ATTACHMENT 2 to Ground Transportation Policy Directive

Summary of the Ground Transportation Access Plan (GTAP) Study

July 6, 2018

Port of Seattle

Overview

- Port goals
- Study objectives & approach
- Current Issues
- Top 10 strategies
- Initiatives Already Underway
- Next steps
- Appendix

Presents study findings and next steps with technical details in Appendix

Port Goals

- Century Agenda
  - Reduce Scope 3 carbon emissions:
    - 50% below 2007 levels by 2030
    - 80% below 2007 levels by 2050
- Reduce travel/processing time
  - Max 45 minutes from clock tower to post security

GTAP strategies designed to achieve Port goals

Study Objectives

- Increase **access to high occupancy modes** such as transit
- Advance transportation modes and programs to **foster social equity** and customer choice
- Consider the **financial/revenue** impacts of potential strategies.

GTAP objectives advance all three aspects of sustainability

Study Approach

- Conduct benchmarking research & stakeholder outreach
  - Identified over 64 transportation strategies
  - Determined industry best practices
- Screen strategies to determine top 10
  - Evaluation criteria: congestion relief, mode shift, customer choice, feasibility, environmental benefit and fiscal impact

Identify top 10 strategies to reduce congestion and advance sustainability goals

Current Issues

- Increasing roadway congestion
- Market disruptions
- Emerging ground transportation modes
- Social equity
- Environmental effects
- Infrastructure limitations

Anticipate increasing congestion as demand increases

Top 10 Strategies from GTAP Study

- **Near-term Port initiatives:**
  - Multiple variations of express bus service
  - Form a Transportation Management Association (TMA)
- **Partner with regional agencies to incentivize mode shift:**
  - Information sharing and promoting transit
  - Public-private partnerships for First/Last Mile Coverage
  - Increase/preserve King County Metro RapidRide and Sound Transit bus service
  - Offer ticket for free transit ride/ride-free area
  - Provide incentives (e.g., coupons) for ride-share and transit use
- **Further analyze:**
  - Revenue structures for autonomous vehicles (AVs)
  - Airport access fees
  - Restructuring employee parking

Each of the 10 strategies needs additional research and/or key partnerships

Top 10 Strategies

Strategy	Description	Affected Stakeholder(s)		
		Air Pax	Work-force	GT Oper.
Multiple Variations of Express Bus Service	• Express service from park and ride lots in primary surrounding city locations; secure parking; 30 minute service (Port, KCM, ST TBD)	✓	✓	
Form a Transportation Management Association (TMA)	• Member-controlled, organizations that provide transportation services in a particular area. • Dedicated staff to manage CTR programs for airport workforce including ride-share matching, guaranteed ride home, transit subsidies		✓	
Information Sharing and Promoting Transit	• Distribute information about transit routes and integrate promotions/marketing during airline ticket purchase and check-in	✓		
Public-Private Partnerships for First/Last Mile Coverage	• Develop partnerships with ride-share companies and regional agencies to provide first and last mile coverage	✓	✓	✓
Increase/preserve King County Metro RapidRide and Sound Transit Express Bus Service	• More frequent service (assuming regional agency sponsorship) • Change pick-up/drop-off location	✓	✓	✓

Top 10 Strategies (con't)

Strategy	Description	Affected Stakeholder(s)		
		Air Pax	Work-force	GT Oper.
Ticket for Free Transit Ride/Ride-Free Area	• Passengers and employees ride free on trips from SEA	✓	✓	
Incentives for Ride Share and Transit Use	• Provide discounts at airport concessionaires or access to airline club lounges for travelers with transit pass, transit receipt, or verification of participation in Ride Share program • Implement a parking "cash-out" program managed by SEA TMA	✓	✓	
Revenue Structures Anticipating Autonomous Vehicles (AVs)	• Estimate impacts and timeline of AV adoption (revenue)			✓
Airport Access Fees	• Consider establishing fee structure for vehicles accessing terminal curbs	✓		
Restructure Employee Parking	• Restructure complimentary garage parking to incent Ride Share and transit • Implement a parking "cash-out" program managed by SEA TMA • ORCA subsidies		✓	

Initiatives Already Underway

- Rematch program for TNCs
- Advance immediate GT recommendations (garage utilization, re-match, entrance)
- Continuous Process Improvement exercise focused on airport roadway congestion
- Widen arrivals approach
- SR 518 Corridor study
- Express Bus studies

Ongoing initiatives will significantly reduce congestion and some will reduce carbon

Next Steps

Top 10 Strategies	Planning timeframe	Implementation timeframe
Multiple Variations of Express Bus Service	2018 –2019	1-3 yrs
Transportation Management Association (TMA)	2019	1-3 yrs
Information/Promotion of Transit	2018 –2019	1-3 yrs
Public-Private Partnerships for First/Last Mile Coverage	2019	1-3 yrs
Increase / preserve KCM RapidRide and ST Exp. Bus Service	2018 –2019	3-5 yrs
Ticket for Free Transit Ride/Ride-Free Area	2019	1-3 yrs
Incentives for Ride Share / Transit Loyalty Program	2019	1-3 yrs
Revenue Structures Anticipating Autonomous Vehicles	2020 – 2021	5-10 yrs
Airport Access Fees	2019 –2021	TBD
Restructure Employee Parking	2019 – 2020	1-3 yrs

Most of the top 10 strategies can be implemented in 1 to 3 years

Thank You

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Appendix

Benchmarked Airports

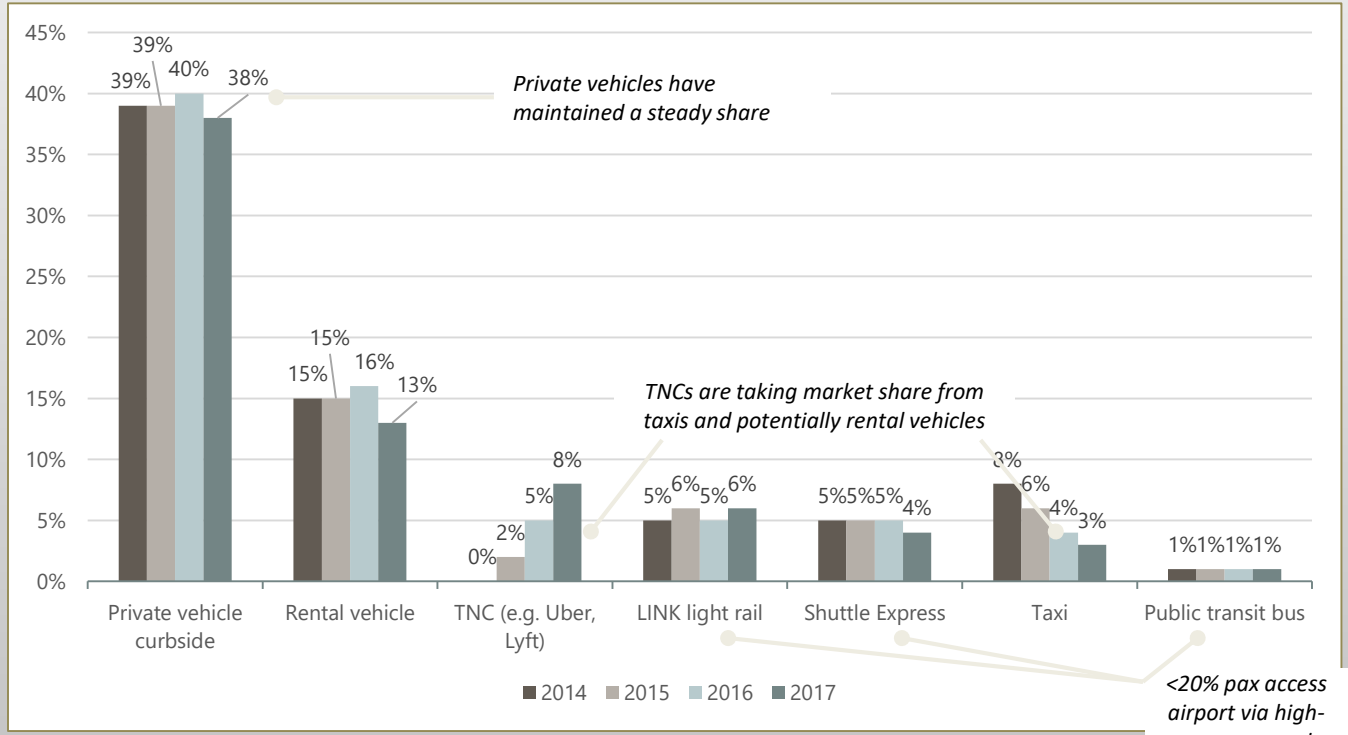
US AIRPORTS
San Francisco
Los Angeles
Boston Logan
Minn.–Saint Paul
Denver
Miami
NON-US AIRPORTS
London Gatwick
Dublin
Copenhagen
London Heathrow

Comparing Among Similar Airports

Transportation Mode	SEA (2017)	SFO (2017)	BOS (2016)
Private vehicle	46%[1]	26%	34%
Rental vehicles and off-airport parking	23%	21%	11%
TNC	8%	30%	14%
Taxi	3%	5%[2]	10%
Limousine or town car	2%		
Non-HOV Modes	**82%**	**82%**	**69%**
Shuttles/vans or other commercial buses	11%	13%	17%
Public transit/express bus/parking and ride (SFO)	7%	5%	14% [2]
HOV Modes	**18%**	**18%**	**31%**

1. Includes private vehicles parking, dropping off or passing through parking garage.
2. Includes limousines and town cars.

SEA Trends in Mode Share



SOURCE: Port of Seattle Business Intelligence, Enplaning Passenger Survey (2014-2017).

64 Candidate Strategies Evaluated for "People ● Profit ● Planet"

1. **Reduce Traffic Congestion**
   Reduces traffic volumes, improves passenger throughput, and/or improves efficiency along the Airport drive and curbside.
2. **Support Customer Choice**
   Increases access to ground transportation modes to/from the Airport.
3. **Influence Mode Share**
   Reduces percent of travelers using single occupancy vehicles.
4. **Fiscal Impact to Sea-Tac**
   Potential revenue source or offset to capital investment versus the annual operating costs.
5. **Reduce Environmental Impacts**
   Reduces greenhouse gases, vehicle miles traveled (VMT), and promotes mass transit.
6. **Feasibility**

   Potential to implement/whether the strategy been successfully implemented in other locations, and general comparative assessment of potential for positive ROI.

Top 10 Analyzed for Equity and Impacts

1. Qualitatively scores strategies for equity principles
2. Quantifies environmental benefits, capital costs, operating costs, and revenue impacts

Defining Equity Principles

- **Environmental:** Minimizes *disproportionate environmental impacts* on stakeholders
- **Economic:** Creates *small business growth and workforce development* in and around the airport while minimizing financial burden of accessing transportation options
- **Regional access and operations:** Provides *more modes of transportation* to the airport
- **Social:** Eliminate barriers to *equal opportunity for historically underserved groups*

Top 10 Strategies - Equity Trade-offs

STRATEGY	ECONOMIC	ENVIRONMENT	REGIONAL ACCESS & OPERATIONS	SOCIAL
Multiple Variations of Express Bus Service	✓	✓	✓	○
Tolling Curbside	X	✓	✓	○
Information / Promotion of Transit	✓	✓	✓	NA
Transportation Management Association (TMA)	○	○	✓	○
Restructure Employee Parking	NA	○	○	X

Several strategies support three of the equity principles but none meet all four

Top 10 Strategies - Equity trade-offs (*cont'd*)

STRATEGY	ECONOMIC	ENVIRONMENT	REGIONAL ACCESS & OPERATIONS	SOCIAL
Revenue Structures Anticipating Autonomous Vehicles	○	○	○	○
Public-Private Partnerships for First/Last Mile Coverage	✓	✓	✓	○
Increase / preserve KCM RapidRide and ST Express Bus Service	✓	✓	✓	○
Ticket for Free Transit Ride / Ride-Free Area	✓	✓	✓	○
Incentives for Ride Share/Transit Loyalty Program	✓	NA	NA	NA

Several strategies support three equity principles but none meet all four

Trips per Mode

Fewest Vehicle Trips Per Air Passenger

Transit, Scheduled & Courtesy Buses, Shared-Ride Van, Airporters

HOV: Transit & Shared-Ride

Long-Term Parking

Parked Vehicles

Taxi, TNC, Limos

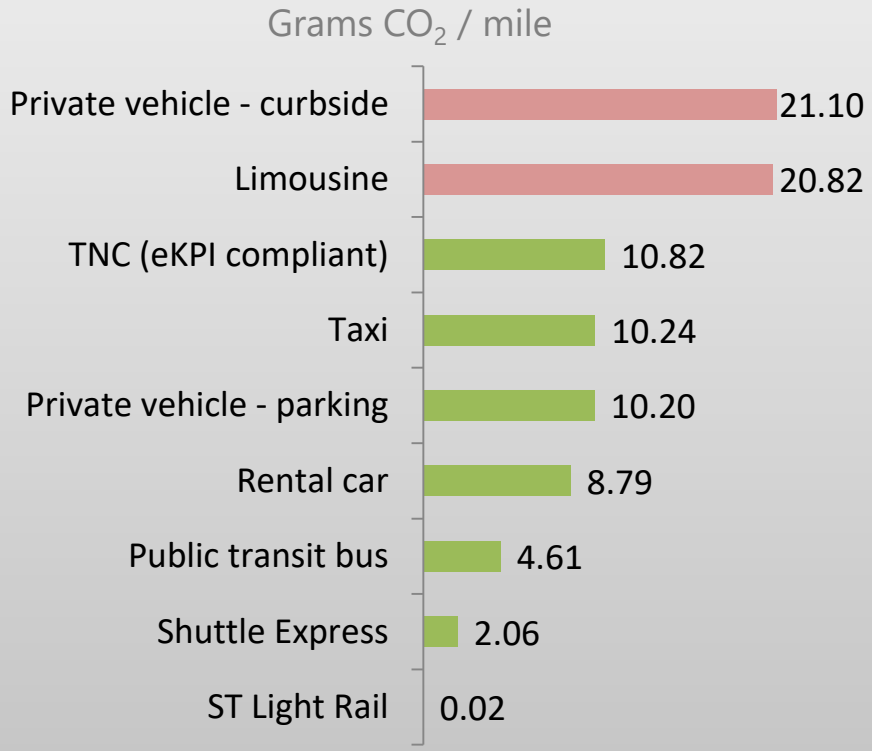
Drop-Off Pick-Up

Curbside Vehicles

Up to 4 Vehicle Trips Per Air Passenger

Quantitative Analysis – Measurable Impacts

- Capital & operating costs
  - Estimated order of magnitude
- Vehicle miles traveled
  - Result of mode shift incurred
- Greenhouse gas emissions
  - Result of change in VMT



Strategies quantified to understand potential benefits and drawbacks

Quantitative Analysis of Top 10 Strategies

STRATEGY	Estimated Capital Cost	Estimated Operating Cost	Estimated Greenhouse Gases Reduced	Anticipated Revenue Impacts
Multiple Variations of Express Bus Service	○	X	X	○
Tolling Curbside	✓	✓	✓	✓
Information / Promotion of Transit	✓	✓	X	X
Transportation Management Association (TMA)	✓	✓	X	○
Restructure Employee Parking	✓	✓	X	✓

Key

Score	Capital / Operating Cost	GHG Reduction – tonnes/yr	Revenue Impact (Million $ Annually)
✓	$0 to $2m	≥ 10,000	Source (+)
○	$2 to $10m	5,000 < 10,000	<$1m Loss (-)
X	>$10	<5,000	>$1m Loss (-)

Most strategies perform well in two or more criteria but measurable impact requires combination of strategies

Quantitative Analysis of Top 10 Strategies, *cont'd*

STRATEGY	Estimated Capital Cost	Estimated Operating Cost	Estimated Greenhouse Gases Reduced	Anticipated Revenue Impacts
Revenue Structures Anticipating Autonomous Vehicles	✓	✓	○	✓
Public-Private Partnerships for First/Last Mile Coverage	✓	✓	X	X
Increase / preserve KCM RapidRide and ST Express Bus Service	○	○	X	○
Ticket for Free Transit Ride / Ride-Free Area	✓	✓	○	X
Incentives for Ride Share/Transit Loyalty Program	✓	✓	○	X

Key

Score	Capital / Operating Cost	GHG Reduction – tonnes/yr	Revenue Impact (Million $ Annually)
✓	$0 to $2m	≥ 10,000	Source (+)
○	$2 to $10m	5,000 < 10,000	<$1m Loss (-)
X	>$10	<5,000	>$1m Loss (-)

Most strategies perform well in two or more criteria but measurable impact requires combination of strategies

Top 10 Strategies Cumulative Benefits

- Potential cumulative benefit
  - Reduce 100 million vehicle miles traveled (VMT) per year
  - Reduce 42,000 tons carbon emissions per year
  - Remove over 2 million single occupancy vehicles from the road

Strategies have potential to provide significant cumulative benefit

Transportation Management Association

Description: Form a Sea-Tac Airport Transportation Management Association (TMA) with dedicated staff focused on Commute Trip Reduction and Transportation Demand Management strategies, such as ridesharing/matching, preferential parking for van and carpools, guaranteed ride home/emergency ride home program, and transit subsidy. Hold a quarterly TMA open-house for employees to attend and gain information on available commuting options.

Primary Benefits

- Provides employees with improved level of service and reliability for their commute.
- Encourages carpooling and ride sharing to access the Airport, reducing congestion from single-occupancy vehicle trips.
- Supports workforce job satisfaction.
- Mitigates environmental issues, especially greenhouse gas emissions, because of decreased single-occupancy vehicle trips.
- Expands the state-required program for having a Commute Trip Reduction Coordinator.
- There are very low (or no) capital costs.

Primary Drawbacks

- Limited potential for results (e.g. limited ability to reduce traffic congestion and air pollution).