Sellwood Bridge AM Traffic Evaluation

SMILE Transportation Committee Meeting

Portland Bureau of Transportation

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PBOT
PORTLAND BUREAU OF TRANSPORTATION

Goals and Objectives

- Understand and reduce the impacts of cut-through traffic.
- Preserve pedestrian and bicycle safety across Tacoma and within the neighborhood.

Information Collected

- Data Collection
  - Daily Traffic Volumes on major streets and local streets
  - Turning Movement Counts at Tacoma/13th and Tacoma/17th
  - Video Data - Tacoma @ 6th, 13th @ Umatilla, and 13th @ Nehalem
  - Field observations – travel patterns, travel time
- New cameras installed in October at both ends of the bridge allow:
  - Monitoring of traffic conditions
  - Ability to observe affect of signal timing changes

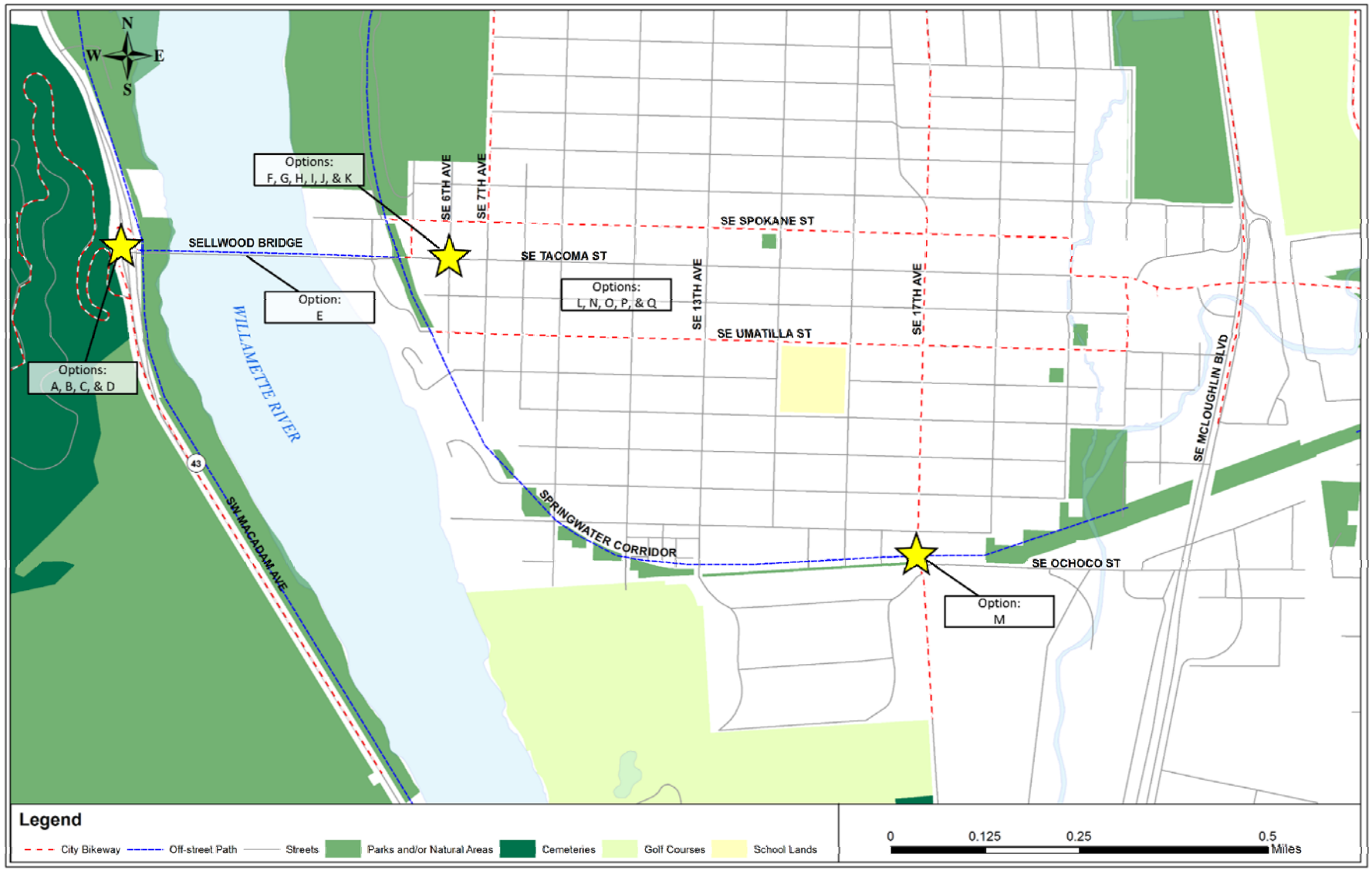
Possible Contributing Factors

- AM Queue Spillback due to:
  - Hwy 43/Macadam signal
  - 6th & Tacoma signal
  - Stop and go conditions
  - Side-street traffic allowed to enter Tacoma
- Neighborhood cut-through due to:
  - Reduced total travel time
  - Waze/Google Maps

Possible Options

Treatment Location:	Sellwood Bridge West Side				On Sellwood Bridge	6th and Tacoma Intersection					
	A	B	C	D	E	F	G	H	I	J	K
Mitigation Analysis	**Relocate TriMet stop**	**Reduce Cemetary traffic signal green time**	**Reduce SB traffic signal green time entering Sellwood Bridge**	**Reduce occurance of 'NO TURN ON RED' sign for westbound vehicles making a right northbound turn**	**3 Lanes on bridge (center reversible)**	**Leading Ped Interval reduce green time**	**Replace existing E. Signal with Pedestrian Hybrid Beacon**	**Prohibit left turns from Tacoma in AM Peak (flashing yellow lights)**	**Adjust signal time @ 6th and Tacoma (less green signal time for sidestreet) when no peds**	**Longer cycle length and more green time to Tacoma**	**'NO TURN ON RED' for southbound 6th Ave vehicles**
Issue	The northbound TriMet bus route requires and extra signal phase to accommodate the through movement.	Low morning commuting volumes eastbound from River View Cemetary. Large traffic volumes on Sellwood Bridge must wait for signal.	SB traffic from Macadam queues up into the intersection which blocks vehicle movements NB and through the intersection.	The 'NO TURN ON RED' sign may activate in instances when its presence is not necessitated.	Morning commuters back up on bridge and occasionally spillback past SE 6th and Tacoma.	Many vehicles are entering Tacoma from sidestreets thereby reducing the flow of traffic on Tacoma for morning commuters.	Many vehicles are entering Tacoma from sidestreets thereby reducing the flow of traffic on Tacoma for morning commuters.	The traffic signal at SE 6th and Tacoma may no be currently configured to facilitate the most efficient flow for westbound morning commuters.	Many vehicles are entering Tacoma from sidestreets thereby reducing the flow of traffic on Tacoma for morning commuters.	The traffic signal at SE 6th and Tacoma may no be currently configured to facilitate the most efficient flow for westbound morning commuters.	Possible conflict for southbound vehicles that make right turns from SE 6th Ave onto the Sellwood Bridge with bikes traveling east on the north side of Tacoma.
Option	Relocate the TriMet stop on OR 43 so that the bus may bypass the Sellwood Bridge ramp.	Change the signal timing by reducing the amount of time the signal will be green for vehicles from the cemetary. (Near-term option)	Change the signal timing by reducing the amount of time the signal will be green for vehicles from Macadam. (Near-term option)	Reconfigure the sign to limit the activation of the 'NO TURN ON RED' sign to specific pedestrian and bike use as possible. (Near-term option)	Reconfigure the lanes on the Sellwood Bridge by removing the bike lanes, and adding a center reversible lane to assist with peak hour traffic.	Reconfigure the existing traffic signal to allow pedestrians to begin crossing the intersection before vehicles are given a green signal. (Near-term option)	Replace the existing traffic signal at SE 6th and Tacoma with a Pedestrian Hybrid Beacon (PHB) which will only stop traffic in the presence of pedestrians or bicyclists. Sidestreets will be stop controlled.	Reconfigure the traffic signal at SE 6th and Tacoma to remove the protected left turn, and provide left turning vehicles with a yellow flashing light during morning commute. (Near-term option)	Reconfigure the traffic signal at SE 6th and Tacoma to reduce green time for vehicles turning from the sidestreets (north and south sides of Tacoma) to allow more green time to Tacoma traffic. (Near-term option)	Reconfigure the traffic signal at SE 6th and Tacoma to increase green time for vehicles making WB through movements on Tacoma to the Sellwood Bridge. (Near-term option)	Add 'NO TURN ON RED' sign for southbound vehicles at the SE 6th and Tacoma intersection to remove bike conflict. (Near-term option)

Treatment Location:	E of 6th and Tacoma	Neighborhood Streets Around Tacoma				
	L	M	N	O	P	Q
Mitigation Analysis	**Tacoma median islands**	**Restrict access NB on 17th (SE Ochoco)**	**Restric entry through Tacoma sidestreets (diverters)**	**Restric entry through Tacoma sidestreets (signs prevent AM access)**	**Enhance Umatilla Bikeway**	**Change 6th, SB, S of Tacoma, to one-way with NB bike lane**
Issue	Many vehicles are entering Tacoma from sidestreets thereby reducing the flow of traffic on Tacoma for morning commuters.	Many non-local vehicles utilize the Sellwood Bridge during the morning commute hours. Many vehicles are entering Tacoma from sidestreets thereby reducing the flow of traffic on Tacoma for morning commuters.	Many vehicles are entering Tacoma from sidestreets thereby reducing the flow of traffic on Tacoma for morning commuters.	Many vehicles are entering Tacoma from sidestreets thereby reducing the flow of traffic on Tacoma for morning commuters.	The Umatilla Bikeway may benefit from additional sighage and safety improvements.	Many vehicles are entering Tacoma from sidestreets thereby reducing the flow of traffic on Tacoma for morning commuters.
Option	Install median islands to remove space where vehicles that turn from sidestreets are currently queing. This is intended to make turning from sidestreets more difficult, and discourage this movement.	Install a traffic treatment, such as a signal, that would restrict access northbound on Ochoco for non-local traffic to Tacoma.	Install diverters along SE 13th and 17th Avenues, or strategically through the neighborhood, to block access to or through the neighborhood.	Install turn restriction signs along SE 13th and 17th Avenues during morning commute.	Enhance bike facilities along Umatilla to create a more safe bike route, and may discourage some vehicle traffic.	Reconfigure SE 6th Ave, south of Tacoma. Provide southbound only vehicle traffic with two-way bike movements.

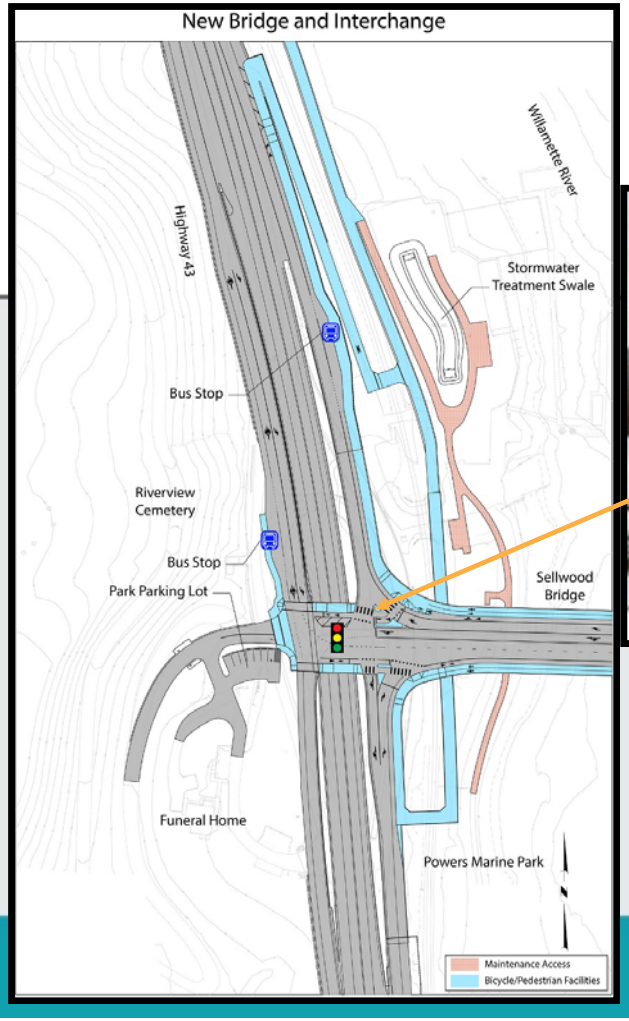

N
W
E
S
Options:
F, G, H, I, J, & K
SE 6TH AVE
SE 7TH AVE
SE SPOKANE ST
SELLWOOD BRIDGE
SE TACOMA ST
Options:
L, N, O, P, & Q
SE 13TH AVE
SE 17TH AVE
Option:
E
SE UMATILLA ST
WILLAMETTE RIVER
Options:
A, B, C, & D
SE MCLOUGHLIN BLVD
43
SW MACADAM AVE
SPRINGWATER CORRIDOR
SE OCHOCO ST
Option:
M
Legend
City Bikeway
Off-street Path
Streets
Parks and/or Natural Areas
Cemeteries
Golf Courses
School Lands
0
0.125
0.25
0.5
Miles

Options A thru D

Signal Timing Adjustments
West End of Bridge

West End Interchange

Signal Timing adjustments – balance movements for most efficient traffic flow.



Option E

Convert Bridge to Reversible Travel Lanes

Reconfiguring lanes on the bridge to provide more storage space across the bridge, and allow capacity to be adjusted with directional demand.

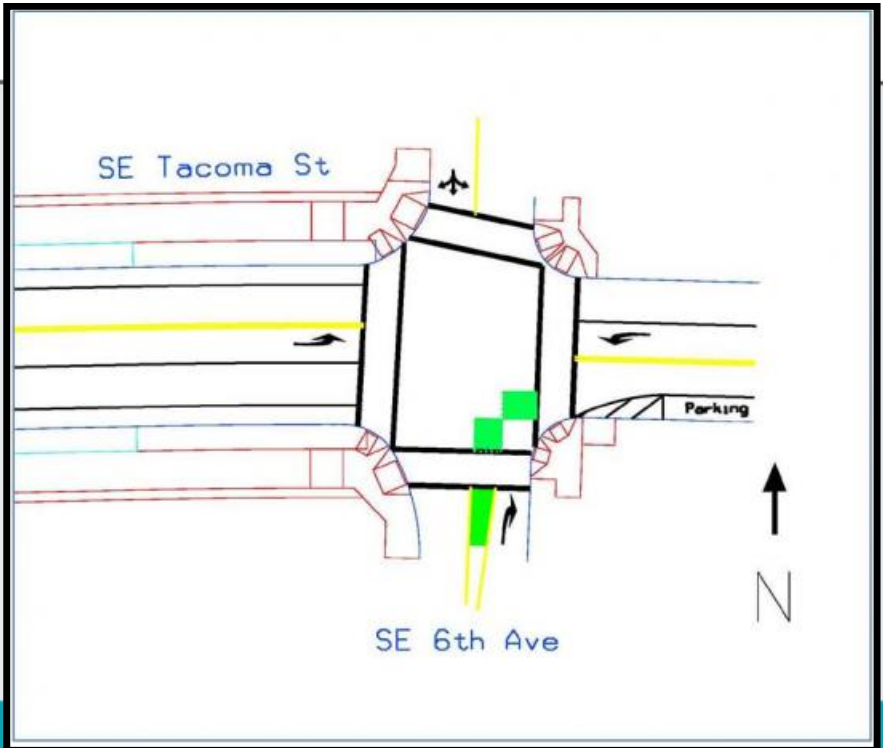
This will involve multiple agency consensus. *Significant amount of evaluation required*.

Options F thru K

SE 6th & Tacoma Signal Operations

Modifications to signal include:

- Signal timing adjustments to favor pedestrian/bicycle safety
- Restriction of certain movements during the AM Peak
- Replacement of traffic signal with Pedestrian Hybrid Beacon



Options G

Replace SE 6th & Tacoma Signal

Pedestrian Hybrid Beacon Example
(SE Tacoma & 19th Ave)

Options L, N, O

Access Restrictions (Diversion)

Treatments that eliminate or redirect traffic

- Medians on Tacoma reduce turning movement use of left turn lane

- Diverters and Turn Restriction signing restrict traffic movements with the goal of reducing traffic volumes

Time Limited Turn Restrictions

Diverter Examples
Permanent

Diverter Examples
Temporary or Test

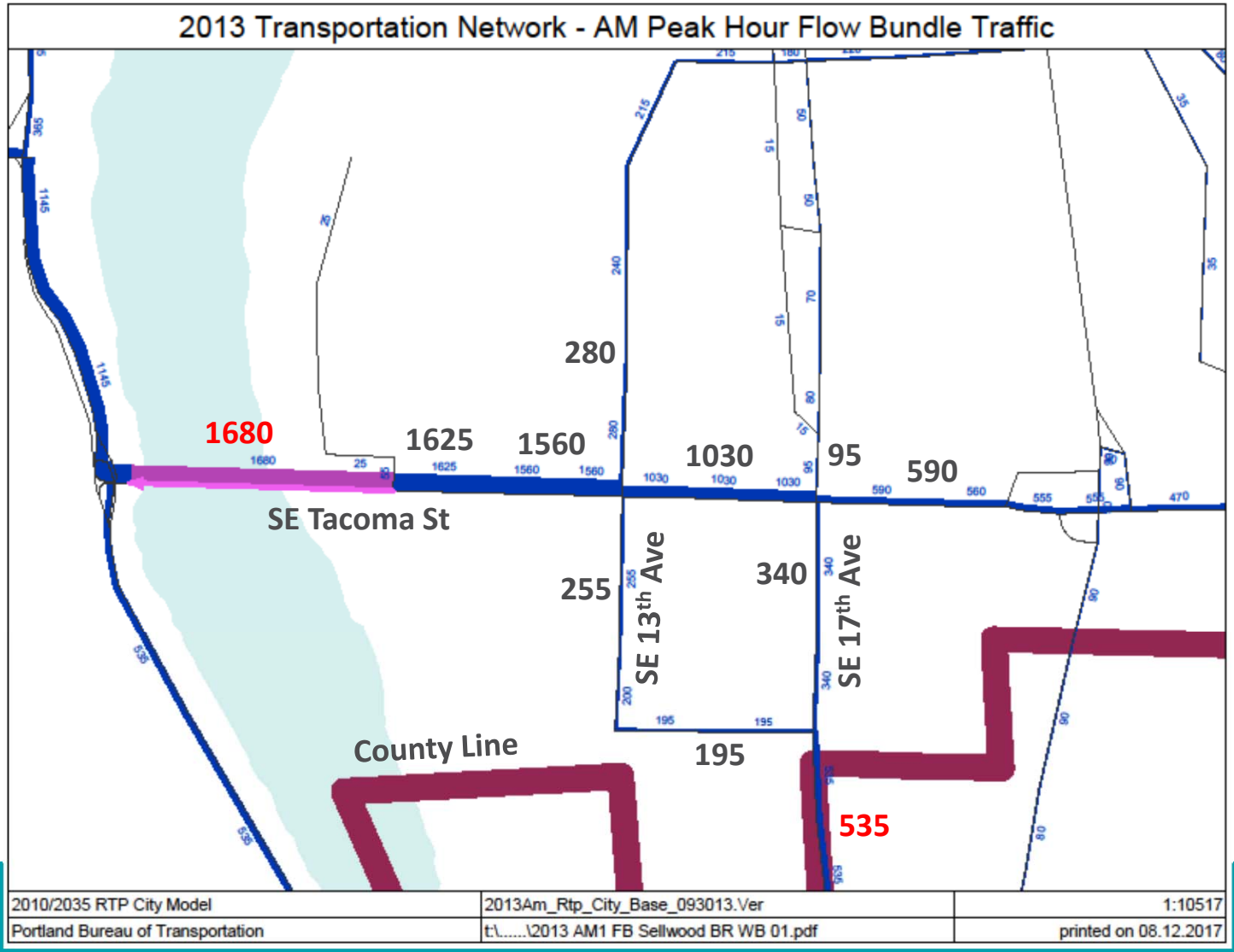
Option M

Meter Traffic Flow on 17th Ave

SE 17th/Ochoco Treatment
Potential to reduce amount of outside commute traffic entering neighborhood from south on 17th.

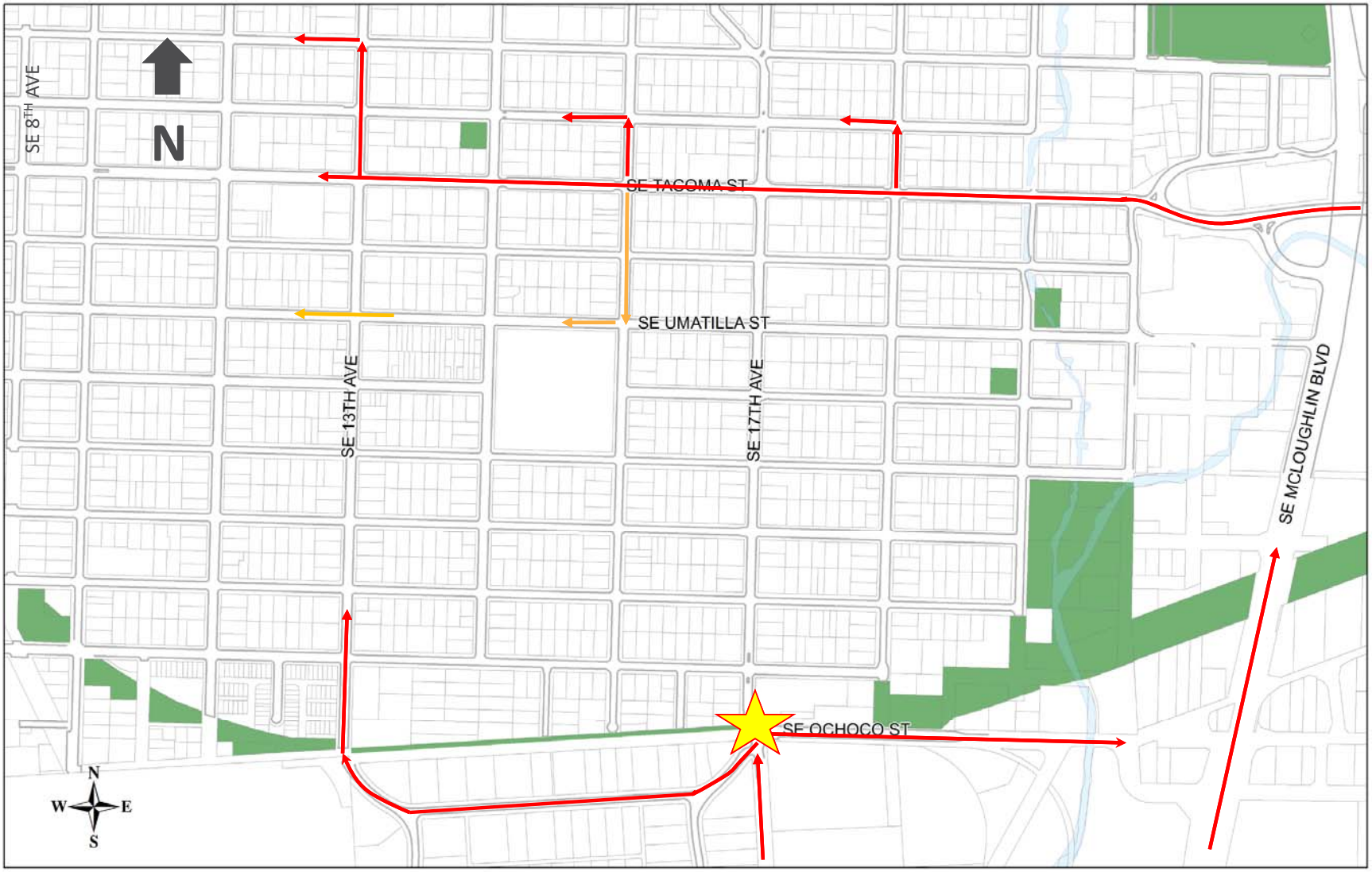
Bonus opportunity to improve Springwater Trail crossing safety.

Significant evaluation required. Potential for unacceptable unintended consequences.



SE 17th Ave South of Ochoco

- A primary bridge feeder
- Approximately 1/3 of the AM westbound bridge traffic


N
SE 8TH AVE
SE TACOMA ST
SE UMATILLA ST
SE 13TH AVE
SE 17TH AVE
SE MCLOUGHLIN BLVD
SE OCHOCO ST
N
W
E
S

Option P

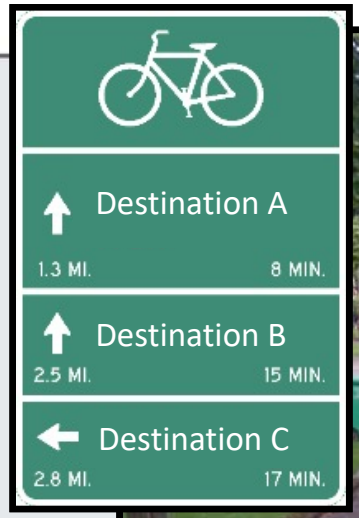
Improve Umatilla as a Greenway

Umatilla Bikeway
Improve bikeway conditions on Umatilla to greenway standards:

- Speed bumps
- 20 mph speed limit
- ‘Sharrow’ pavement markings
- Diversion?

Variation

- Install speed bumps throughout the neighborhood



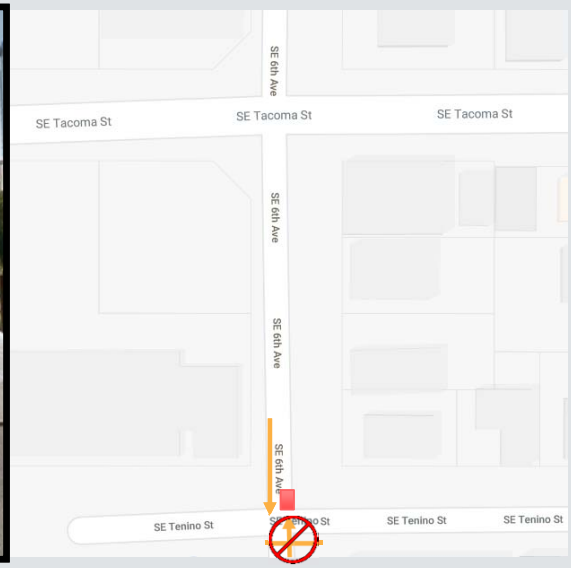
Option Q

6th Ave Diverter, South of Tacoma

SE 6th between SE Tenino & Tacoma

Treatment to restrict NB to bike only

- Eliminates illegal left turns at 6th/Tacoma signal.
- Reduces cut-through traffic attraction to the 6th/ Tacoma signal



Summary

Tier One Simple Low Cost	Tier Two Feasibility Issues Additional Process Medium Cost	Tier Three Feasibility Issues Additional Process High Cost	Tier Four Not Recommended
Options: **B:** West signal timing **C:** West signal timing **D:** West signal timing **F:** 6th signal timing **H:** 6th signal timing **I:** 6th signal timing **K:** 6th signal timing	Options: **G:** HAWK signal **J:** 6th signal timing **M:** Diversion **P:** Umatilla Greenway **Q:** 6th Ave diverter	Options: **E:** Reversible lanes **N:** 17th Ave diverter **L:** Tacoma medians	Options: **A:** Bus stop relocate **O:** 17th turn restrict

Next Steps

- Adopt 'Implementation Strategy'
- Finish implementation of Tier One
- Plan Development for Tier Two
  - Address feasibility issues
  - Address desirability issues
- Design engineering construction of Tier Two
- Evaluation of results- assess need for Tier Three options and/or additional Tier Two options

Questions?