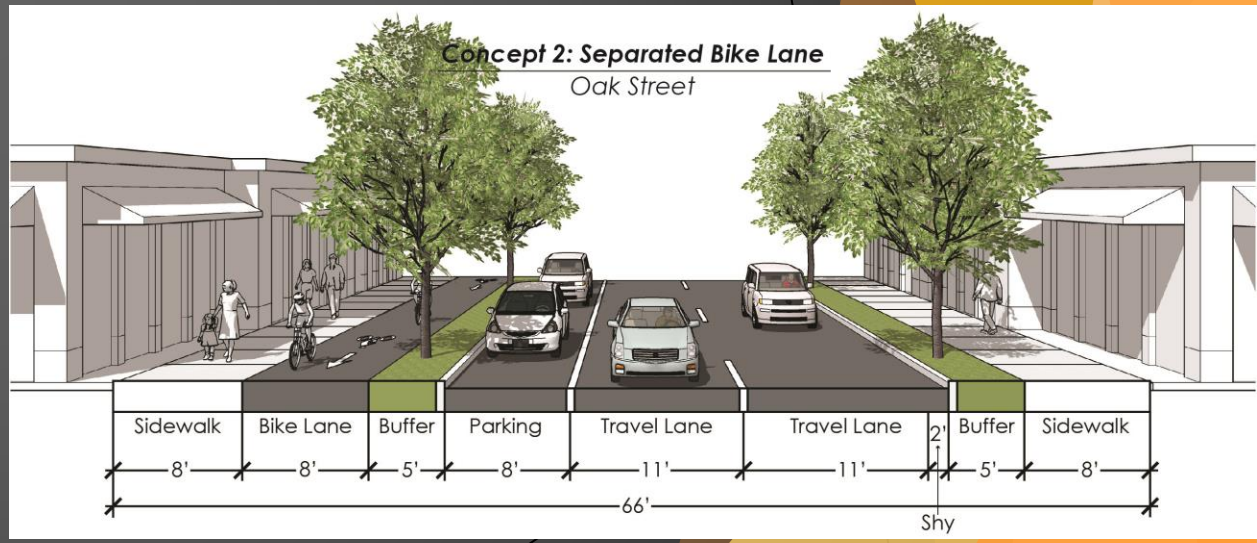
Concept 2 – Separated Bike Lanes

- Baseline Street
  - **Removal of a travel lane** to fit a bicycle facility.
  - The **bike lane is raised and fully separated** from the travelway.
- Oak Street
  - **Removal of a travel lane** to fit a bicycle facility.
  - The **bike lane is raised and fully separated** from the travelway.
  - **Maintain parking** on the south side of the roadway.
  - Buffer zone relocated adjacent to parking.





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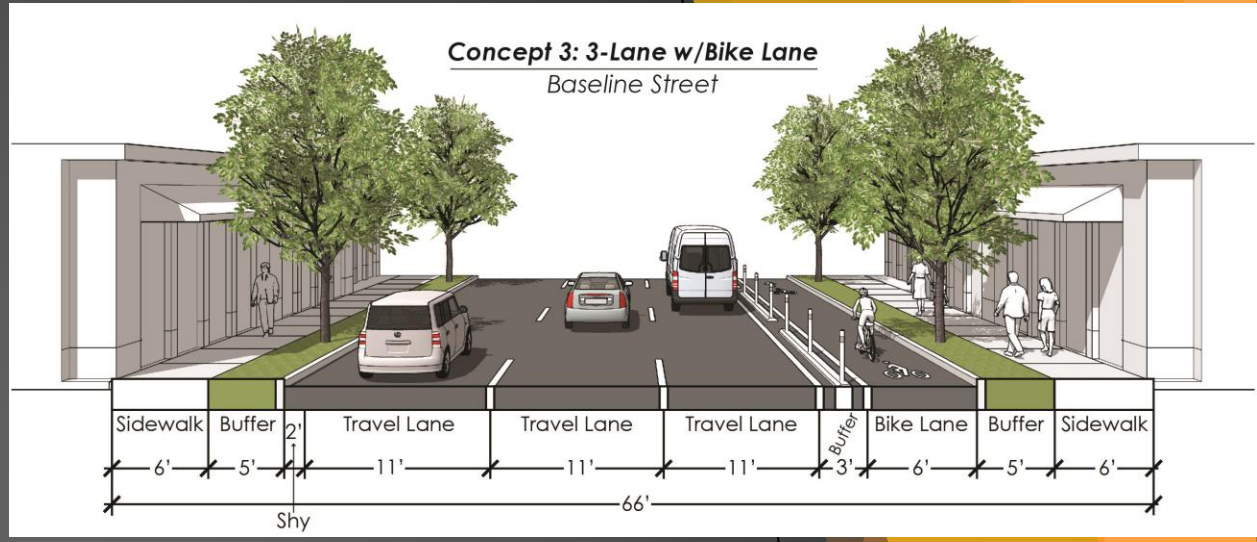
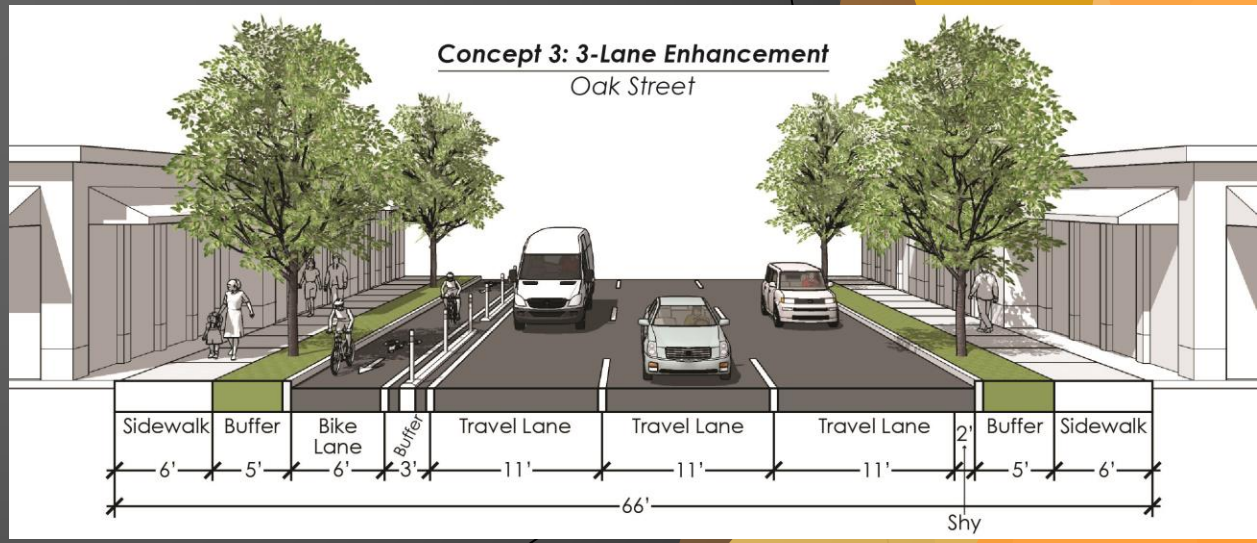
Concept 3 – Three Lane Enhancement

- Baseline Street
  - Curb relocation **(widening) to fit three travel lanes and a bicycle facility**.
- Oak Street
  - Maintains the existing travelway.
  - **Removal of on-street parking to fit bicycle facility**.





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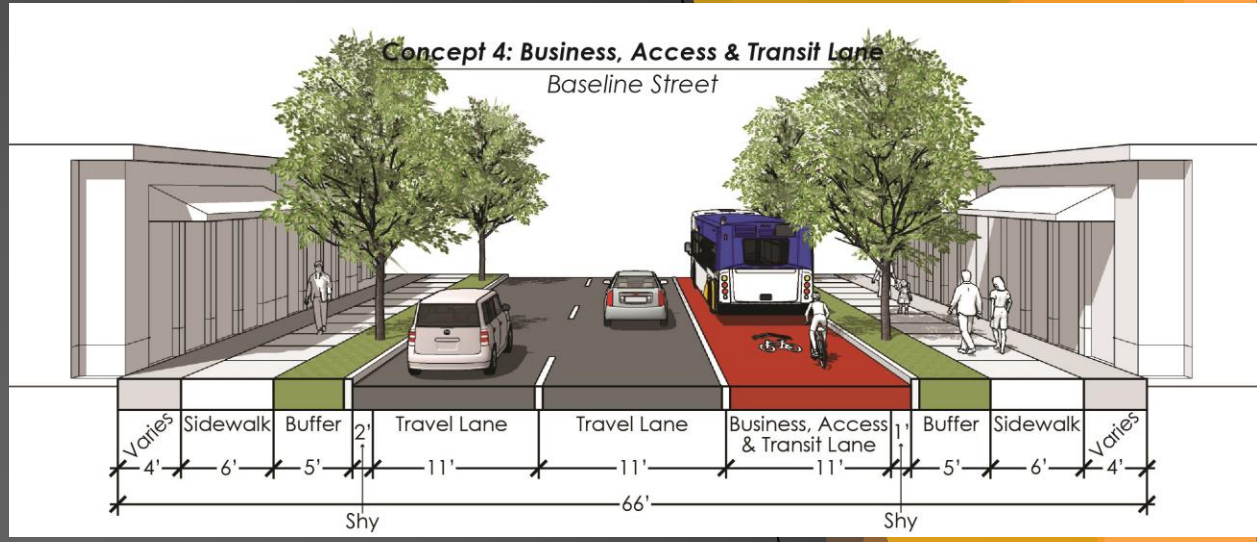
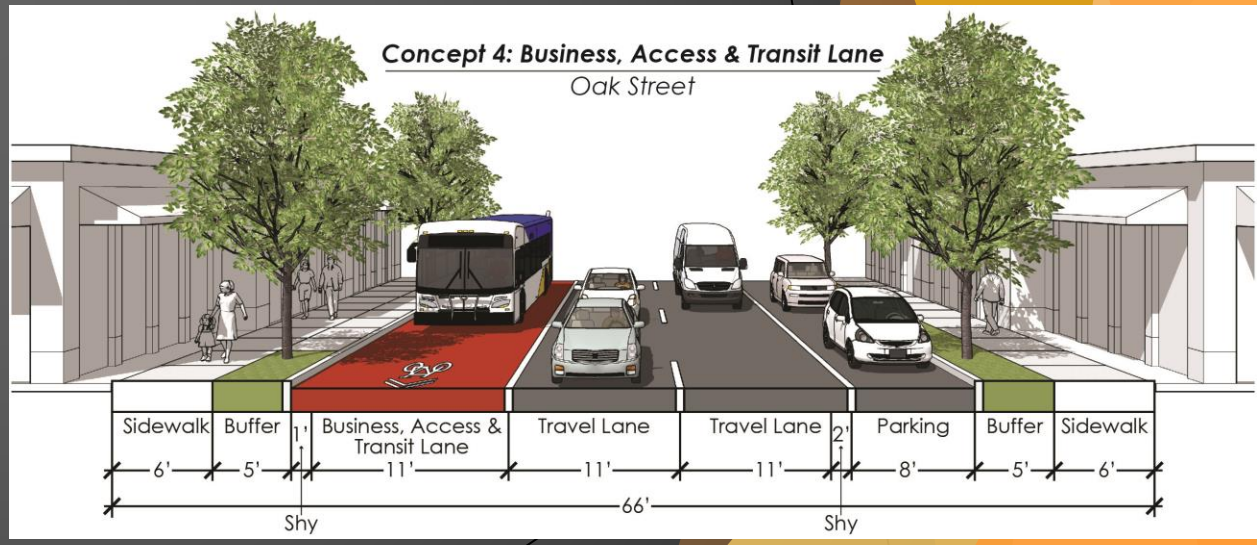
Concept 4 – BAT Lane

- Baseline Street
  - **Repurpose travel lane** to Business, Access, & Transit (BAT) lane.
  - **No dedicated bicycle facility** (bicycles use BAT lane).

- Oak Street
  - **Repurpose travel lane** to Business, Access, & Transit (BAT) lane.
  - **No dedicated bicycle facility** (bicycles use BAT lane).
  - **Maintain parking**.





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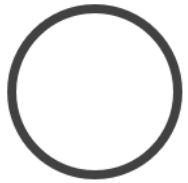
Evaluation Scoring

Evaluation Matrix Legend



Very Poor

Design concept has a substantially negative impact on measure.

Poor

Design concept has a moderately negative impact on measure.

Fair

Design concept has a neutral impact on measure.

Good

Design concept has a moderately positive impact on measure.

Very Good

Design concept has substantially positive impact on measure.

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Diversity, Equity, & Inclusion (DEI)

	Community Feedback	Spatial Analysis
No-Build	N/A	Very Poor
Concept 1 - Restriping	Good	Very Good
Concept 2 – Separated Bike Lanes	Good	Very Good
Concept 3 – Three Lane Enhancement	Good	Very Good
Concept 4 – BAT Lane	Very Poor	Very Good

How did we measure this criteria?

Community Feedback

- In-person community workshop
- Online open house
- Interviews

Spatial Analysis

- Demographic dataset produced as part of the City's TSP update

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Safety

	Crash Reduction Factors	Crossing Distance Exposure	Queuing into Active Rail Crossing
No-Build	Poor	Fair	Fair
Concept 1 - Restriping	Good	Good	Poor
Concept 2 – Separated Bike Lanes	Very Good	Very Good	Poor
Concept 3 – Three Lane Enhancement	Fair	Very Poor	Fair
Concept 4 – BAT Lane	Fair	Fair	Poor

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How did we measure this criteria?

Crash Reduction Factors

- Identify CRFs unique to each concept

Crossing Distance Exposure

- Measurement of crossing distance at unsignalized crossing locations for each design concept

Queueing into Active Rail Crossing

- Peak 15-min queue analysis southbound on 1st Avenue, 9th Avenue, and 10th Avenue at Baseline Street (TriMet MAX Light Rail line), and eastbound on Oak Street (heavy rail line within Adams Avenue)

User Comfort

	Pedestrian facility width and level of separation	Bicycle facility width and level of separation	Proximity of transit stop to enhanced crossings and provision of amenities	Vehicular facility width, level of separation
No-Build	Poor	Very Poor	Fair	Poor
Concept 1 - Restriping	Poor	Good	Very Good	Very Good
Concept 2 – Separated Bike Lanes	Good	Very Good	Very Good	Very Good
Concept 3 – Three Lane Enhancement	Poor	Good	Very Good	Very Good
Concept 4 – BAT Lane	Poor	Poor	Very Good	Very Good

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How did we measure this criteria?

Pedestrian Facility Width & Level of Separation

- Comparison of pedestrian realm to HDM guidance

Bicycle Facility Width & Level of Separation

- Comparison of transition realm to HDM guidance

Proximity of Transit Stops to Enhanced Crossings

- Distance of enhanced crossing locations to transit stops; guidance for transit-supportive facilities

Vehicular Facility Width & Level of Separation

- Comparison of vehicle widths to HDM guidance

Aesthetics

	Width and Treatment of the Transition Realm	Undergrounding Utilities
No-Build	Fair	Fair
Concept 1 - Restriping	Good	Good
Concept 2 – Separated Bike Lanes	Good	Very Good
Concept 3 – Three Lane Enhancement	Fair	Very Good
Concept 4 – BAT Lane	Fair	Very Good

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How did we measure this criteria?

Width & Treatment of the Transition Realm

- Width of the transition realm and opportunities for landscaping and placemaking opportunities

Undergrounding Utilities

- Measurement of whether each concept provides an opportunity to underground treatments

Connectivity

	Directness of Route	Frequency of Enhanced Crossings
No-Build	Poor	Poor
Concept 1 - Restriping	Very Good	Very Good
Concept 2 – Separated Bike Lanes	Very Good	Very Good
Concept 3 – Three Lane Enhancement	Very Good	Very Good
Concept 4 – BAT Lane	Very Good	Very Good

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How did we measure this criteria?

Directness of Route

- Direct routes and connections for people walking, biking, and rolling to essential destinations

Frequency of Enhanced Crossings

- Number of enhanced crossings

Freight Accommodation

	Impacts to Vertical and Horizontal Clearances	Freight Loading Zone Curb Space and Frequency
No-Build	Good	Fair
Concept 1 - Restriping	Good	Fair
Concept 2 – Separated Bike Lanes	Good	Fair
Concept 3 – Three Lane Enhancement	Good	Fair
Concept 4 – BAT Lane	Good	Fair

How did we measure this criteria?

Impacts to Vertical and Horizontal Clearances

- Comparison to ODOT-provided horizontal carrying capacity of OR8

Freight Loading Zone Curb Space and Frequency

- Number of freight loading zone spaces

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Implementation Feasibility & Cost Effectiveness

	Ease of Incremental Implementation	Planning Level Cost Estimate
No-Build	Very Poor	Very Poor
Concept 1 - Restriping	Very Good	Very Good
Concept 2 – Separated Bike Lanes	Fair	Fair
Concept 3 – Three Lane Enhancement	Very Poor	Very Poor
Concept 4 – BAT Lane	Very Poor	Good

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How did we measure this criteria?

Ease of Incremental Implementation

- Opportunities or barriers to implementing the facility in an incremental way

Planning Level Cost Estimate

- Significance and complexity of construction

Convenience

	Number of Public Parking Stalls	Corridor Travel Time
No-Build	 Poor	 Good
Concept 1 - Restriping	 Good	 Fair
Concept 2 – Separated Bike Lanes	 Very Good	 Fair
Concept 3 – Three Lane Enhancement	 Poor	 Good
Concept 4 – BAT Lane	 Good	 Poor

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How did we measure this criteria?

Number of Public Parking Stalls

- Number of vehicular, bicycle, and micro-mobility parking spaces

Corridor Travel Time

- Travel time for general purpose traffic and buses for each concept

Livability

	Diversion & Cut-Through Traffic	Neighborhood Traffic Management Mitigation
No-Build	Good	Good
Concept 1 - Restriping	Poor	Poor
Concept 2 – Separated Bike Lanes	Poor	Poor
Concept 3 – Three Lane Enhancement	Good	Good
Concept 4 – BAT Lane	Poor	Poor

How did we measure this criteria?

Diversion & Cut-Through Traffic

- Traffic volumes on streets parallel to Oak Street and Baseline Street as either increasing or decreasing as a result of capacity and/or speed changes along the OR8 couplet.

Neighborhood Traffic Management Mitigation

- Number of traffic management mitigation strategies required

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Environmental

	System Vehicular Emissions	Vehicular Noise	Pervious Surface
No-Build	Good	Good	Fair
Concept 1 - Restriping	Poor	Poor	Very Good
Concept 2 – Separated Bike Lanes	Poor	Poor	Very Good
Concept 3 – Three Lane Enhancement	Good	Good	Very Good
Concept 4 – BAT Lane	Poor	Poor	Very Good

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How did we measure this criteria?

System Vehicular Emissions

- Emissions calculations for select intersections along OR8 represented through the measure of Vehicle Hours of Delay

Vehicular Noise

- Vehicle stop frequency

Pervious Surface

- How much a concept increases or decreases the pervious surface in the corridor

Preliminary Findings

- OR8 currently lacks dedicated bicycle facilities to be consistent with the HDM.
- Public engagement indicates a desire for better facilities to meet all users' needs, but there are challenging trade-offs
- Technical analysis shows that with traffic volume increases, congestion, delay, and diversion are expected with little mode shift.
  - User safety and comfort will degrade, particularly for pedestrians, bicyclists, and transit users without improvements to the corridor.
- An incremental approach is not possible.

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Preliminary Recommendation

- **Near-Term for Baseline Street**: Implement Concept 1 as a restriping project.
- **Near-Term for Oak Street**: Implement Concept 1 as a restriping project.
- **Near-Term for 10th Avenue**: Implement restriping to provide at least 5-foot bicycle lanes by narrowing general purpose lanes and the median treatment area.
- **Mid-Long-Term**: Obtain right-of-way to provide turn lanes at key intersections and appropriately address bicycle facility revisions to maintain low-stress status.
- **As Funding Allows**: Complete a streetscape improvement project.
- **Further Detail**: Develop additional detail for curb extensions, bus stop treatments, enhanced crossings, and turn lane locations and storage requirements to support the near-term improvement.

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Discussion

- Feedback on evaluation criteria and scoring
- Feedback on preliminary recommendation
- Outstanding questions and clarification

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Next Steps

- Final TM#5: Concepts Evaluation
- TAC#7
- Draft Concept Plan
- Community Workshop #3

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