



# DuPont Old Fort Lake Subarea Plan Environmental Impacts TRANSPORTATION MITIGATION Desirability

Planning Commission Meeting – July 22, 2024



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FEHR & PEERS

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## Old Fort Lake Subarea Plan:

1. Environmental Impacts – Transportation – Mitigation – Desirability
- 2.
3. Next Steps

## Environmental Impact Statement Process:

1. EIS Preparation based on two alternatives
2. Draft EIS Issuance and Public/Agency Review
3. Review of comments
4. Final EIS
  - Short Form – Response to Comment
  - Substantive Revision
    - Changes in proposal to mitigate impacts
    - Comments indicate deficiencies in analysis
  - Planned Action Ordinance

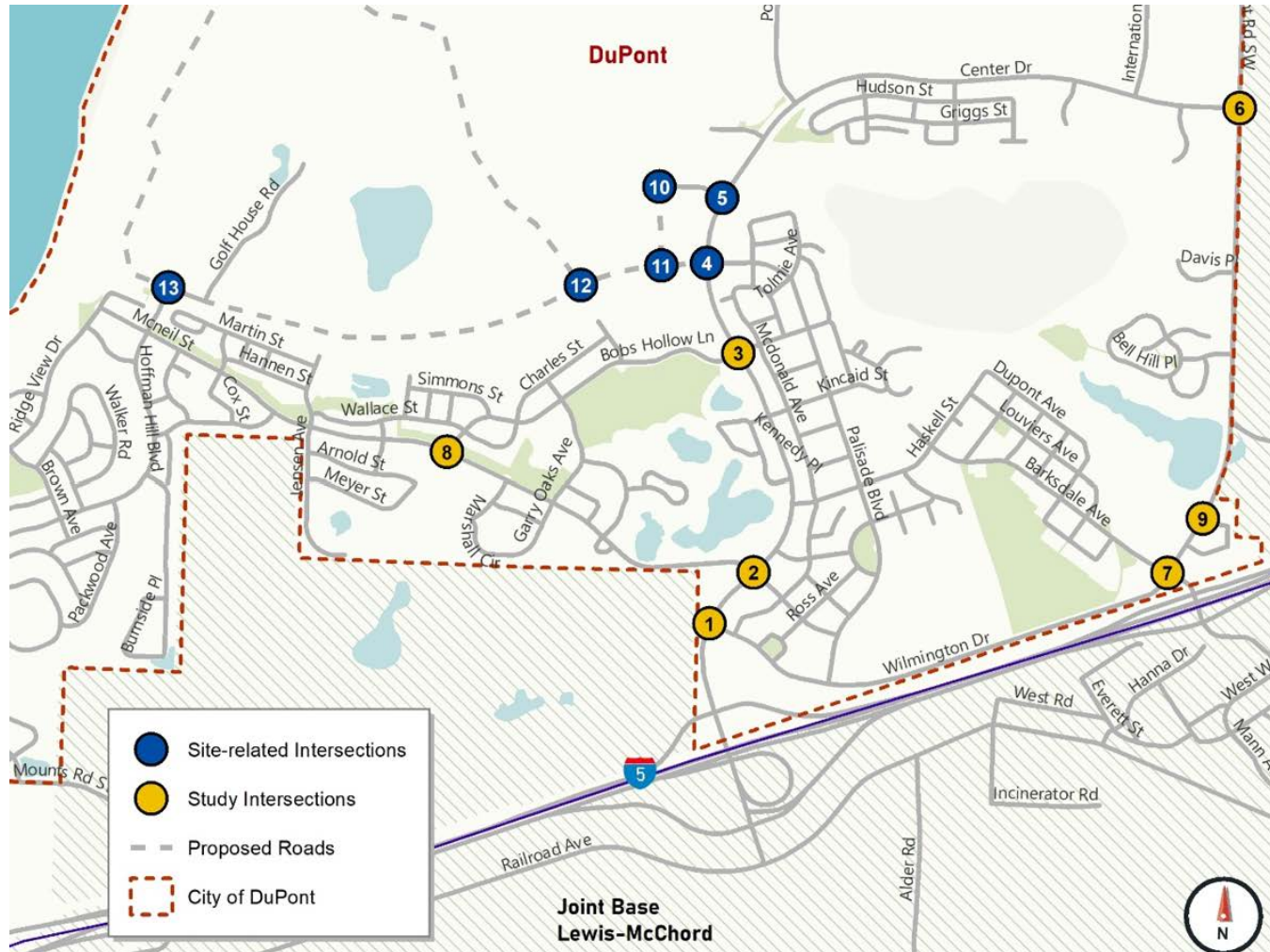


# Current Plan Proposal – Concept G





## Transportation: Study Intersections



## Transportation: Level of Service

LOS	Description	Signalized Intersections Avg. Delay (sec/veh) <sup>1</sup>	Unsignalized Intersections Avg. Delay (sec/veh) <sup>2</sup>
A	<i>Free Flow / Insignificant Delay</i> Extremely favorable progression. Individual users are virtually unaffected by others in the traffic stream.	< 10.0	< 10.0
B	<i>Stable Operations / Minimum Delays</i> Good progression. The presence of other users in the traffic stream becomes noticeable.	> 10.0 to 20.0	> 10.0 to 15.0
C	<i>Stable Operations / Acceptable Delays</i> Fair progression. The operation of individual users is affected by interactions with others in the traffic stream	> 20.0 to 35.0	> 15.0 to 25.0
D	<i>Approaching Unstable Flows / Tolerable Delays</i> Marginal progression. Operating conditions are noticeably more constrained.	> 35.0 to 55.0	> 25.0 to 35.0
E	<i>Unstable Operations / Significant Delays Can Occur</i> Poor progression. Operating conditions are at or near capacity.	> 55.0 to 80.0	> 35.0 to 50.0
F	<i>Forced, Unpredictable Flows / Excessive Delays</i> Unacceptable progression with forced or breakdown of operating conditions.	> 80.0	> 50.0

## Transportation: Level of Service

ID	Study Intersection <sup>1</sup>	No Action Unimproved		High-End Unimproved <sup>2</sup>		High-End with Improvements <sup>2,3</sup>	
		AM LOS / Control Delay (s)	PM LOS / Control Delay (s)	AM LOS / Control Delay (s)	PM LOS / Control Delay (s)	AM LOS / Control Delay (s)	PM LOS / Control Delay (s)
1	Center Drive & Wilmington Drive	B/11	B/17	B/13	C/31	B/13	C/31
2	Center Drive & McNeil Street	C/22	<b>F/80</b>	<u>D/36</u>	<b>E/61</b>	D/36	C/31
3	Center Drive & Bob's Hollow Lane	B/21	C/28	C/25	C/30	C/25	C/30
4	Center Drive & Palisade Boulevard	<b>F/320</b>	<b>F/589</b>	<b>F/151</b>	<b>F/353</b>	C/20	C/32
5	Center Drive & Civic Drive	A/6	A/6	A/6	A/6	A/6	A/6
6	Center Drive & DuPont-Steilacoom Road	D/46	C/30	D/51	<u>D/52</u>	C/29	C/30
7	DuPont-Steilacoom Road/Wilmington Drive & Barksdale Avenue	A/9	B/10	A/9	B/13	A/9	B/13
8	McNeil Drive & Bobs Hollow Lane	<b>F/125 (SB)</b>	<b>F/54 (SB)</b>	<b>F/275 (SB)</b>	<b>F/302 (SB)</b>	C/15	A/15
9	I-5 Access Road & DuPont-Steilacoom Road	A/7	A/9	A/7	A/8	A/7	A/8

## Transportation: Mitigation Options

- Monitor Impacts as the OFL Subarea Develops and Adjust Mitigation – Potential Problem with Establishing Developer Mitigation or Transportation Impact Fees
- Reduce Development Intensity
  - Trip Generation of Existing OFL Plan (45,471 vs 46,966) Does Not Substantially Change Impacts or Mitigation
  - How Would One Set a Threshold of Acceptable Impact Level
- **Improve Intersections to Serve Projected Trip Distribution and Meet LOS D Standard – Allows Long Term Mitigation Conditions and/or Transportation Impact Fees**
- **Eliminate Specific Intersection Mitigation and Experience LOS Above LOS D Standard and Likely Change Trip Distribution with Alternative Improvements (Civic Drive Extension) – Allows Long Term Mitigation Conditions and/or Impact Fees**



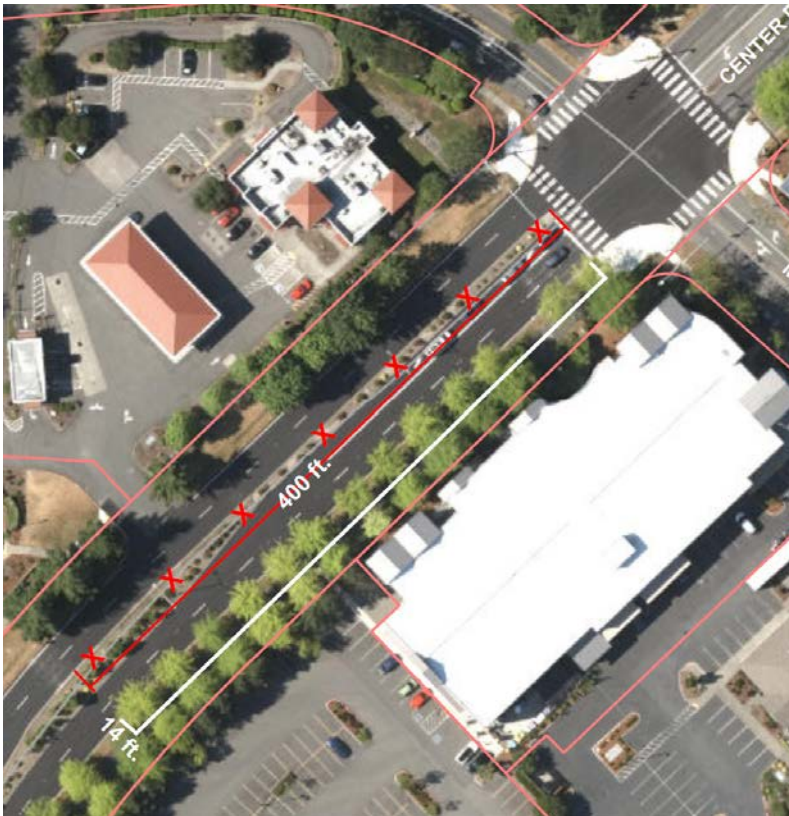
## Transportation: Center Drive/McNeil



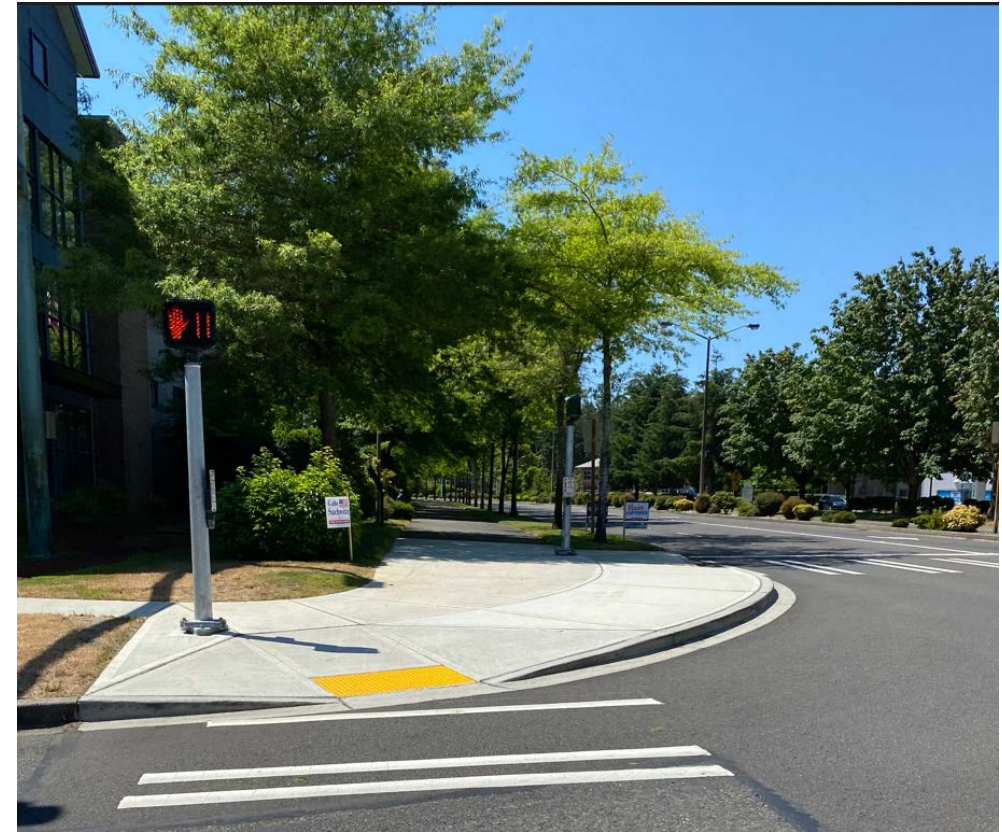
- Projected Residential Distribution 17%
- Trips Center AM 2,295; PM 3,247
  - Existing AM 999; PM 1,056
  - McNeil AM 1,144; PM 1,276
  - Existing AM 529; PM 624
- Level of Service E, 61 second delay
- AM Peak Critical Volume: Northbound to **Westbound** Left Turn – 317 (Existing 100)
- PM Peak Critical Volume Northbound to **Westbound** Left turn – 661 (Existing 320)
- Mitigation: LOS D, 36 second delay
  - Center Dr. Dual NB Left Turns, 400 ft queue, Eliminate 300' median, Eliminate 12'-14' landscaping East Side;
  - McNeil Additional Eastbound Lane
- Desirability?
- Options: Without Improvements, LOS E and Trips Redistribute to Intersections to the North

## Transportation: Center Drive/McNeil

Median, 14' Lane on SE



Detail: Cener/McNeil SE corner





## Transportation: Center Drive/McNeil

Detail Center McNeil SE Corner



Detail Center/McNeil SW corner





## Transportation: Center Drive/McNeil

Level of Service E, 61 second delay

- AM Peak Critical Volume: Northbound to Westbound Left Turn – 317 (Existing 100)
- PM Peak Critical Volume Northbound to Westbound Left turn – 661 (Existing 320)

### **Mitigation: Center Dr. Dual NB Left Turns**

- Results in LOS D, 36 second delay
- 400 ft queue, Eliminate 10 ft of median,
- Eliminate 12'-14' landscaping East Side;

### ***Desirability?***

- *Eliminates 200 feet of median*
- *12' to 14' encroachment into landscaping SE or SW corners*
- *Encroaches into sidewalks/trails on SE side*
- *Adds to traffic on McNeil through Residential Neighborhoods*

## Transportation: Center Drive/McNeil

Level of Service E, 61 second delay

- AM Peak Critical Volume: Northbound to Westbound Left Turn – 317 (Existing 100)
- PM Peak Critical Volume Northbound to Westbound Left turn – 661 (Existing 320)
- Mitigation: LOS D, 36 second delay

**Mitigation - McNeil Additional Eastbound Lane** - Needed to receive two left turns

### ***Desirability?***

- *Encroaches into Storm Drainage Detention Pond – minor impact*
- *To the west – may encroach into wetlands – exception process in Critical Areas Code*

## Transportation: Center Drive/McNeil

Impact: Level of Service E, 61 second delay, Mitigation: LOS D, 36 second delay

- **Center Dr. Dual NB Left Turns,**
- **McNeil Additional Eastbound Lane**

### **If Mitigation Not Implemented**

- Drivers experience LOS E, 61 second delay, or
- Drivers travel north an additional 2 to 4 minutes (depending on traffic light at Bobs Hollow) to
  - Center Dr/Palisades, and/or
  - Center Dr/Civic Drive – Relocated (If implemented)



### Transportation: Center Drive/McNeil

### **Discussion**

## Transportation: McNeil/Bobs Hollow



- McNeil – Resid. Distr. 19%, Non-Resid. – 17%
- Bobs Hollow – Resid. 2%, Non-Resid. – 12%
- Trips McNeil AM 1,144; PM 1,276  
Existing AM 529; PM 624  
Bobs Hollow AM 315 PM 431  
Existing AM 219; PM 226
- Level of Service F, 302 seconds delay SB Stop
- AM Peak Critical Volume: Southbound to Westbound Right Turn –113 (Existing 67) (McNeil EB 633 (Existing 117), WB 359 (Existing 385))
- PM Peak Critical Volume: Southbound to Eastbound Left Turn –189 ((Existing 129) McNeil EB 480 (Existing 285), WB 800(Existing 500))
- Mitigation: Traffic Circle
- Desirability?
- Options: Without Improvements, LOS F SB Stop

## Transportation: McNeil/Bobs Hollow

Level of Service F, 302 seconds delay SB Stop

- AM Peak Critical Volume: Southbound to Westbound Right Turn –113 (Existing 67) (PM Peak Critical Volume: Southbound to Eastbound Left Turn –189 ((Existing 129)

### Mitigation

Bobs Hollow & McNeil LOS Results				
<i>Control Type</i>	No Action		High-End	
	AM	PM	AM	PM
SSSC (Existing Configuration)	F / 79s	E / 38s	E / 323s	F / 235s
Roundabout (One-Lane)	A / 9s	A / 8s	C / 15s	B / 14s
All Way Stop Control	E / 49s	E / 39s	F / 140s	F / 154s



## Transportation: McNeil/Bobs Hollow





## Transportation: McNeil/Bobs Hollow



## Transportation: McNeil/Bobs Hollow

Level of Service F, 302 seconds delay SB Stop

- AM Peak Critical Volume: Southbound to Westbound Right Turn –113 (Existing 67) (PM Peak Critical Volume: Southbound to Eastbound Left Turn –189 ((Existing 129)

### ***Desirability?***

- *Acquire Right of Way to South on private property*
- *Eliminate Landscaping NE and NW corners*
- *Pedestrian Safety Concerns*
- *If double left turns at Center/McNeil were eliminated and traffic to OFL redistributed to Realigned Civic Drive – volumes on McNeil would be lower and mitigation likely would not be required*

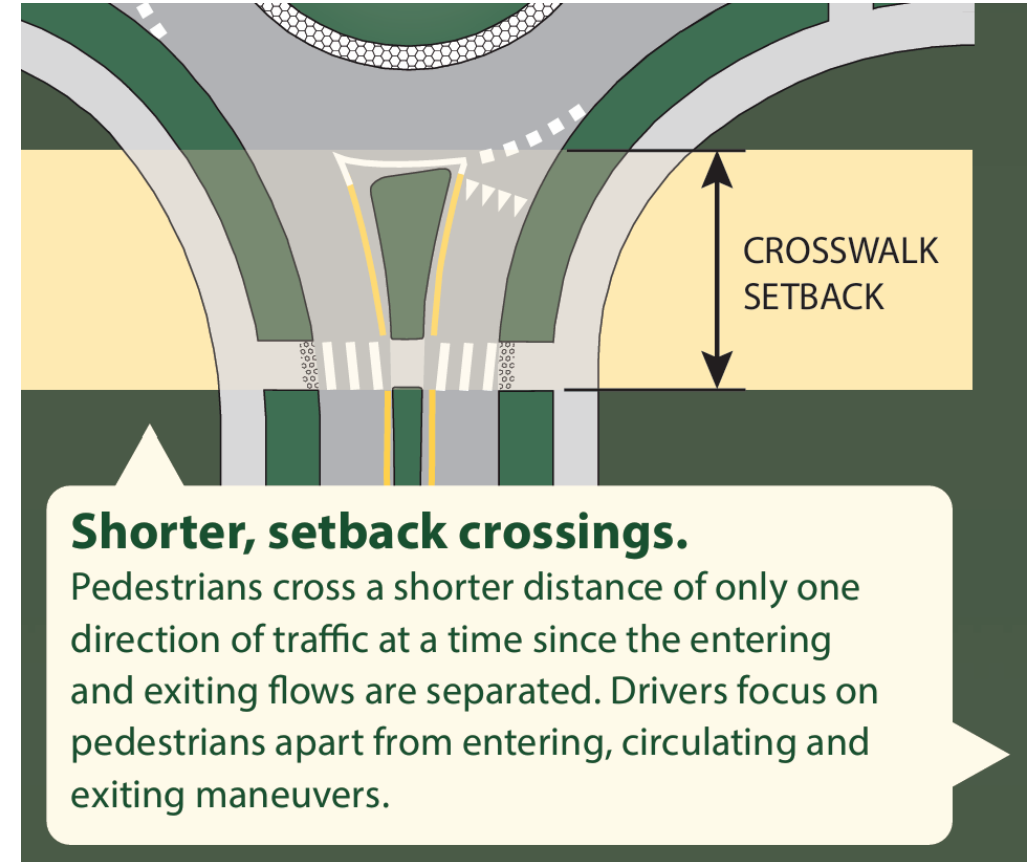


## Transportation: McNeil/Bobs Hollow

### Pedestrian Safety Concerns

#### *Potential Mitigation*

- *Placement of Crosswalks to Maximize Visibility*
- *Medians to Shorten Crosswalks and Slow Traffic*
- *Rumble Strips at Approach to Crosswalks*



## Transportation: McNeil/Bobs Hollow

### **Discussion**

## Transportation: McNeil/Hoffman Hills Blvd



- McNeil – Resid. Distr. 20%, Non-Resid. – 24%
- Hoffman Hill – Resid. 18%, Non-Resid. – 12%
- Trips McNeil AM 1,087; PM 1,276  
Existing AM 135; PM 395  
Hoffman Hill AM 771 ; PM 867  
Existing AM 20; PM 20
- Level of Service F, 600 seconds delay NB Stop
- AM Peak Critical Volume: Northbound to Eastbound Right Turn PM Peak Critical Volume: Northbound to Eastbound Left Turn –189
- Mitigation: Traffic Circle
- Desirability?
- Options: Without Improvements, LOS F SB Stop

## Transportation: McNeil/Hoffman Hills Blvd

**LOS F, 640 seconds delay NB Stop**

- AM Peak Critical Volume: Southbound to East bound Right Turn
- PM Peak Critical Volume: Southbound to East bound Right Turn

**Mitigation: Traffic Circle or 4-Way Stop**

Hoffman & McNeil LOS Results				
<i>Control Type</i>	No Action		High-End	
	AM	PM	AM	PM
SSSC (Existing)	F / 180s	F / 650s	F / 640s	F / 320s
Roundabout (One-Lane)	A / 7s	B / 10s	A / 8s	B / 13s
All Way Stop Control (With Changes)	B / 14s	C / 23s	C / 17s	D / 33s



## Transportation: McNeil/Hoffman Hills Blvd

**LOS F**, 640 seconds delay NB Stop

- AM Peak Critical Volume: Southbound to East bound Right Turn
- PM Peak Critical Volume: Southbound to East bound Right Turn

**Mitigation: Traffic Circle or 4-Way Stop**

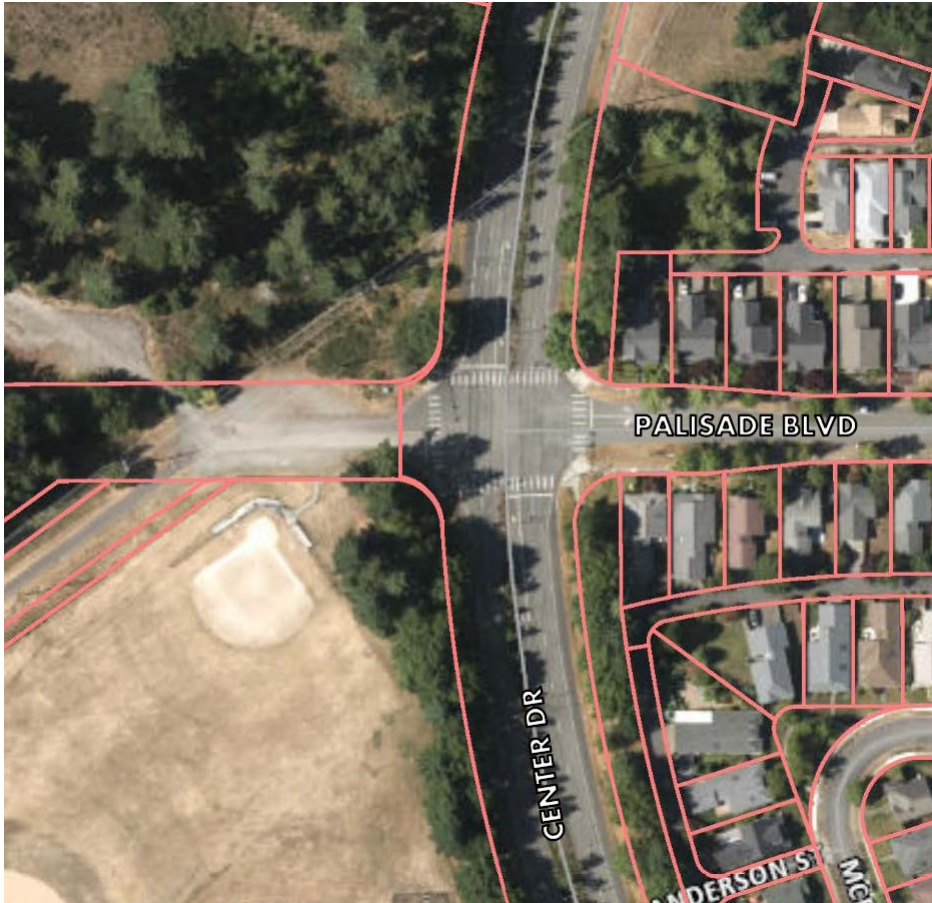
### ***Desirability?***

- *Roundabout*
  - *Off-Center – Displace Landscaping at NE and NW corners*
  - *Operational issues NB visibility Uphill Traffic*
  - *Pedestrian Safety Concerns*
- *4-Way Stop – Delays at all approaches, Acceptable LOS*

Transportation: McNeil/Hoffman Hills Blvd

### **Discussion**

## Transportation: Center Drive/New Road - Palisades



- Projected Residential Distribution 65%
- Trips Center AM 2,680; PM 3,364
  - Existing AM 684; PM 529
  - OFL Access AM 1,851; PM 2,510 Existing 0
  - E. Palisades AM 301; PM 316
  - Existing AM 92; PM 99
- Level of Service F, 353 second delay
- AM Peak Critical Movement: Northbound to Westbound Left turn – 449 (Existing 0)
- PM Peak Northbound to Westbound Left turn – 773 (Existing 0)
- Mitigation:
  - Center Dr. Dual Left Turns, 481 ft queue, Eliminate 380 ft of median, Eliminate 12'-14' landscaping one Side;
  - West Leg, Additional Eastbound Lane, ROW is
- Desirability?
- Options: Without Improvements, LOS F



## Transportation: Center Drive/New Road - Palisades

Center/New Road SW Corner





## Transportation: Center Drive/New Road - Palisades

**Existing Configuration - Level of Service F**, 353 second delay

**Mitigation:** LOS D, 36 second delay

- **Center Dr. Dual Left Turns**

***Desirability?***

- *Eliminate 380 ft of median,*
- *Eliminate 12'-14' landscaping East or West Side; 500 feet*
- *Multipurpose Trail & Landscaping Shifted SE or SW Side*

- **New Road: West Leg, Additional Eastbound Lane** (West Leg – 6 lanes - EB, Through, 2 NBLT, 2 EB)

***Desirability?***

- *Fits in ROW, Accommodates Future Sidewalk and Landscaping*

## Transportation: Center Drive/New Road - Palisades

Impact: Level of Service E, 61 second delay, Mitigation: LOS D, 36 second delay

### **If Mitigation Not Implemented**

- Drivers experience LOS F, 353 second delay
- The Subarea Would Have NOT Inadequate Access
- Drivers would divert to
  - Center Dr/McNeil
  - Center Dr/Bobs Hollow (then to McNeil)
  - Center Dr/Civic Drive – Relocated (If implemented)

### Transportation: Center Drive/New Road - Palisades

#### **Discussion**



## Transportation: Center Drive/Civic Drive Realigned



- Level of Service: Projected C or D
  - AM and Peak Critical Volume: Northbound to Eastbound Left Turn –AM 455 (Existing 142, PM 355 (Existing 54) Mitigation: Extend Left Turn Pocket to 250 to 350 feet
- Desirability

- Potential Mitigation if Center Drive/McNeil Dual Left Turns are not implemented and Traffic Distribution Shifts to the North
- Project Trip Distribution, about 25%



### Transportation: Center Drive/Civic Drive Realigned

#### **Rerouted Roadway:**

- Largely through City-Owned Property – Limits configuration of future use
- Possible need for property trade with Nisqually Tribe for corner
- Runs alongside Home Course Fairway 8
  - Landscape buffers similar to planned commercial development
  - Potential golf ball hazard to drivers



### Transportation: Center Drive/Civic Drive Realigned

Approximately 30% of subarea trips will opt to route through this access instead of Palisade Blvd and/or McNeil Drive

- ~950 trips AM (450 enter, 500 exit)
- ~1,250 trips PM (650 enter, 600 exit)

Compare -Center/McNeil NB to WB Left Turns AM 317 PM 682

**Existing Configuration** LOS E under 2044 High-End PM Volumes

Queue spillback from NB LT, leading to potential blockage at Palisade & Center

## Transportation: Center Drive/Civic Drive Realigned

Center/Civic Drive SE Corner



## Transportation: Center Drive/Civic Drive Realigned

### **Intersection Mitigations:**

#### **NB LT Improvements:**

- Option 1 Convert NB LT to protected phasing
  - Optimize signal timing to provide priority to NB LT
  - Increase storage length of NB LT Lane to end at the SB LT storage lane of Palisade & Center
- Option 2: Dual Left Turn

**EB Improvements:** Add one additional receiving lane on the southwest leg of the intersection to receive EB RT traffic (this coincides with mitigations at Palisade & Center, and should extend to that intersection)

## Transportation: Center Drive/Civic Drive Realigned

**Level of Service F**, 353 second delay

**Mitigation:** LOS D, 36 second delay

- **Center Drive NB Left Turn Protected Phasing/NB Dual Left Turns**, 481 ft queue

### ***Desirability ?***

- *Avoids Improvements at McNeil – Accepts Redistributed Traffic*
- *Eliminate 380 ft of median,*
- *Dual Left Eliminate 12'-14' landscaping East Side; 500 feet*
- *Multipurpose Trail & Landscaping Shifted*
- **New Road: West Leg, Additional Eastbound Lane** (West Leg – 6 lanes - EB, Through, 2 NBLT, 2 EB)

**Desirability?** Fits in ROW, Accommodates Sidewalk and Landscaping



## Transportation: Center Drive/Civic Drive Realigned

Impact: Level of Service E, 61 second delay, Mitigation: LOS D, 36 second delay

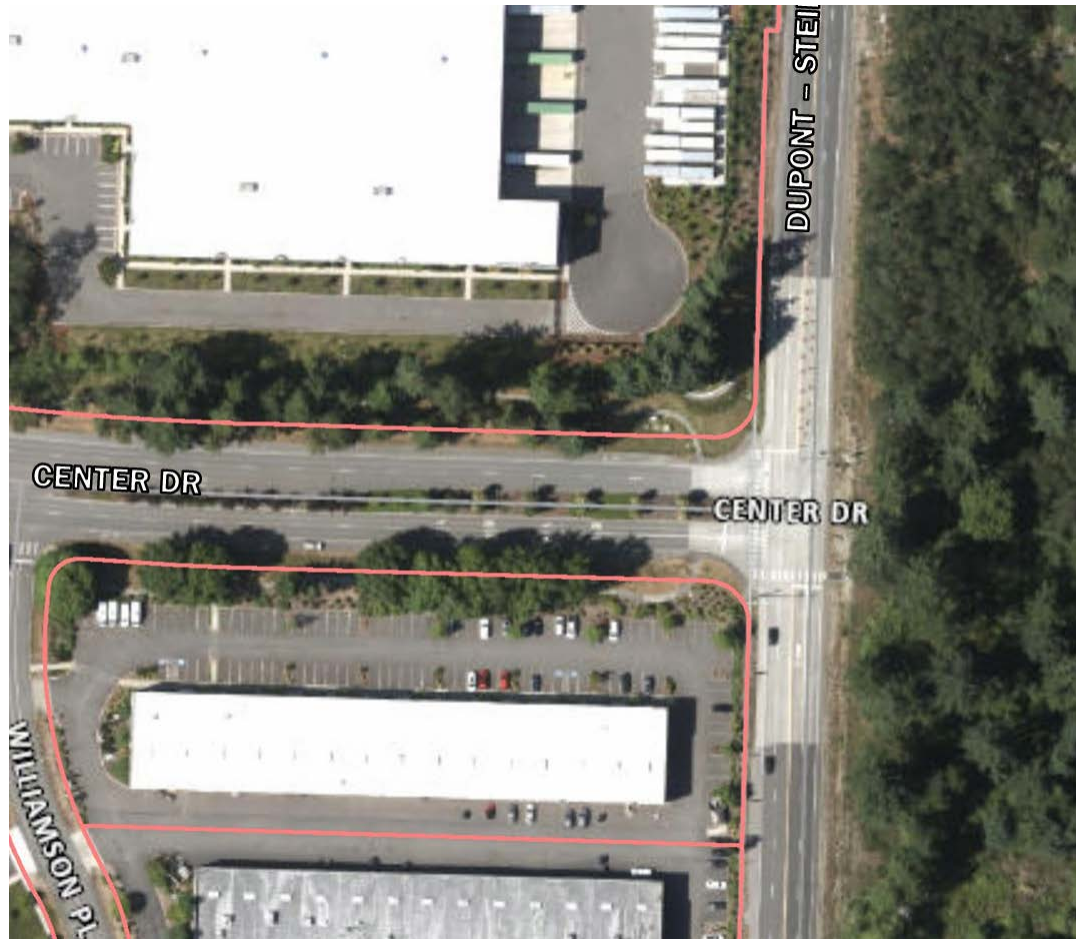
### **If Not Implemented**

- Drivers would route to
  - Center Dr/McNeil
  - Center Dr/Bobs Hollow (then to McNeil)
  - Center Drive/New Road - Palisades

### Transportation: Center Drive/Civic Drive Realigned

## Discussion

## Transportation: Center Drive/Steilacoom Road



- Projected Residential Distribution 19%
- Level of Service D, 52 seconds delay
- AM Peak Critical Volume: Northbound to Westbound Left Turn –540 (Existing 264)
- PM Peak Northbound to Westbound Left turn – 364 (Existing 174) (SB Right Turn has higher volumes but no opposed movement)  
Mitigation: Exclusive Left Turn, current Shared Through/Left Turn, add 12-14 foot Lane to the East
  - Center Dr. Dual Left Turns, 481 ft queue, Eliminate 380 ft of median, Eliminate 12'-14' landscaping one Side;
  - East Leg, Additional Eastbound Lane
- Desirability? Wetlands to East
- Options: Without Improvements, LOS D

## Transportation: Center Drive/Steilacoom Road

**Level of Service Level of Service D**, 52 seconds delay This intersection is 3 seconds below the LOS E threshold. Slight changes in critical volumes would result in LOS E conditions and would not comply with the City's LOS D standard.

- AM Peak Critical Volume: Northbound to Westbound Left Turn – 381 (Existing 264)
- PM Peak Critical Volume: Northbound to Westbound Left turn – 364 (Existing 174)

**Mitigation: Exclusive Left Turn**, Replaces Current Shared Through/Left Turn, LOS C, 30second delay

### ***Desirability?***

- *JBLM boundary to East May Preclude Widening to East*
- *Widening to West Encroaches on Private Parking Lot*

*This is a complex design problem but warrants inclusion in list of project improvements, particularly in view of I-5 interchange improvements.*



### Transportation: Center Drive/Steilacoom Road

#### **Discussion**

## Transportation: Mitigation Options

- Monitor Impacts as the OFL Subarea Develops and Adjust Mitigation – Potential Problem with Establishing Developer Mitigation or Transportation Impact Fees
- Reduce Development Intensity
  - Trip Generation of Existing OFL Plan ( xx vs xx) Does Not Substantially Change Impacts or Mitigation
  - How Would One Set a Threshold of Acceptable Impact Level
- **Improve Intersections to Serve Projected Trip Distribution and Meet LOS D Standard – Allows Long Term Mitigation Conditions and/or Transportation Impact Fees**
- **Eliminate Specific Intersection Mitigation and Experience LOS Above LOS D Standard and Likely Change Trip Distribution with Alternative Improvements (Civic Drive Extension) – Allows Long Term Mitigation Conditions and/or Impact Fees**

## Next Steps:

- Incorporate Desirability Perspective in EIS
- Decision Makers (Planning Commission & City Council) Will Determine Which Mitigation Strategy to Incorporate in Comprehensive Plan