



# TRANSPORTATION IMPACT ANALYSIS

## *Future Transportation Findings*

**Planning Advisory Group Meeting #17**  
**July 14, 2009**

Presented by Alan Snook  
**DKS** Associates

# AIRPORT FUTURES

CHARTING A COURSE FOR PDX

# Topics For Discussion

- Final Transportation Impact Analysis Results
- Potential Mitigations
- Sensitivity Analysis
- Next Steps



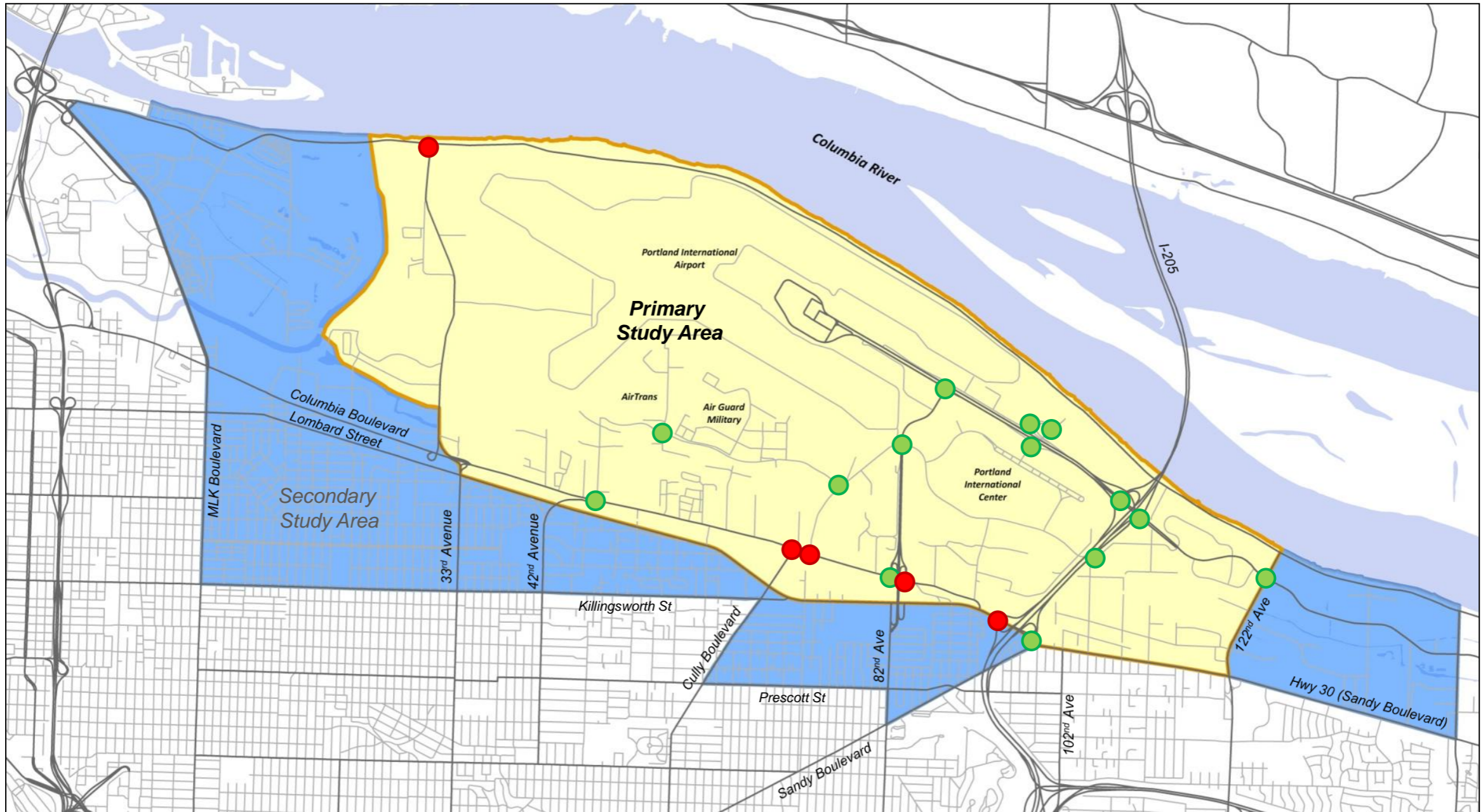
# Future Scenarios

	2022 PM Peak	2035 PM Peak
No-Build	<ul style="list-style-type: none"> <li>• 18.6 MAP</li> <li>• Background growth (at 53%)</li> </ul>	<ul style="list-style-type: none"> <li>• 18.6 MAP</li> <li>• Full Background Growth</li> </ul>
Build	<ul style="list-style-type: none"> <li>• 21.0 MAP</li> <li>• 53% of Additional Land Uses</li> <li>• 53% of Background Growth</li> </ul>	<ul style="list-style-type: none"> <li>• 26.8 MAP</li> <li>• Full Build of Additional Land Uses</li> <li>• Full Background Growth</li> </ul>



# Future 2022 No-build 50% Centralized

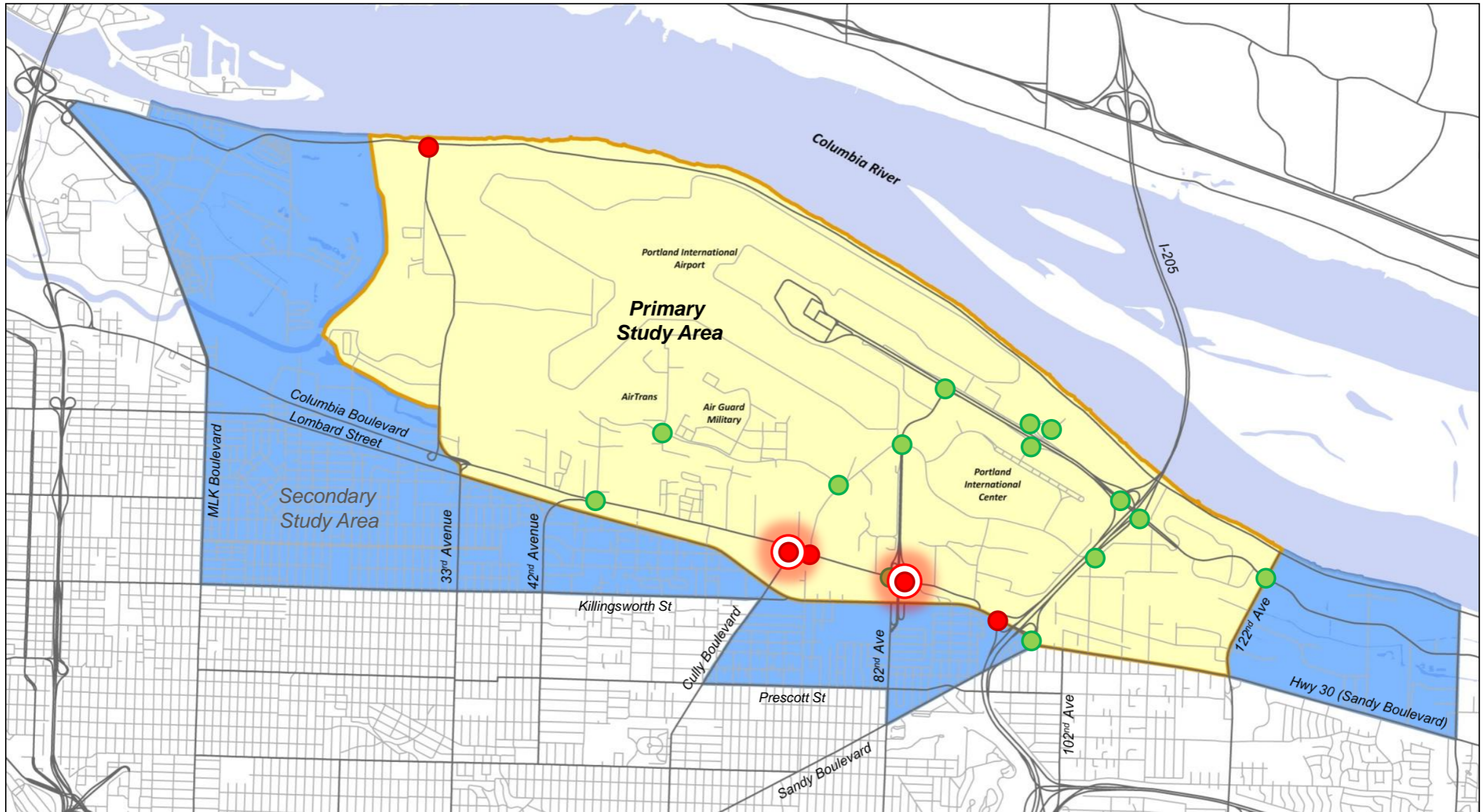
# Study Intersection Performance PM Peak Hour



- - Meets Jurisdictions Performance Standards
- - Does not meet Jurisdictions Performance Standards

# Future 2022 Build 50% Centralized

# Study Intersection Performance PM Peak Hour

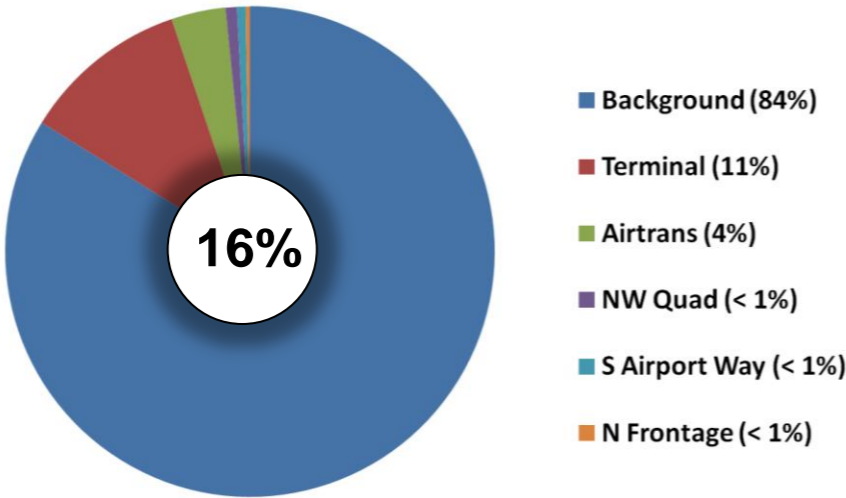


- - Meets Jurisdictions Performance Standards
- - Does not meet Jurisdictions Performance Standards
- - Significant Impact

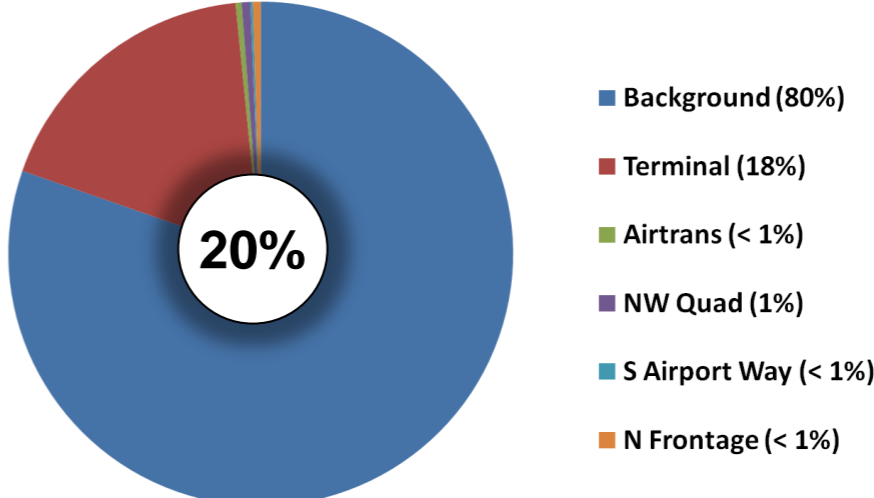
# 2022 Conceptual Mitigation Strategies

- NE Columbia Blvd/NE 82<sup>nd</sup> Ave Northbound Potential Mitigation
  - Signalize intersection
- NE Columbia Blvd/NE Cully Blvd Potential Mitigation
  - Signalize intersection and add turn lanes
- Share of “Airport” related traffic

NE Columbia Blvd/NE 82<sup>nd</sup> Ave Northbound

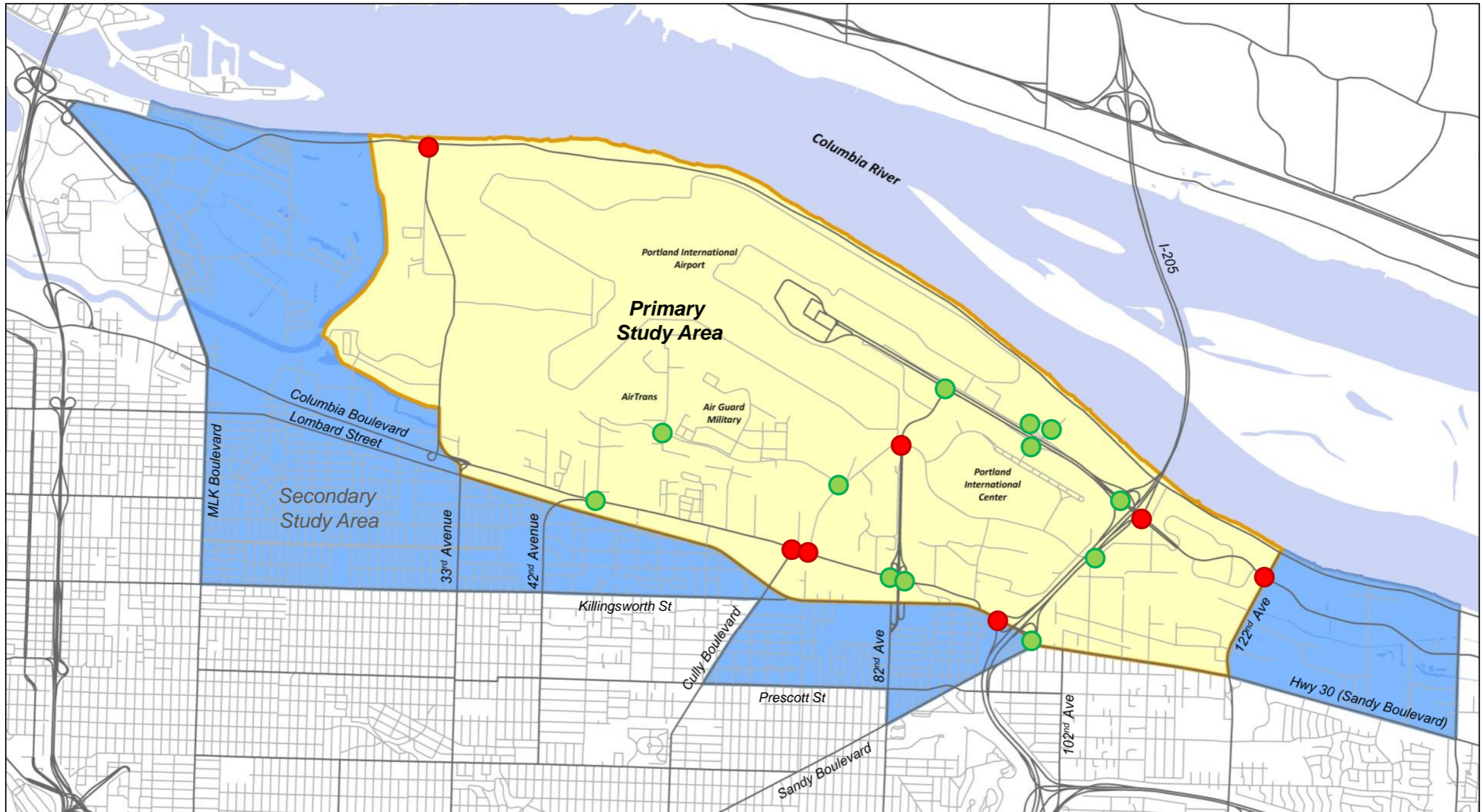


NE Columbia Blvd/NE Cully Blvd



# Future 2035 No-build 50% Centralized

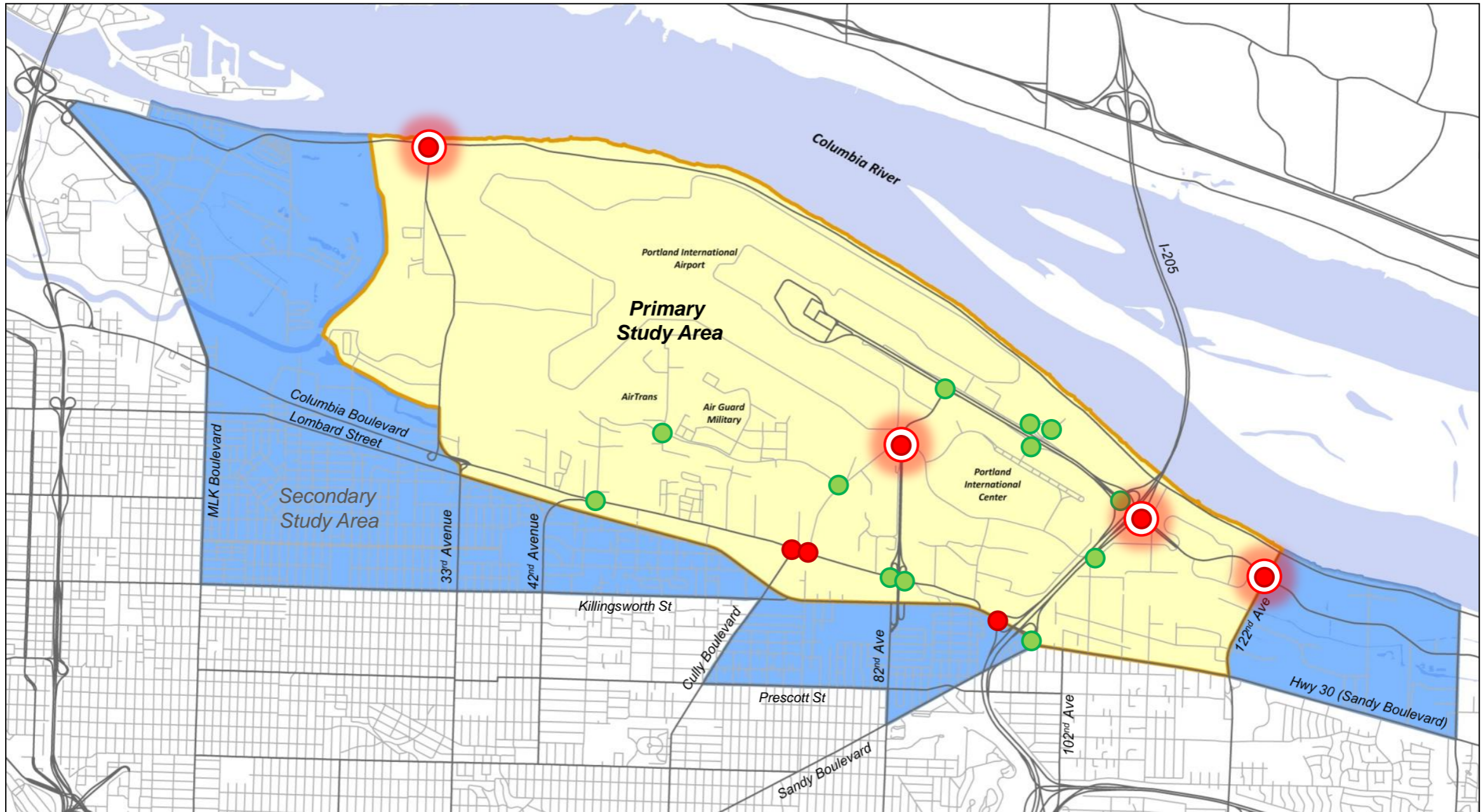
# Study Intersection Performance PM Peak Hour



- - Meets Jurisdictions Performance Standards
- - Does not meet Jurisdictions Performance Standards

# Future 2035 Build 50% Centralized

# Study Intersection Performance PM Peak Hour



- - Meets Jurisdictions Performance Standards
- - Does not meet Jurisdictions Performance Standards
- - Significant Impact

# 2035 Conceptual Mitigation Strategies

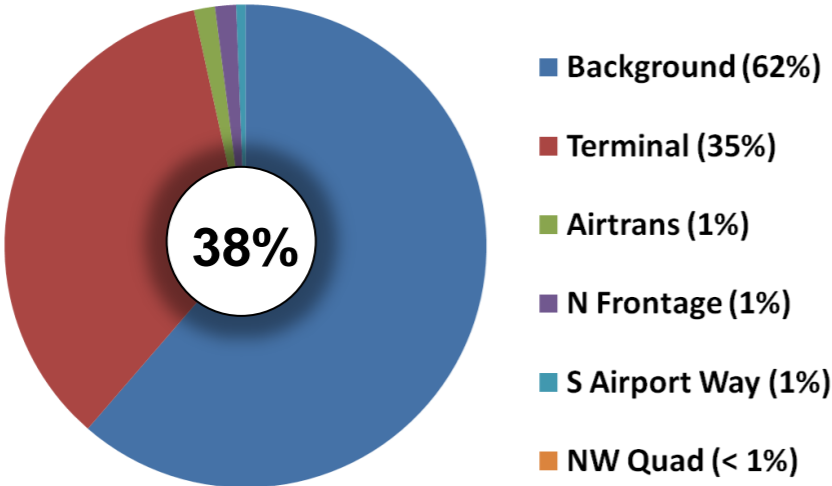
- NE Marine Drive/NE 33<sup>rd</sup> Ave
  - Signalize intersection, **OR**
  - Relocate FBO
- NE Airport Way/NE 122<sup>nd</sup> Avenue
  - Eastbound left, overlap right turns, **OR**
  - Westbound right, overlap right turns
- NE 82<sup>nd</sup> Avenue/NE Alderwood Road
  - Eastbound right, overlap right turns
- NE Airport Way/I-205 Northbound
  - “Phase 2” improvement



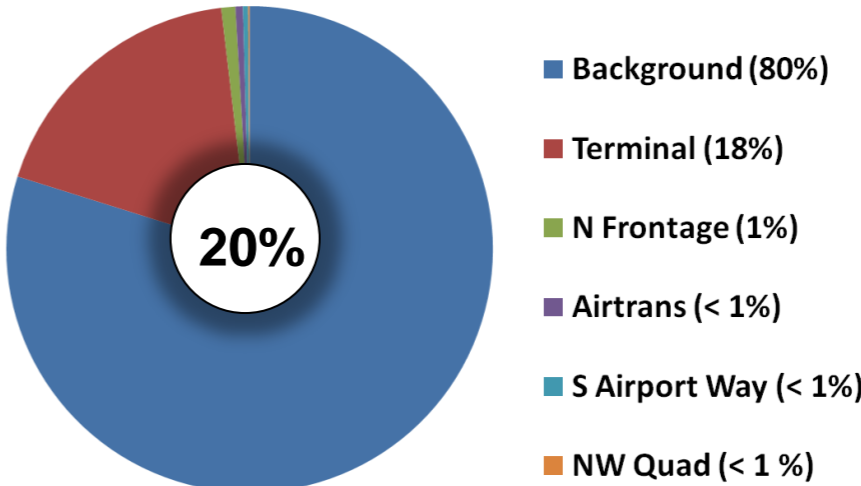
# 2035 Conceptual Mitigation Strategies

## Share of Airport related trips at intersections

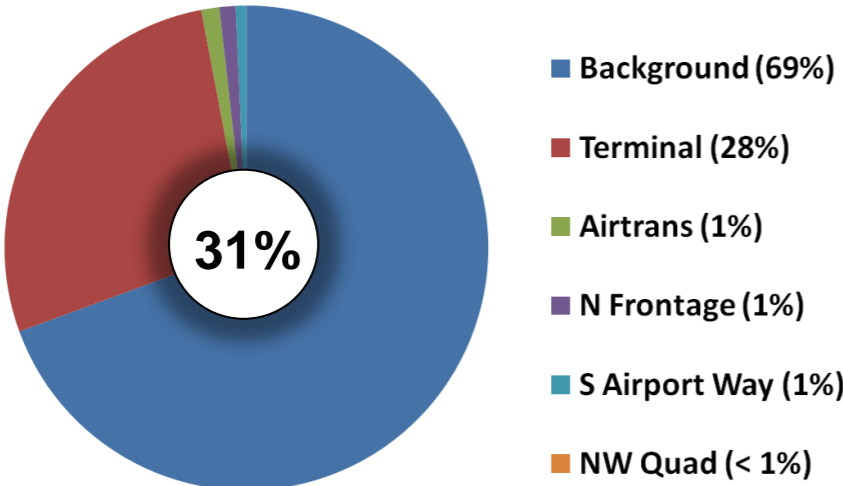
Airport Way/I-205 Northbound



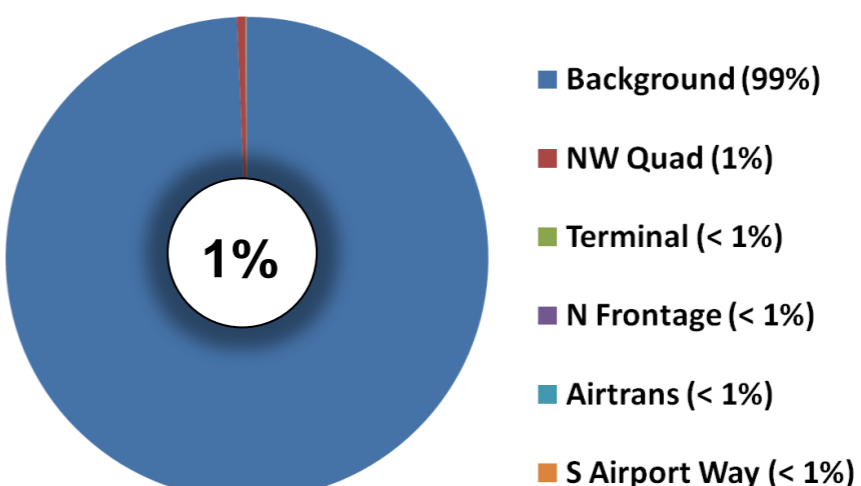
Airport Way/122nd Avenue



82nd Avenue/Alderwood Road



Marine Drive/33rd Drive



# Sensitivity Test for Airport Passenger Mode Choice

- Desktop air passenger demand model
- Existing year data
- Results are preliminary
  - Limited to airport mode choice
  - Have not looked into how the results:
    - Translate into needs
    - Effect the regional system
- Drive and park mode choice includes those who park to pick-up/drop-off passengers.
- Final results in September

## Existing Airport Passenger Mode Choice

Mode	Existing
Drive and Park	• 34%
Pick-up/Drop-off	• 33%
Taxi/Limo/Town Car	• 6%
Rental Car	• 17%
Shuttle	• 4%
Transit	• 6%



# Sensitivity Test for Airport Passenger Mode Choice

## Airport Passenger Mode Shift with Condition / Policy Changes

Mode	Existing	Condition / Policy Changes					
		Double Parking Cost	Motor Vehicle Congestion (Double Travel Time)	Double Auto Operating Costs (Fuel, etc.)	Double Taxi Fare	Frequent Service Transit (Halve Wait Time)	Free Transit
Drive and Park	34%	-19%	+3%	+1%	+1%	-1%	0%
Pick-up/Drop-off	33%	+17%	-8%	-3%	+1%	0%	0%
Taxi/Limo/Town Car	6%	+1%	0%	0%	-3%	0%	0%
Rental Car	17%	0%	0%	+1%	+1%	0%	0%
Shuttle	4%	0%	0%	0%	0%	0%	0%
Transit	6%	+2%	+5%	0%	0%	+1%	+1%

## Results

- Doubling travel times shifts 8% from pick up/drop off to drive and park (5%) and transit (3%).
- Doubling of auto operating costs (e.g. gas) impact is minor (3%). Shift occurs from pick up/drop off to all other modes.
- Transit frequency impacts (via reduced wait times) are minor (0 to 2% shift from motor vehicles). Transit fare impacts are even smaller (~1% shift with free fare).
- Taxi charge increase impact is minor (0-3% shift). Shift occurs to all other modes.

# Sensitivity Test for Airport Passenger Mode Choice

## Airport Passenger Mode Shift with Constrained Parking

Mode	Existing	Parking Charge Increase				
		10%	25%	50%	Double	Triple
Drive and Park	34%	-3%	-7%	-13%	-19%	-25%
Pick-up/Drop-off	33%	+3%	+6%	+11%	+17%	+21%
Taxi/Limo/Town Car	6%	0%	0%	+1%	+1%	+1%
Rental Car	17%	0%	0%	0%	0%	0%
Shuttle	4%	0%	0%	0%	0%	0%
Transit	6%	0%	+1%	+1%	+2%	+2%

## Results

- Constraining parking (via uniform increases to parking costs) results in a shift from drive and park (up to 25%) to primarily the pick up/drop off mode.
- Some transit increase (up to 2%).

# Sensitivity Test for Airport Passenger Mode Choice

## Airport Passenger Mode Share with Transit Scenario

Mode	Existing	Transit Scenario
Drive and Park	34%	15%
Pick-up/Drop-off	33%	44%
Taxi/Limo/Town Car	6%	6%
Rental Car	17%	17%
Shuttle	4%	4%
Transit	6%	13%

- Goal was to get the Transit mode share at 12%-15%.
- 13% transit mode share achieved by:
  - Increasing motor vehicle congestion and operating costs each by 20%.
  - Doubling parking costs.
  - Providing free and frequent transit service.



# Subcommittee Discussion & Next Steps

- Next Steps (Sept 2nd LUT Subcommittee)
  - Determine mitigation strategy and triggers
  - Finalize sensitivity analysis
  - Evaluate policy implications of mode shift in sustainability discussions

