

# WASHINGTON STATE AIR CARGO MOVEMENT STUDY



STAKEHOLDER PANEL MEETING #2

APRIL 9, 2018

OLYMPIA, WA





# Agenda Topics

- Air cargo forecast
- Industry perspectives
- Regional market capture
- Inventory of facilities
- Future facility needs
- Air cargo congestion
- State interest in addressing air cargo needs
- Next steps



# Study Status

- Describe the Air Cargo System in WA State
  - Draft for review
- Air Cargo Congestion
  - Draft for review
- Evaluate how to use Existing Capacity in Washington
  - April-June
- Recommendations and Implementation Strategy
  - July-September
- Draft and Final Report
  - October-December



# Air Cargo Forecast

- What is the 10-year growth that needs to be accommodated at the state's air cargo airports?
- What trends underlie the forecast?
- What other forecasts were considered?

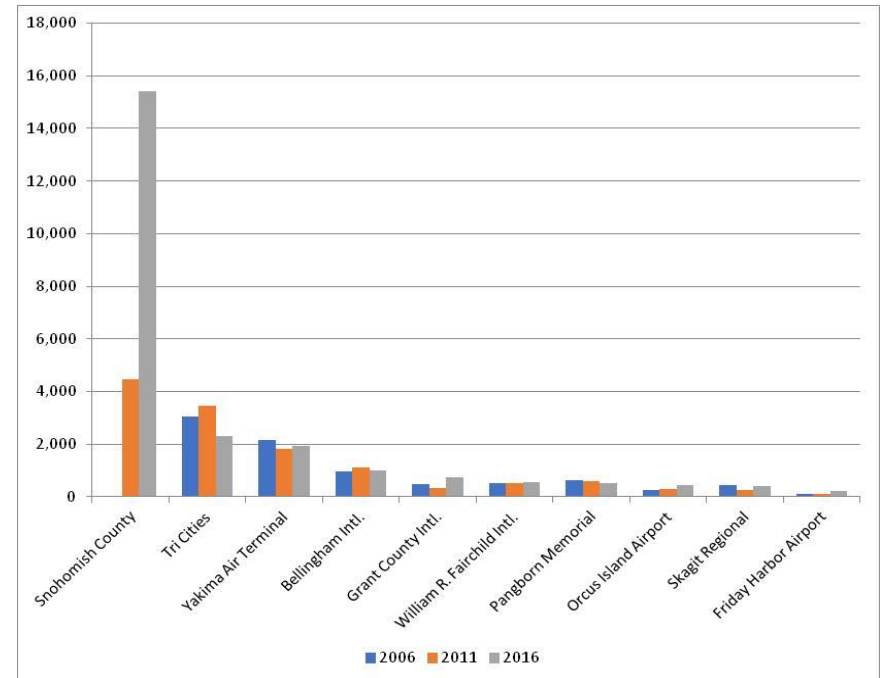
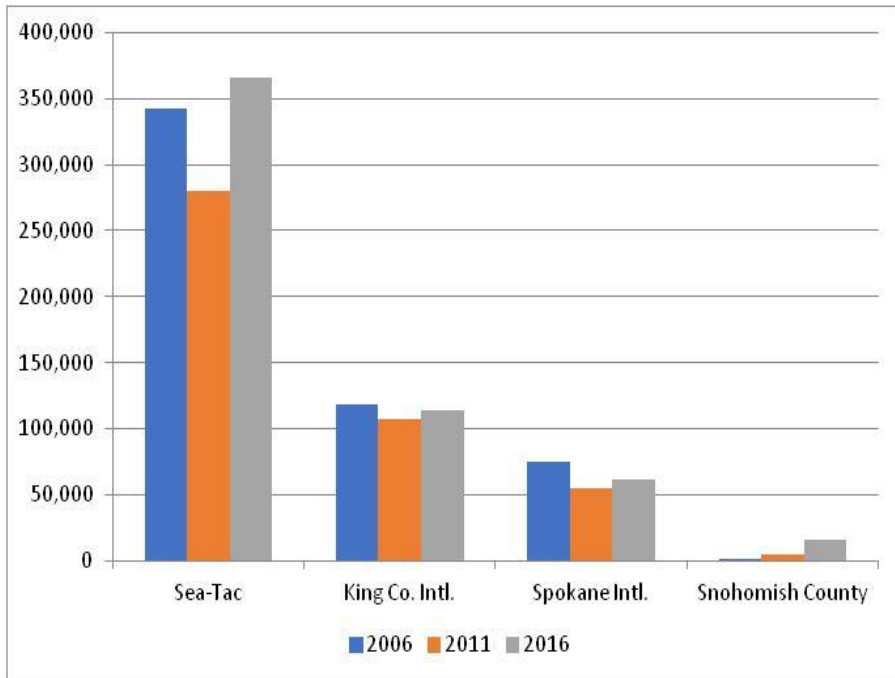


## WA State Air Cargo Trends

- Air cargo in Washington state is primarily generated by activity at Seattle Tacoma International, King County International, and Spokane International Airports.
- Non-hub and small commercial passenger airports within the state account for only 4% of the total air cargo volumes moved in Washington State in 2016.
- Washington state has slightly increased its market share of from around 2.6 to 2.9 percent of the national air cargo market.

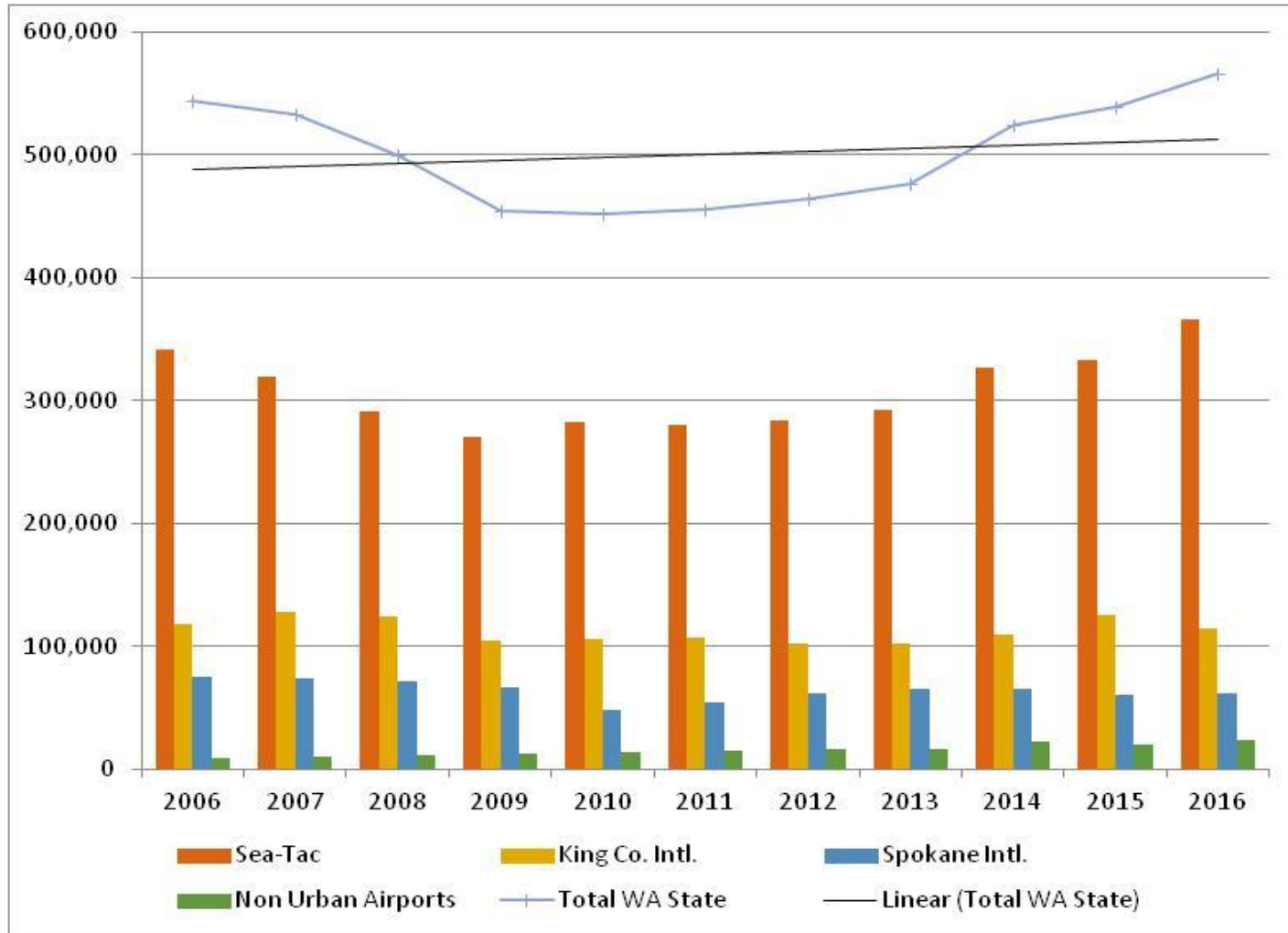


# Three airports dominate the WA state air cargo market





# WA State Air Cargo Trends





# World Air Cargo Trends

- World air cargo traffic averaged 5% growth per year between 1985 and 2015.
- Growth slowed as fuel prices began to rise in 2005 and many shippers began to divert freight to truck or ocean modes of transport.
- The global economic downturn of 2008-2009 dragged down all modes of freight transport.





## World Air Cargo Trends (continued)

- With the exception of 2010, air cargo growth remained weak 2011-2015
- By late 2016, air cargo growth began to recover, corresponding with strong growth e-commerce, pharmaceuticals, and an ongoing rise in global manufacturing export orders.
- Air cargo grew by 9 to 10% year in 2017 - the strongest calendar-year of growth since 2010.



# Factors Affecting Industry Growth

- The air cargo industry is dependent upon:
  - population growth
  - gains in the economy
  - growth in international trade
- Other factors:
  - shipping tariffs on other modes of transportation
  - changing inventory management techniques
  - deregulation
  - liberalization of trade
  - national development programs



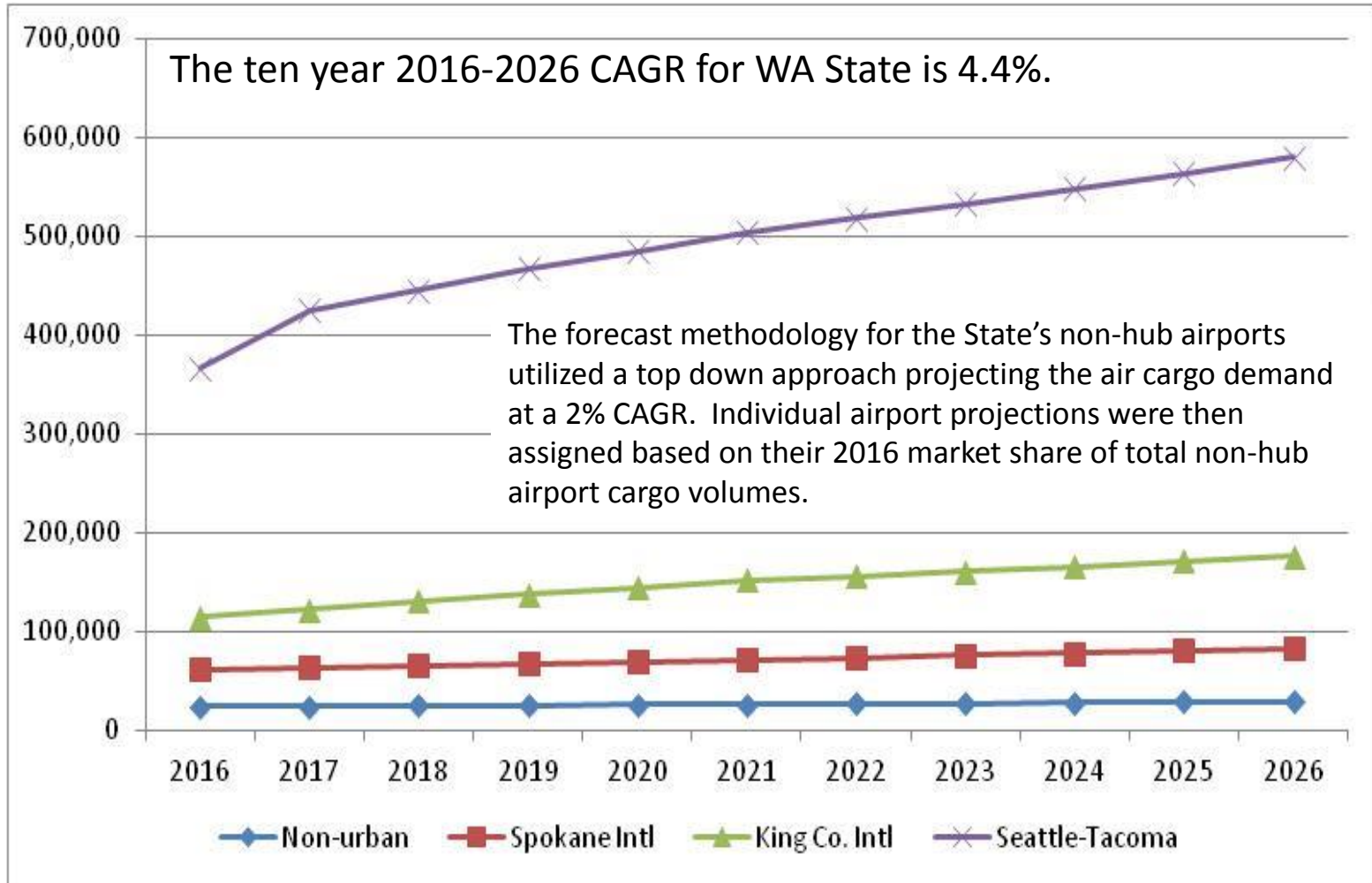
# Inhibitors to Growth

- Sustained economic downturns
- Domestic and international security directives
- Modal shift from air to other modes (truck and ocean)
- The downsizing of passenger aircraft fleet
- Fuel volatility
- Trade barriers and increased operating regulations
- Change in consumption habits and manufacturing techniques
- Political instability

Typically, extreme change in freight volumes at individual airports more often results from the initiation or termination of air carriers or services than from overall industry growth or decline.



# WA State Forecast Summary





# Industry Air Cargo Growth Projections

- According to the Boeing, over the next 20 years world air cargo traffic will grow 4.2% per year.
- Airbus forecasts air cargo to grow 4% per year over the next 20 years.
- The FAA predicts:
  - domestic cargo to increase at an average annual rate of 1.3% 2016-2037
  - International cargo forecast to increase an average of 3.8% a year
- IATA predicts that air freight volumes will rise 4.5% in 2018.



# Key Factors and Assumptions: SEA Forecast

- Due to an increase in wide-body international passenger service SEA has seen a significant increase in international air cargo volumes.
- In 2016, SEA began to see a significant growth in freighter activity by airlines focused on e-commerce market (FedEx, DHL and Amazon Air).
- Growing freighter market

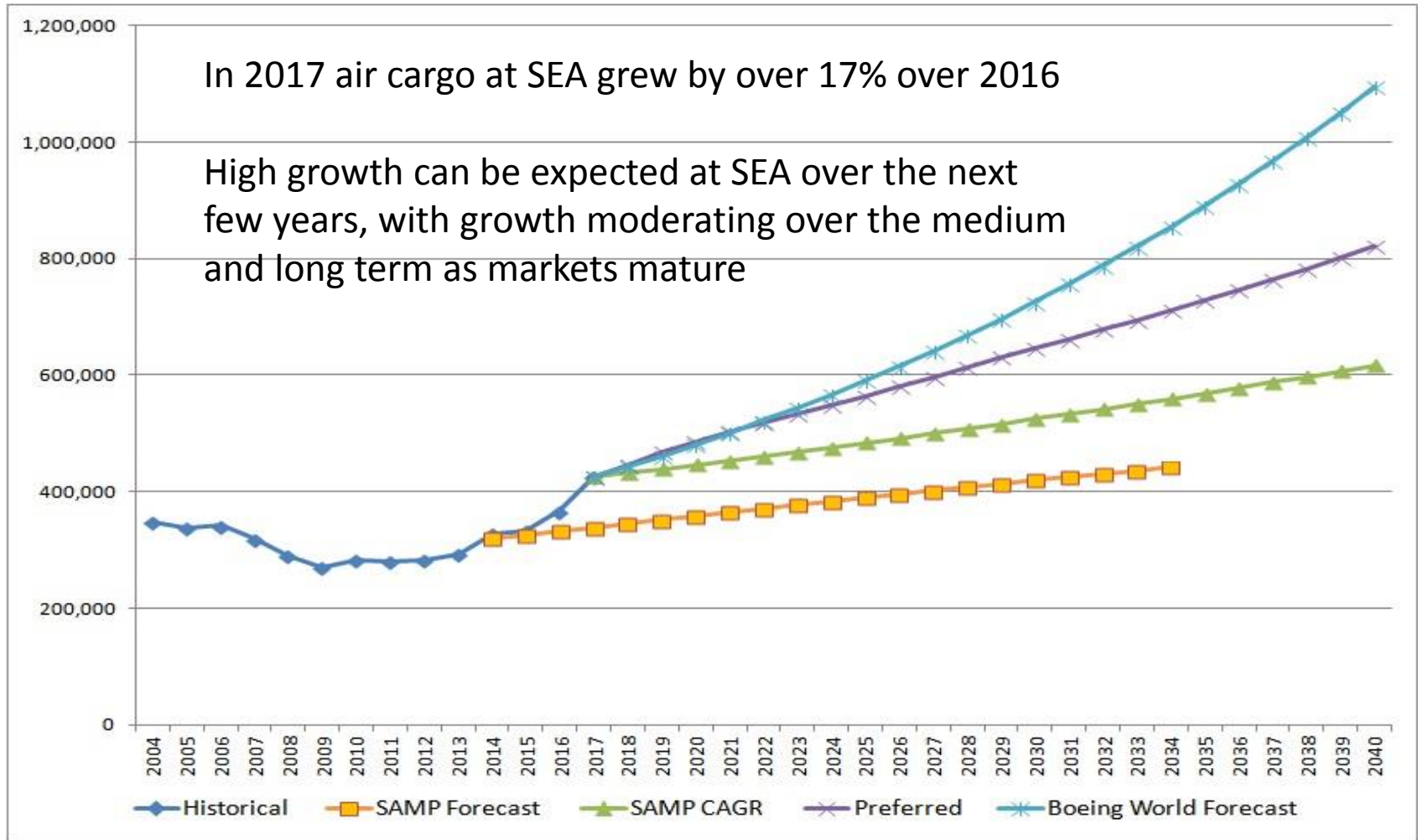


# Key Factors & Assumptions: SEA Forecast

- It is expected that the integrator/express airlines will maintain a 50% market share at SEA over the forecast period.
- The integrator/express market at SEA is predicted to grow at compound annual growth rate of 7% for years 2018 and 2019, with growth moderating in the medium and long term as the market matures.
- International air cargo market will grow at a compound annual growth rate of 3% until 2029
- Air cargo other than integrator/express and international will grow at a steady rate of 2% per year



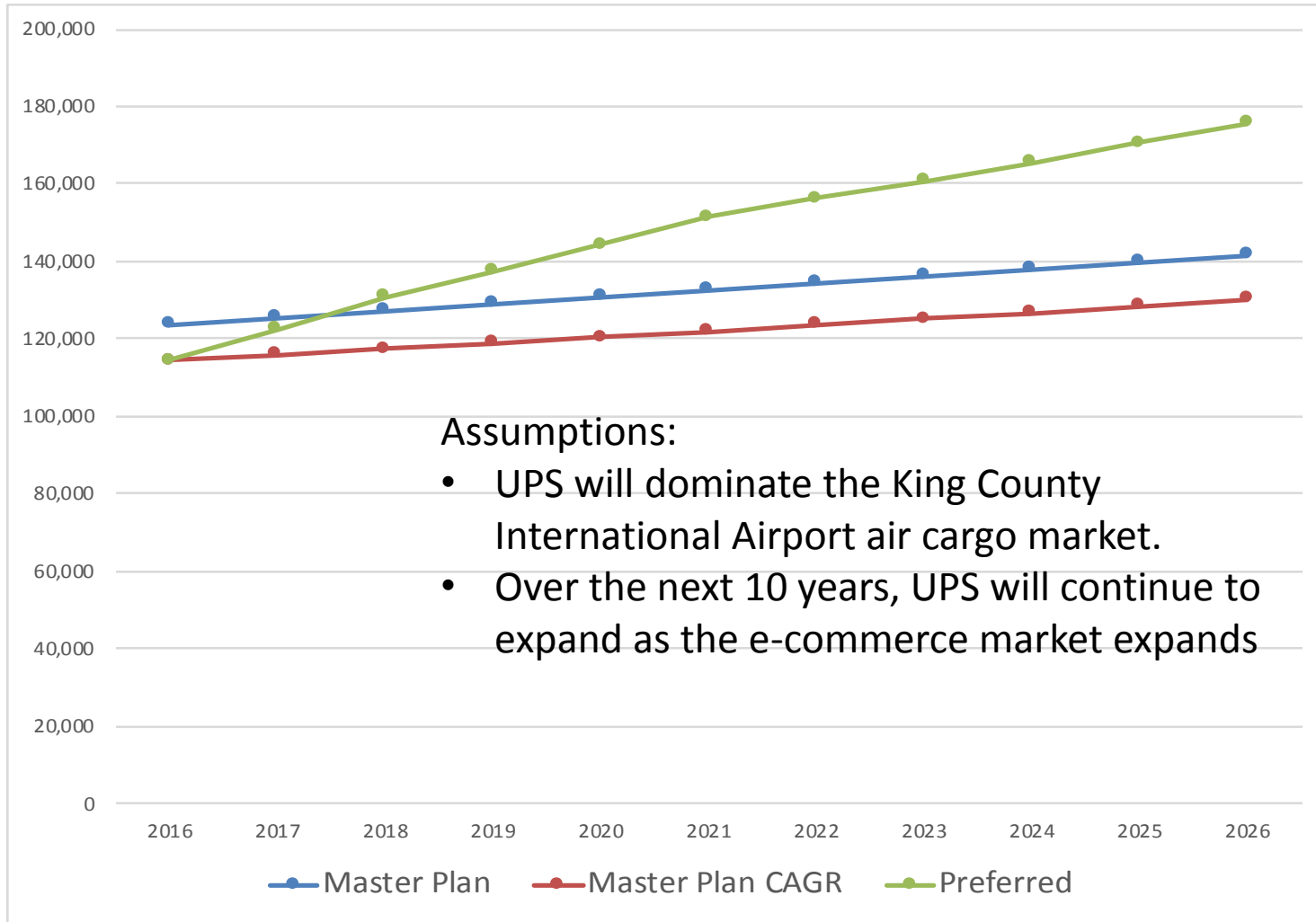
# Seattle-Tacoma Intl. Airport Forecast





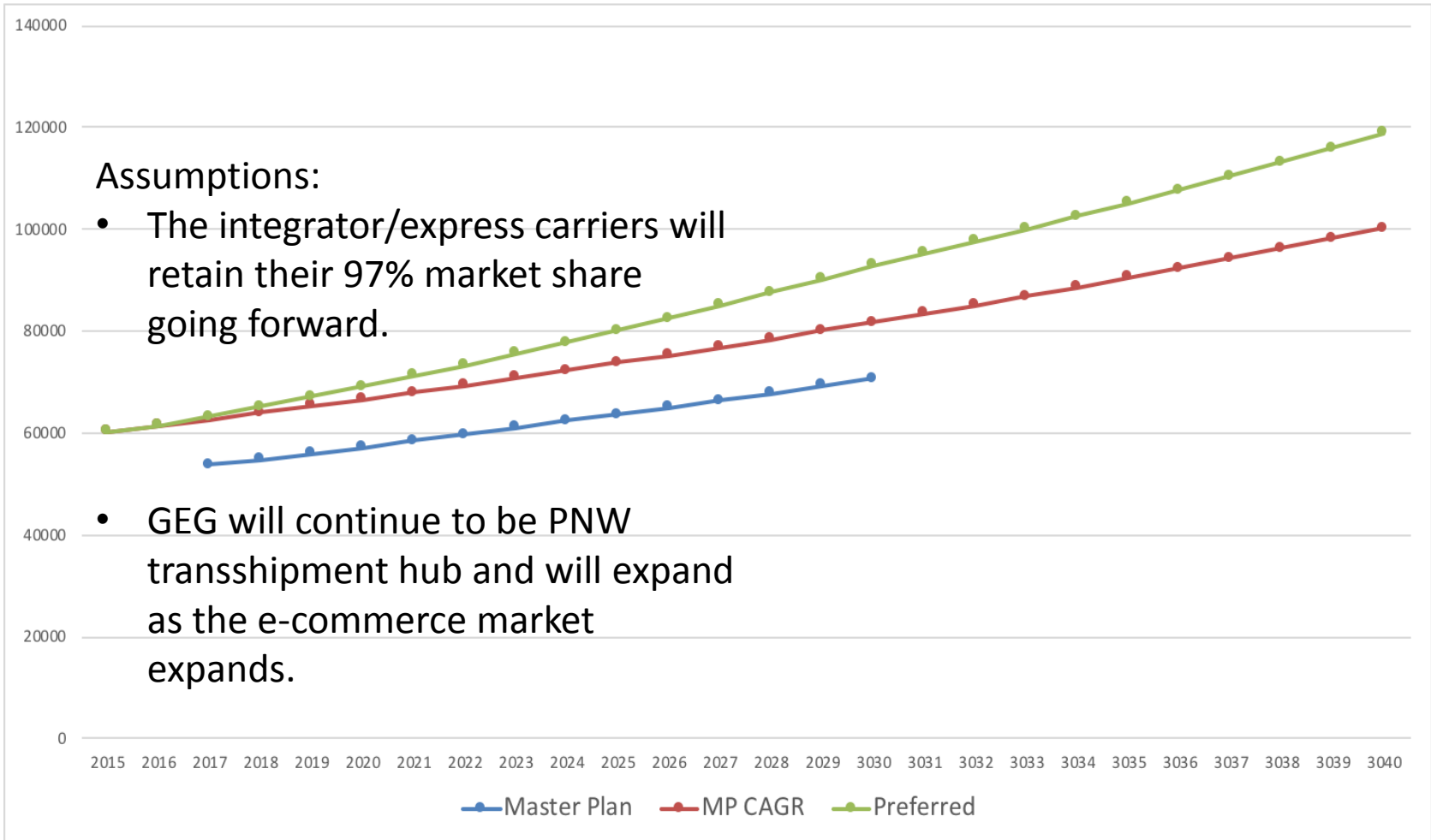


# King County International Forecast





# Spokane International Forecast





## Industry Perspectives

- What are industry perceptions of air cargo facilities and services in Washington State?
- Do they have concerns about crowding at Sea-Tac?
- What factors are considerations in utilizing other airports around the state?



# Industry Perceptions from Interviews and 2017 Air Freight Forwarders Forum

- Sea-Tac is a good place to do business and most find the facilities and services to be more than adequate.
- Growth of air cargo, limited ground-handling space and constrained layout lead to congestion and delays
  - Significant wait times for trucks accessing the terminal
  - Delays in handling goods, particularly for airlines that do not handle their own cargo
  - Lack of TSA screening resources on the airport
- Similar constraints exist at other airports around the world and more efficient layout and additional off-airport facilities could resolve many of these problems.



# Industry Perceptions from Interviews and 2017 Air Freight Forwarders Forum

- There is a lack of consensus among airlines interviewed about using other airports:
  - Some indicate an openness to it.
  - Some concerns – and lack of familiarity - with facilities and services.
  - Ultimately, freight forwarders make the decisions.
  - Their understanding and support for any alternative air cargo services and locations will be critical to its success.
- These perceptions, along with air cargo trends, forecast and facility information will be used in identification of opportunities and constraints.



# Regional Market Capture

What goods are imported and exported from WA's airports?

What are the origins and destinations?

Are there opportunities to capture more goods through Washington airports?



# Regional Market Capture for Trade

- Sea-Tac is one of the United States' principal gateways for international air cargo from East Asia.
- Sea-Tac serves the State of Washington and, in most cases, a broader regional market for international trade.
- Examined international market areas served by Washington state airports based on trade data from the U.S. Census Bureau.
- Comparison of state air cargo volumes of specific commodities with volumes moving through a state's airports provides a measure of the airports' market reach.



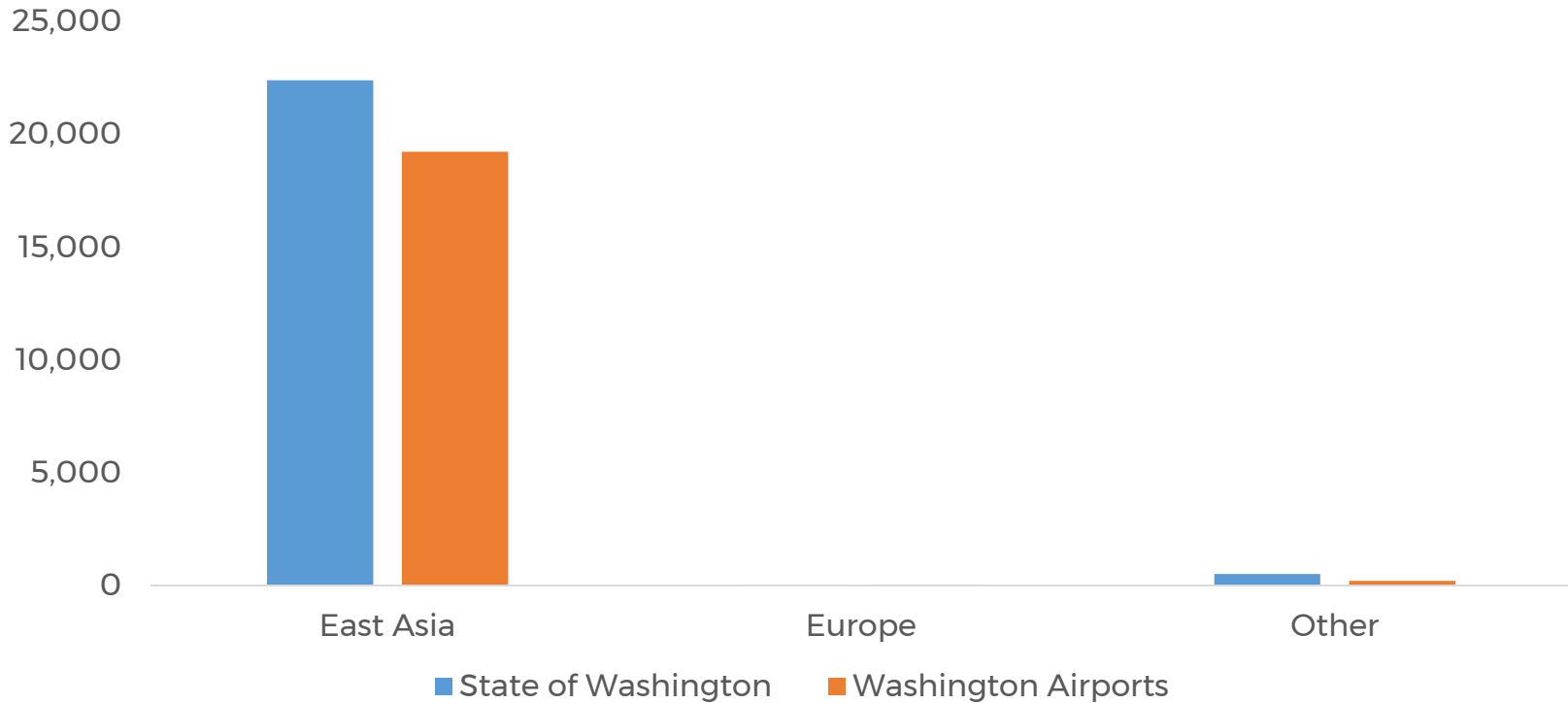
## Exports

- Washington state and Sea-Tac exports by volume are concentrated in perishable foods.
- Fresh cherries and seafood together represented over a quarter of the airport's air cargo exports by volume in 2016.
- Cherries and seafood were destined almost entirely to East Asian countries.
- Export volumes of seafood relatively balanced.
- A large share of cherry exports may be handled by out-of-state airports, including Vancouver, BC.





# Exports – Fresh Cherries by Air in 2016 (metric tons)



This doesn't include the approximately 12 thousand tons trucked to Canada, likely for re-export - about half of the total air export.

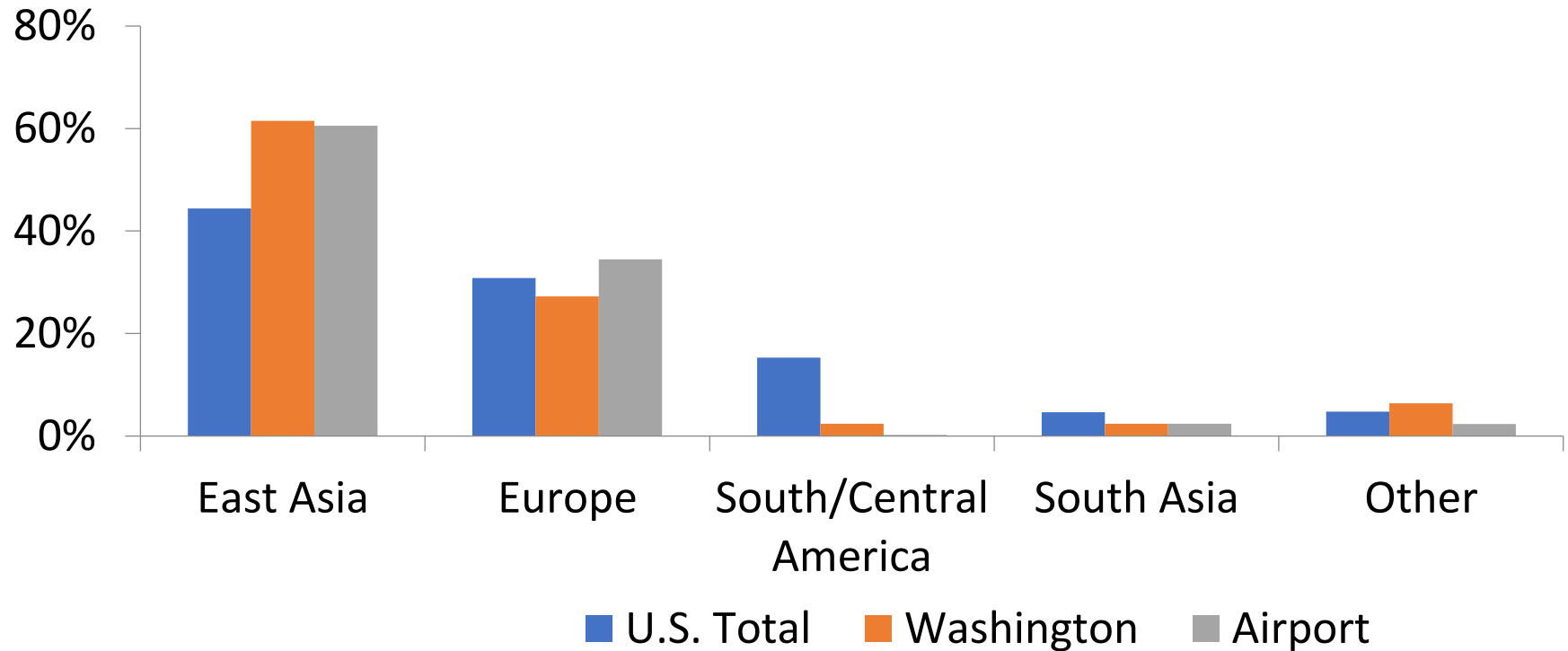


## Exports – East Asia and Europe

- Sea-Tac is a significant gateway to East Asia for footwear parts, electronic integrated circuits, and machines and apparatus for manufacturing semiconductors.
- For these commodities, the airport serves a much larger market than the state.
- Sea-Tac also acts as a smaller gateway port to Europe for computers and machines and apparatus for manufacturing semiconductors.
- Sea-Tac also handles significant exports to Europe for instruments; civilian aircraft and engines, and parts, TV receivers and monitors; metals and metal products.
- For these commodities, the airport's volumes are less than Washington state exports. Chicago and LAX are competitors.



## Share of imports by world region



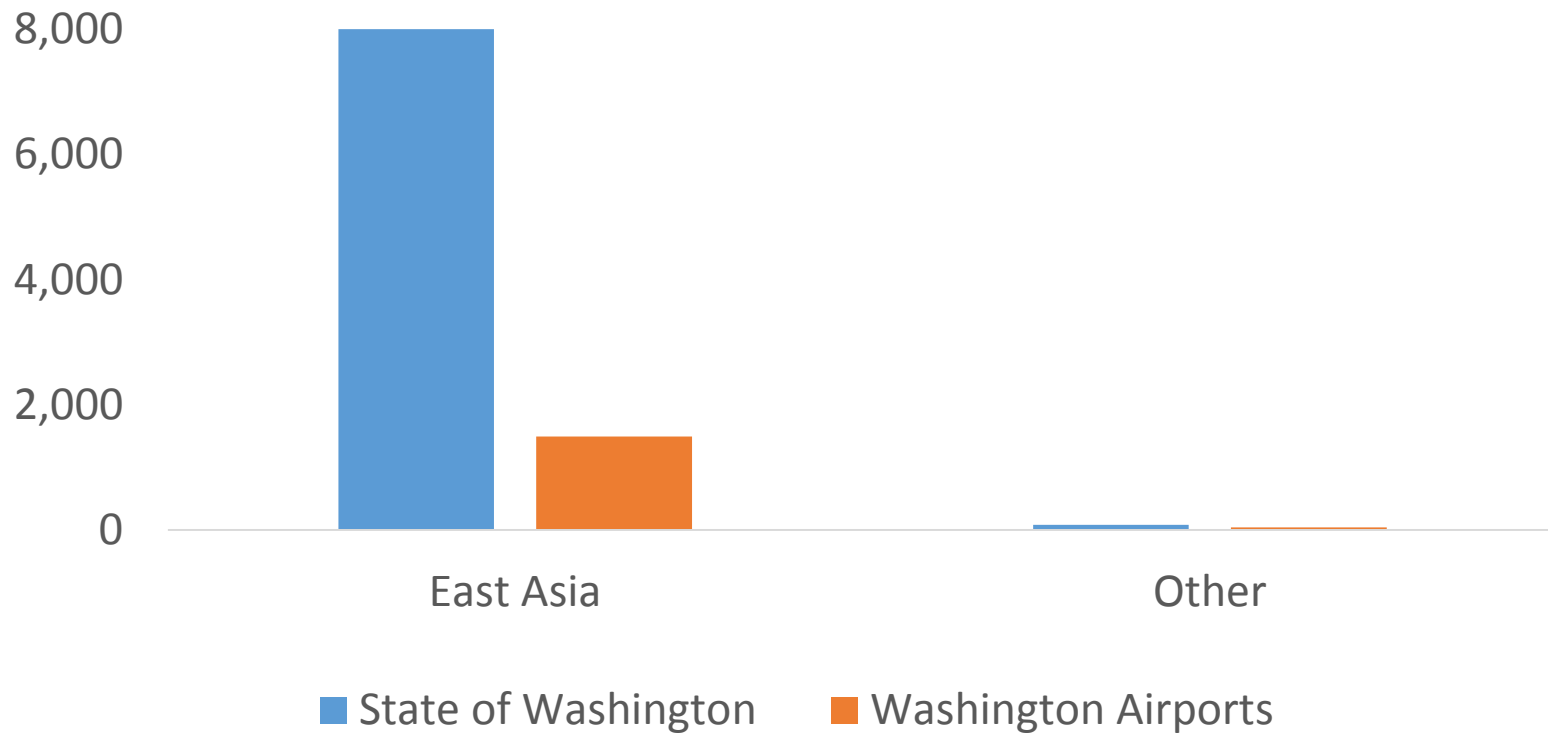


## Imports – East Asia

- For many product categories, Sea-Tac East Asia import volumes significantly exceed Washington state imports.
- Washington airports bring in much more aircraft parts and apparel than the state uses.
- **Sea-Tac brings in much less than Washington state imports in electronic equipment and instruments, including:**
  - Electric Apparatus for Line Telephony, Parts
  - Transmission Apparatus for Radiotelephone; TV Cameras and Recorders
  - Automatic Data Processing Machines; Magnetic Readers, etc.
- California is a major gateway for electronics.



## Air Imports – Electric Apparatus for Line Telephony, Parts (2016 metric tons)



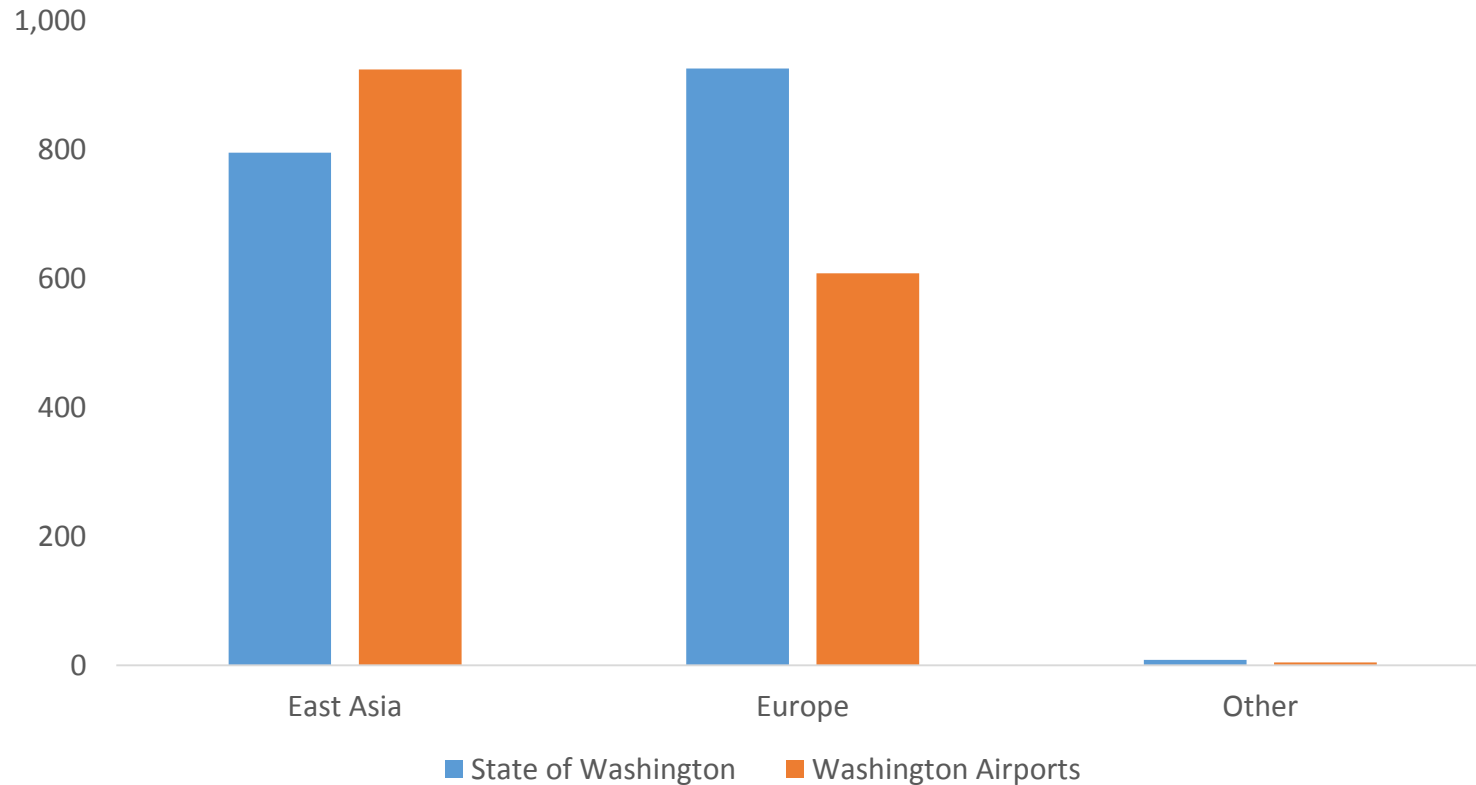


## Imports – Europe

- Sea-Tac also acts as a gateway port for selected products from Europe.
- Commodities with the largest surplus difference between state airport volumes and state imports include:
  - Pacific, Atlantic, Danube Salmon Fillet Fresh/Chilled, which originate almost entirely in Europe
  - Aircraft seats and seat parts, two aircraft-related commodity groups for which imports from Europe are greater than volumes from East Asia.
- **Parts for pipes and tanks represent a significant import for which the state uses more than is brought in by Washington airports.**



# Air Imports – Taps, Cocks, Valves for Pipes and Tanks 2016 (metric tons)





# Airport Facilities and Needs

What are the key facility indicators for air cargo?

What air cargo facilities are available at airports in the State?

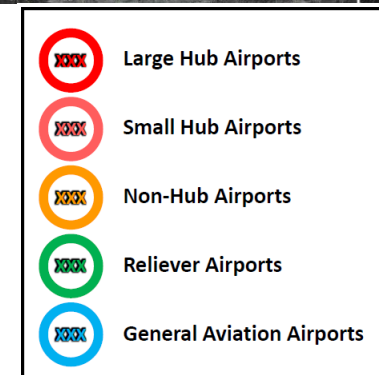
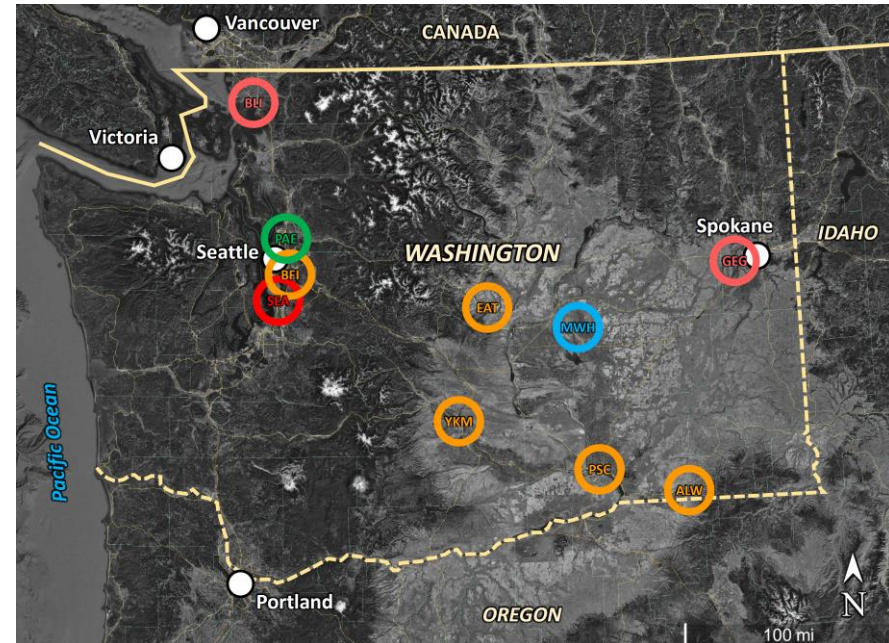
Are the air cargo facilities in WA sufficient to handle projected demands?





# Air cargo airports

- Seattle-Tacoma Intl. (SEA)
- King County Intl. (BFI)
- Spokane Intl. (GEG)
- Bellingham Intl. (BLI)
- Paine Field (PAE)
- Pangborn Memorial (EAT)
- Yakima Air Terminal (YKM)
- Tri-Cities/Pasco (PSC)
- Walla-Walla Municipal (ALW)
- Grant County/Moses Lake (MWH)





# Existing Conditions - Indicators

- National Plan of Integrated Airport Systems classification
- Most frequent all-cargo aircraft
- Design aircraft
- Runway length
- Approach procedures





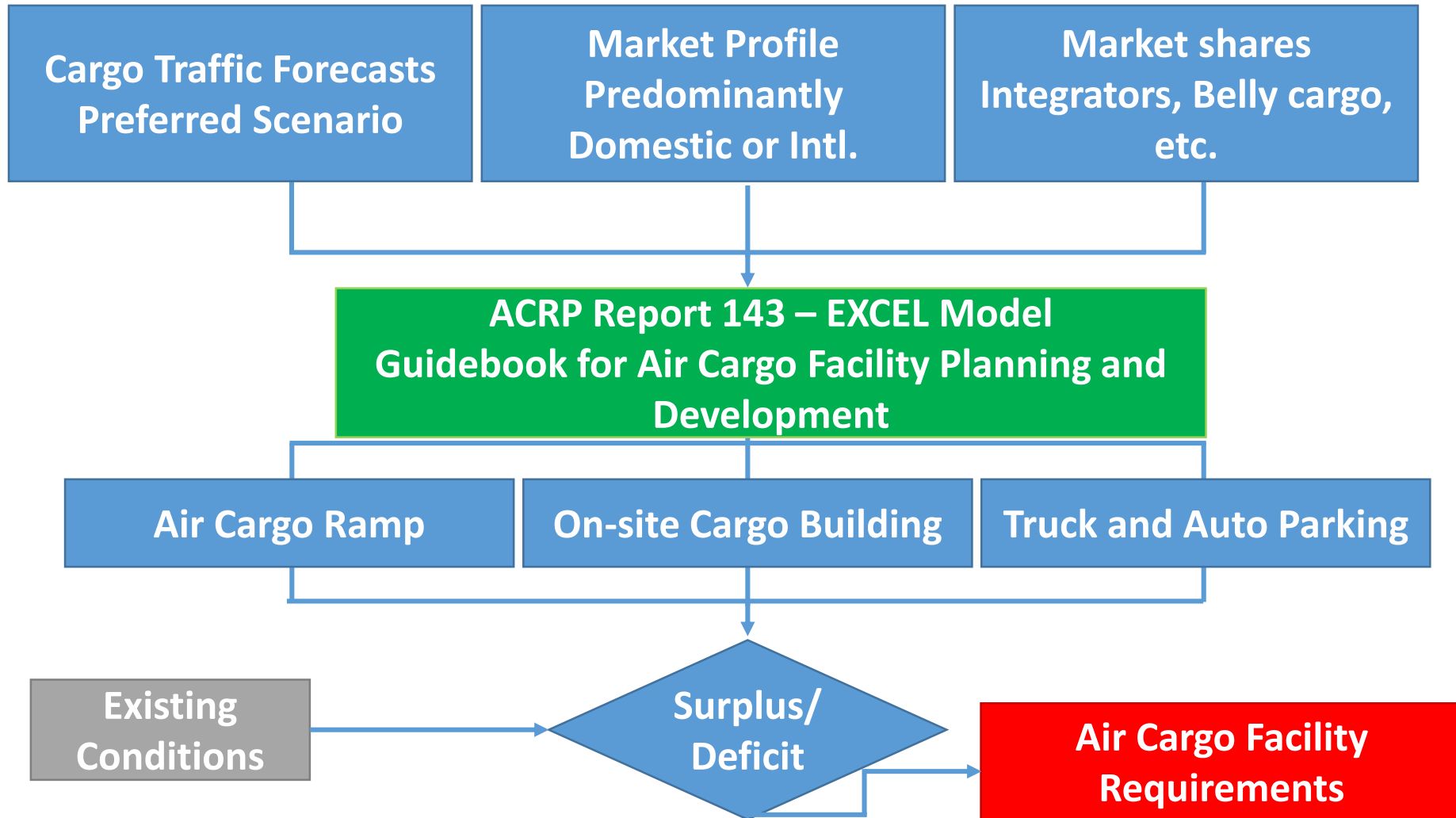
# Existing Conditions – Indicators

- On-Site Warehouse and support facilities
- Air cargo operators
- Port of entry
- Air cargo trends
- Distances to SEA from the main air cargo area
- Distance to nearest Interstate from the main air cargo area





# Facility Requirements – Method





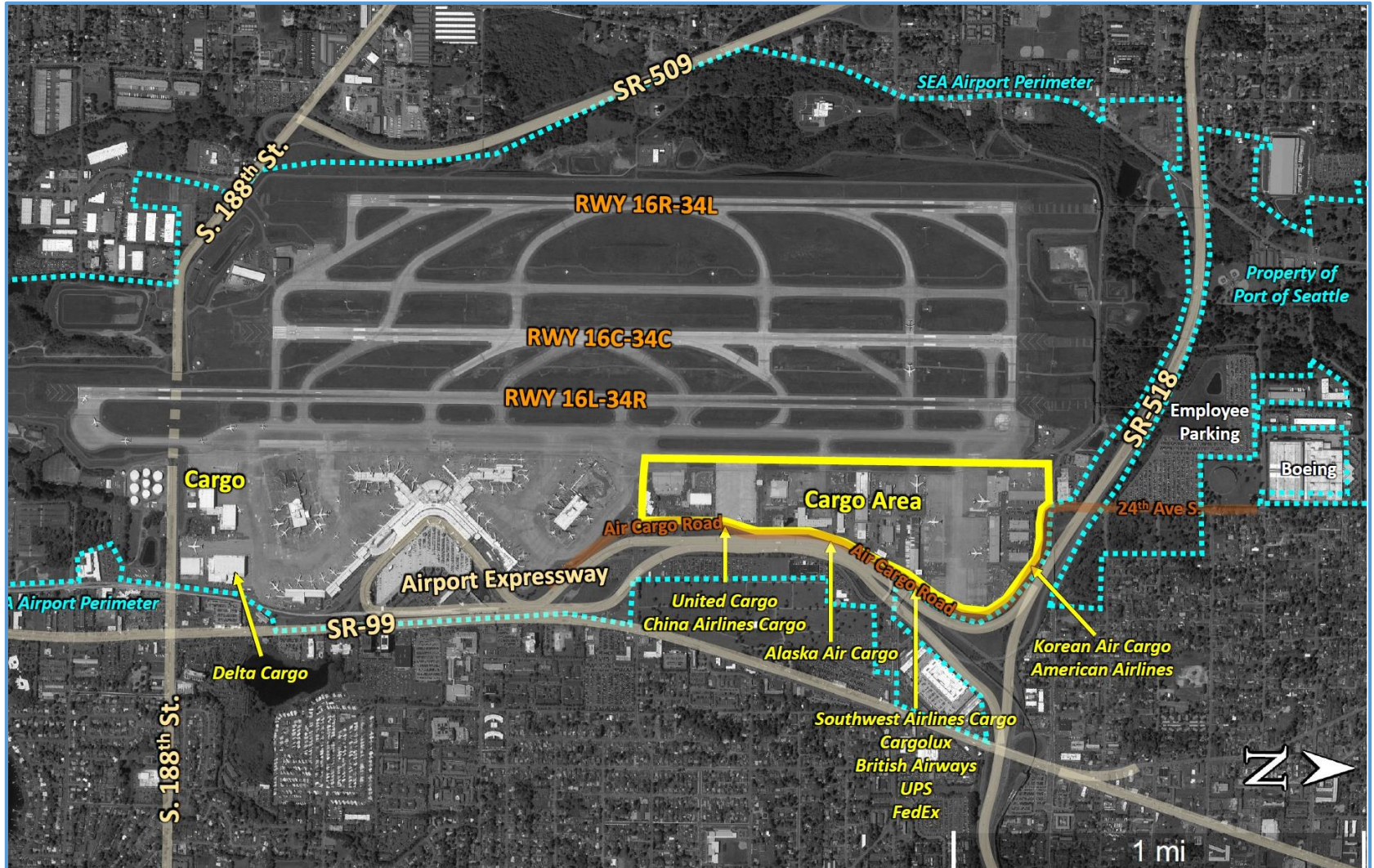
# Seattle-Tacoma Intl.

- #17 U.S. airport for air cargo tonnage
- 35% air freight volume is international
- Accommodates all cargo aircraft types
  - Designed for the Boeing 747-400
  - Upgraded for the Boeing 747-8F
  - Wide enough for the Antonov An 124/225 (occasionally)
- Regional roadway corridors congested





# Seattle-Tacoma Intl. (SEA)





# Seattle-Tacoma Intl. (SEA)

- SEA’s Sustainable Airport Master Plan (SAMP) update in progress
- Future passenger and air cargo facilities compete
- Options include:
  - Redeveloping/densifying the main cargo area
  - Developing a new cargo area to the south (SASA)
  - Creating off-airport opportunities

Air Cargo Trends		+ 4-8%/yr.
<b>Air Cargo Ramp (ACRP) (sq.ft.)</b> <i>(Surplus vs existing) (sq.ft.)</i>		
2017	18.6	(+50)
2021	22.1	(+47.9)
2026	25.4	(+44.6)
<b>Cargo Building Space (ACRP) (sq. ft.)</b> <i>(Surplus vs existing) (sq.ft.)</i>		
2017	516,375	(+113,625)
2021	612,486	(+17,514)
2026	704,486	(-74,486)
<b>Truck and Auto Parking (ACRP) (sq.ft.)</b>		
2017	612,556	
2021	726,570	
2026	835,705	
<b>Cargo Traffic (Forecast) (U.S. tons)</b>		
2017	468,482	
2021	504,104	
2026	579,824	





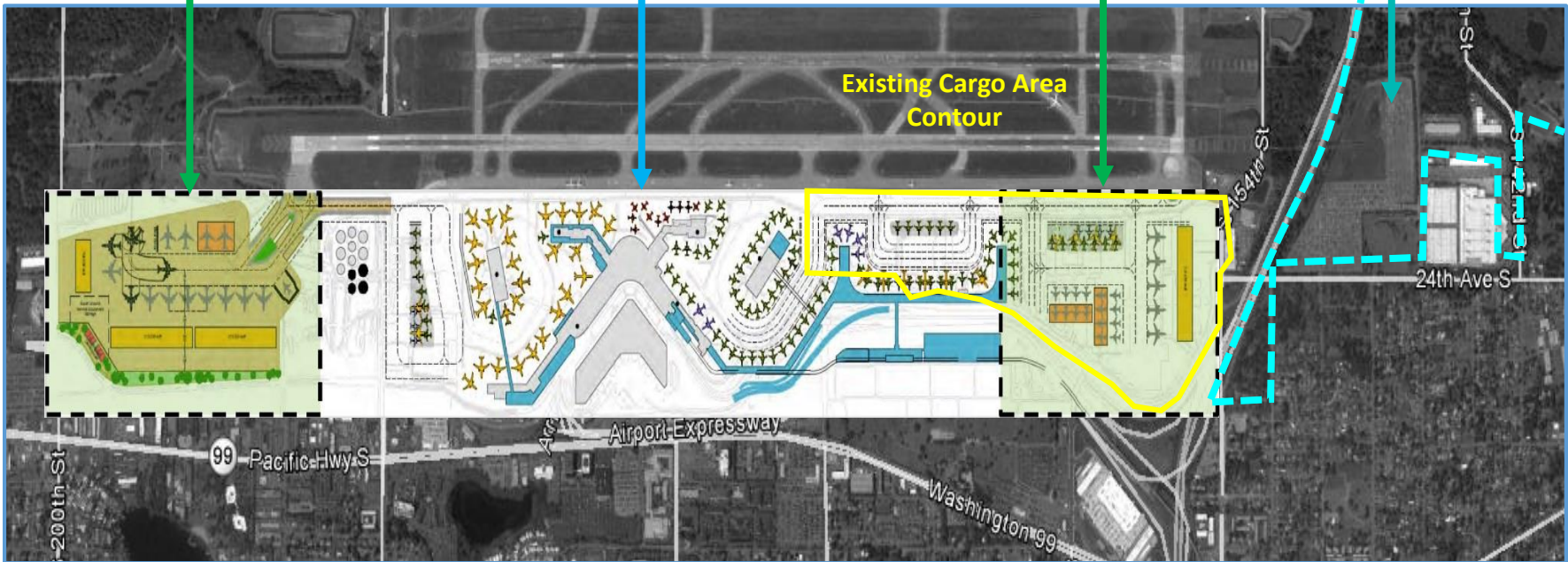
# Seattle-Tacoma Intl. (SEA)

Off-airport cargo facility opportunities (Lands owned by Port of Seattle)

Expansion of Passenger Terminal Facilities

Redeveloped Air Cargo Area

SASA

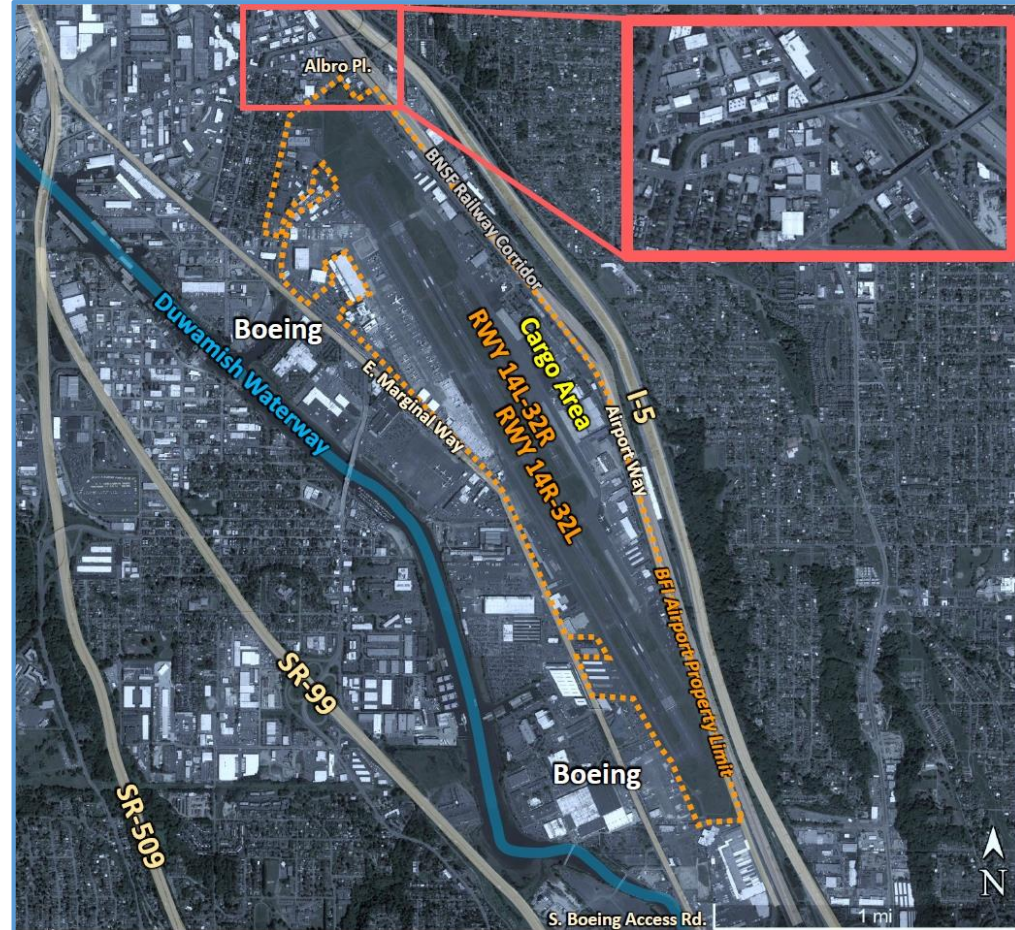






# King County Intl. (BFI)

- Regional hub for UPS
- DHL transferred operations to SEA
- Constrained landside limits development opportunities
- Regional roadway corridors congested





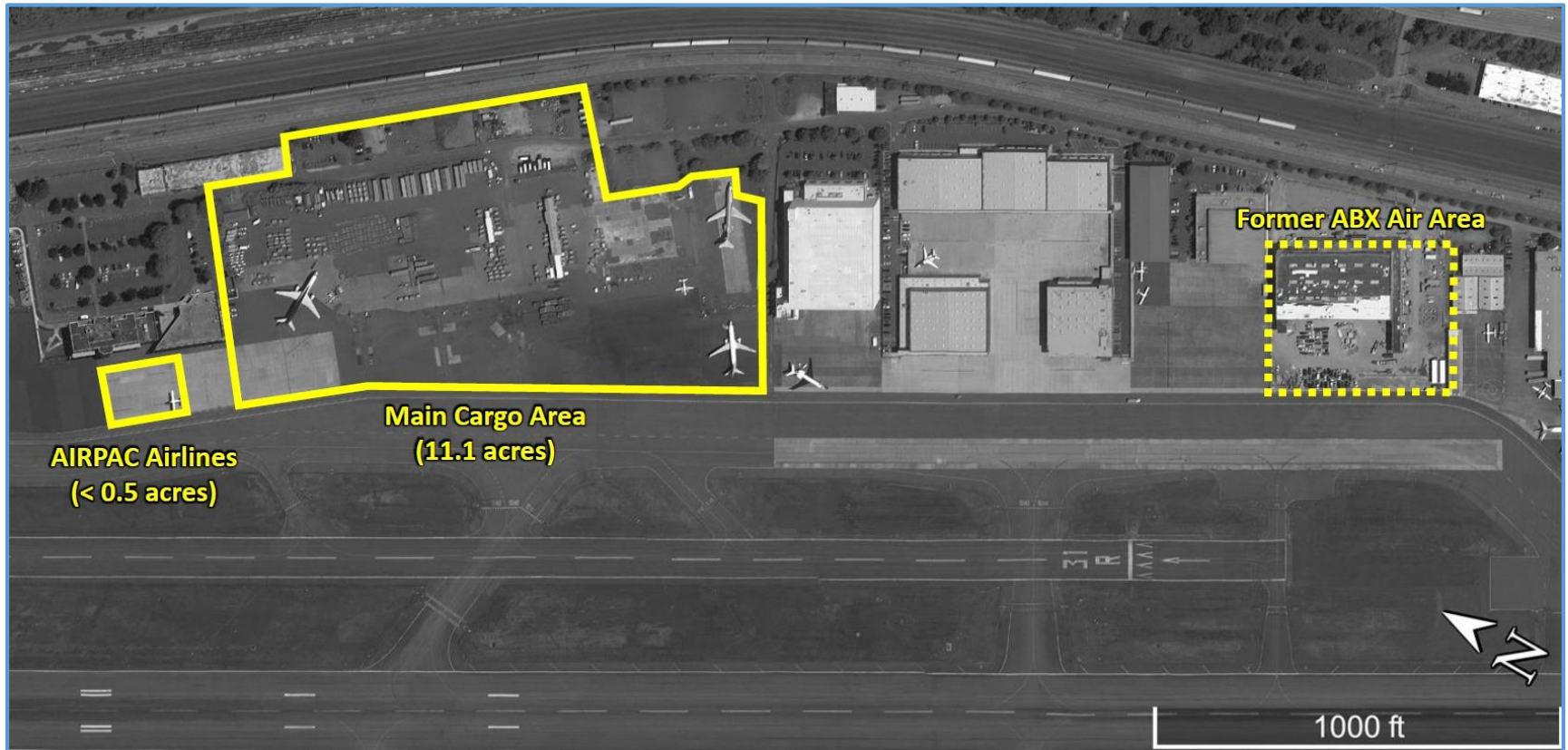
# King County Intl. (BFI)

- Medium-term: slight but growing deficit in air cargo ramp
- Ramp and landside developments limited by large, busy railway and highway corridors
- If needed, expanding the UPS ramp will require reorganization of landside

Air Cargo Trends Per Airport MP or WASP	+2.5%/yr.
<b>Air Cargo Ramp (ACRP) (sq.ft.) (Surplus vs existing) (sq.ft.)</b>	
2017	11.9 <i>(-0.4)</i>
2021	14.8 <i>(-3.3)</i>
2026	17.1 <i>(-5.6)</i>
<b>Cargo Building Space (ACRP) (sq. ft.)</b>	
2017	133,010
2021	164,754
2026	190,996
<b>Truck and Auto Parking (ACRP) (sq.ft.)</b>	
2017	222,761
2021	275,925
2026	319,873
<b>Cargo Traffic (Forecast) (U.S. tons)</b>	
2017	134,889
2021	151,574
2026	175,716



# King County International (BFI)

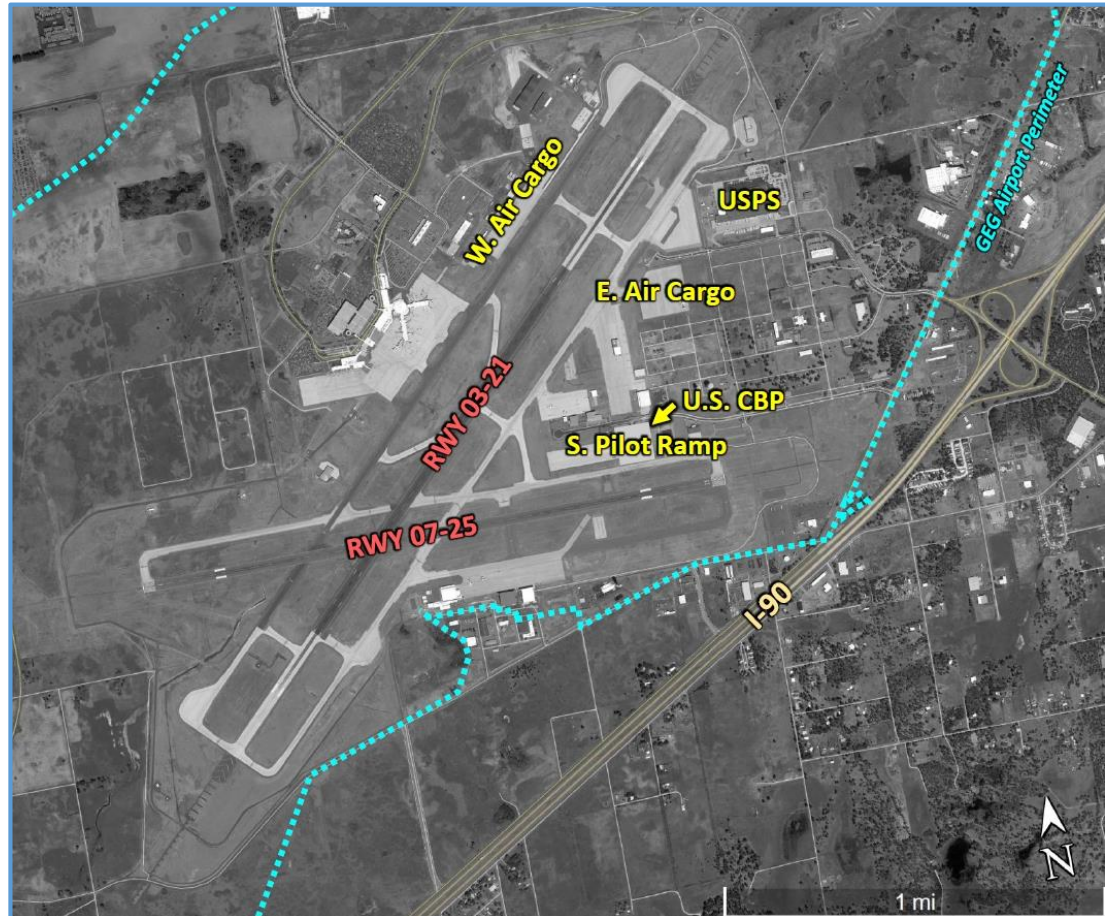






# Spokane Intl. (GEG)

- Served by Fedex, UPS and cargo feeder airlines as well as Delta and Southwest
- Large remote ramps
- South Pilot Ramp used by cargo aircraft as an alternate port of entry to Seattle





# Spokane Intl. (GEG)

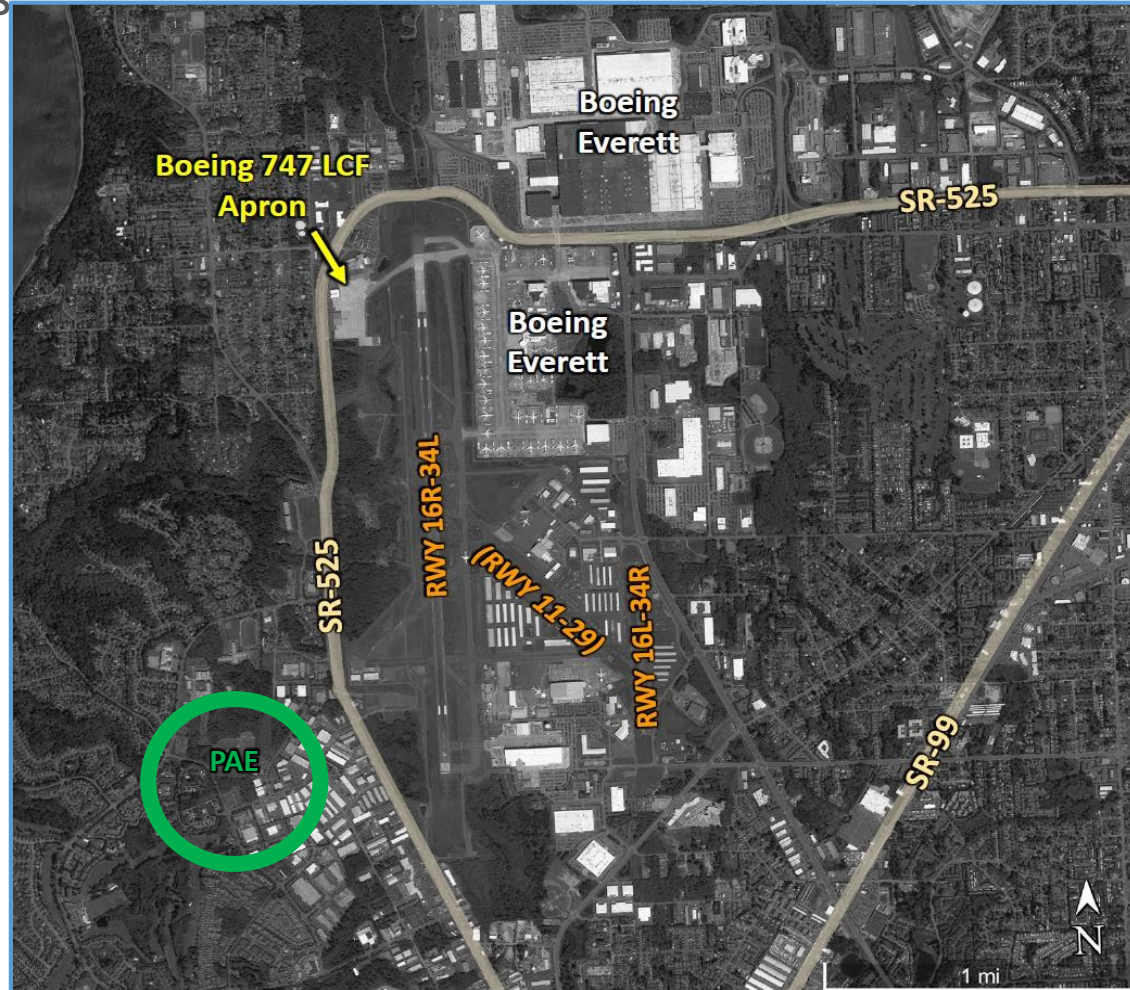
- Integrated air cargo development in long-term strategy
- Developed the South Pilot Ramp as alternative port of entry to SEA
- Built Triangle and East Air Cargo Ramps for remote parking and future air cargo ramp with direct access to industrial park
- Vast available on-site land can address the long-term needs for warehouses and other cargo buildings

Air Cargo Trends	+2.06%/yr.
<b>Air Cargo Ramp (ACRP) (sq.ft.) (Surplus vs existing) (sq.ft.)</b>	
2017	5.97 (+21.5)
2021	6.7 (+20.8)
2026	7.8 (+19.7)
<b>Cargo Building Space (ACRP) (sq. ft.) (Surplus vs existing) (sq.ft.)</b>	
2017	66,675 (-4,675)
2021	75,043 (-8,368)
2026	86,995 (-20,320)
<b>Truck and Auto Parking (ACRP) (sq.ft.)</b>	
2017	121,859
2021	137,154
2026	158,998
<b>Cargo Traffic (Forecast) (U.S. tons)</b>	
2017	69,708
2021	71,175
2026	82,511



# Paine Field (PAE)

- Dedicates cargo operations to Boeing Commercial Aircraft manufacturing
- Air logistics apron can accommodate 3 Boeing 747 LCF simultaneously (4 stands) and can be expanded further south if needed
- Commercial passenger service should start in 2018, bringing new potential cargo opportunities (belly cargo)

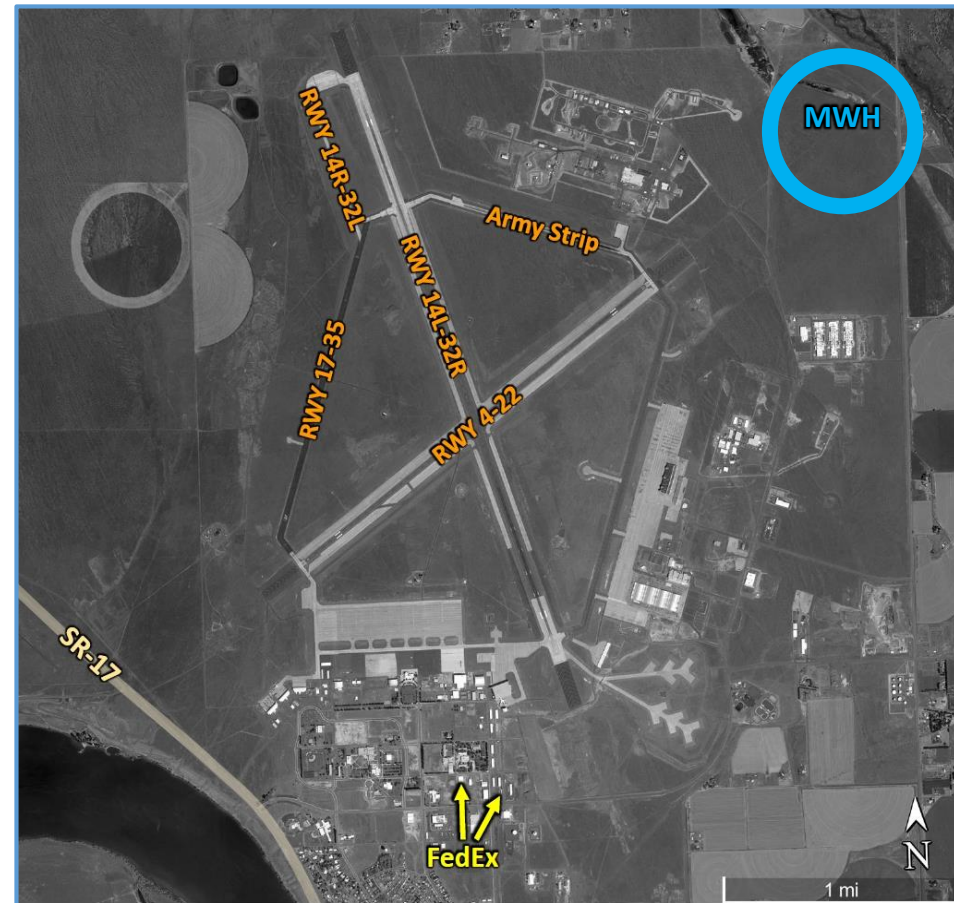






# Grant County (MWH)

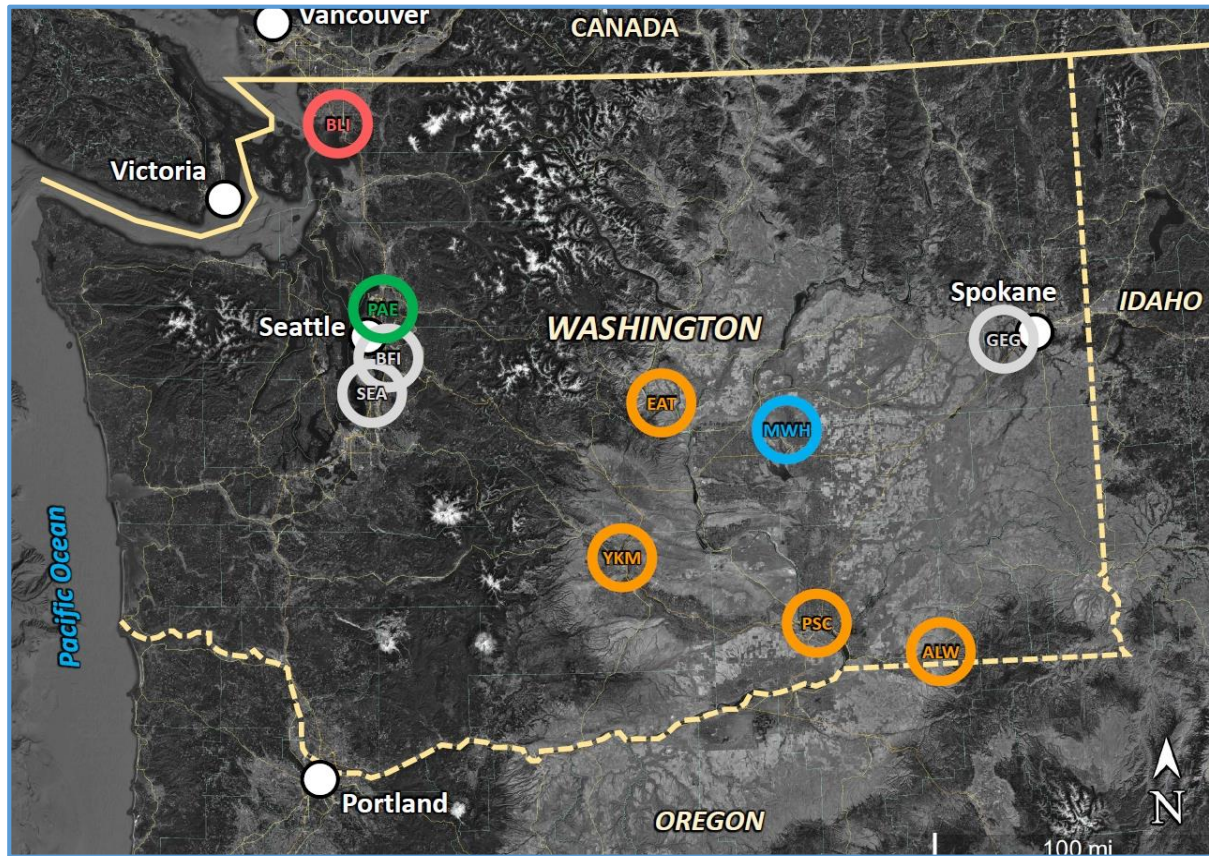
- Inherited large airfield infrastructure from past life as an Air Force Base
- On top of its local cargo traffic (Fedex and UPS), this airport can accommodate very large aircraft
- In 2021, it will have an improved rail connection





# Other Air Cargo Airports

- Bellingham, Yakima, Tri Cities, Walla-Walla and Pangborn have small air cargo activity with integrators and belly cargo







## Other Air Cargo Airports

Bellingham, Tri Cities, Yakima, Walla-Walla and Pangborn have facilities adapted to their long-term cargo demand, that should grow with a moderate rate (approx. +1%/yr.).

*With the exception of Bellingham and Tri-Cities, a significant expansion of air cargo operations at these airports would require tremendous investment, as they are not adapted to large aircraft or served by adequate roads.*

Air Cargo Trends		approx. +1%/yr.
<b>Air Cargo Ramp (ACRP) (sq.ft.)</b>		
<i>(Surplus vs existing) (sq.ft.)</i>		
2017	2.58	(+101.7)
2021	2.6	(+101.7)
2026	3.1	(+101.2)
<b>Cargo Building Space (ACRP) (sq. ft.)</b>		
<i>(Surplus vs existing) (sq.ft.)</i>		
2017	28,766	(+38,000)
2021	31,138	(+35,000)
2026	34,378	(+32,000)
<b>Truck and Auto Parking (ACRP) (sq.ft.)</b>		
2017	51,779	
2021	56,048	
2026	61,881	
<b>Cargo Traffic (Forecast) (U.S. tons)</b>		
2017	26,465	
2021	28,647	
2026	31,628	



# Synthesis

- Seattle-Tacoma Intl. (SEA)
  - Large hub with high growth in cargo facing strategic questions over on-site land use (cargo vs passenger terminal).
  - Master plan considering redevelopment of the existing on-site facilities and off-airport cargo park north of SR-518.
  - Congested ground access a concern.
- King County Intl. (BFI)
  - Existing facilities can accommodate existing air cargo demand, while congested ground access is a concern.
  - Expansion of cargo activities would require redevelopment.



# Synthesis

- Spokane Intl. (GEG)
  - Airport anticipated future demand with facilities.
  - Stopover for customs is an emerging trend. Airport wants to attract “O&D” cargo flights with industrial park.
- Paine Field (PAE)
  - Needs of Boeing Commercial Aircraft covered.
  - Nascent passenger commercial services may create opportunities for belly cargo.
- Grant County (MWH)
  - Large facilities can accommodate extra-large payloads.
- Other airports
  - Existing facilities meet the long-term demand.



# Key Facility Factors for opportunities/constraints

- Location
- Access
- Design aircraft
- Airport reference code
- Instrument approach procedure to support all weather access
- Cargo ramp facilities



# Air Cargo Congestion

How is congestion defined and measured?

Are any of the airports in the state congested?

What are the consequences of air cargo congestion?



# Air Cargo Capacity

## Airport Capacity

### Airside Capacity (airplanes)

- Runway/Taxiway/Apr on Configuration
- Air Traffic Control
- Environmental Conditions
- Demand/Aircraft Characteristics

### Landside Capacity (on airport grounds)

- Cargo Terminals
- Loading Bays
- Handling Systems
- Parking Facilities
- Customs Handling
- Security

### Access Capacity (off airport grounds)

- Nearby Warehousing
- Roadway/multimodal access
- Brokers and Forwarders





## Definitions

**Air Cargo Capacity:** The maximum cargo volume that can be handled by airside, landside and access system components.

**Air Cargo Congestion:** Increase in costs to shippers/operators as cargo volumes approach capacity, stressing one or many system components.



# Air Cargo Congestion

- Effects of congestion appear long before capacity is reached.
- In congested conditions, each additional unit of cargo increases costs for everyone:
  - higher rates
  - longer queues
  - more unreliability
- Shippers/carriers must consider alternatives or become less competitive.





# Air Cargo Congestion Analysis

## ■ Capacity Analysis

- Inventory airside, landside, and access system components.
- Identify system weaknesses and use metrics to assess facility utilization.
- Compare with industry standards and reference airports.

## ■ Congestion Delay Analysis

- Analyze FAA's Aviation System Performance Management database to characterize air cargo delay.



# Freight Service Capacity

Average Number of Outbound Flights per Week by Market, 2016

Origin Airport	Belly Widebody (flts/wk)					Freighter (flts/wk)				
	Asia	Eur.	N. Amer.	S. Amer.	Total	Asia	Eur.	N. Amer.	S. Amer.	Total
SEA - Seattle	100	44	39	0	182	15	0	94	0	110
GEG - Spokane	0		0	0	0	0	0	87	0	87
BFI - Seattle	0	0	0	0	0	0	0	48	0	48
LAX - Los Angeles	454	154	188	27	824	70	17	201	2	290
ONT - Ontario	0	0	0	0	0	17	0	200	0	217
SFO - San Francisco	254	119	160	0	533	23	0	24	0	47
OAK - Oakland	17	6	1	0	23	10	0	173	0	183
PDX - Portland	13	8	9	0	30	0	0	132	0	132
SLC - Salt Lake City	7	16	13	0	36	0	0	100	0	100



# Freight Service Capacity

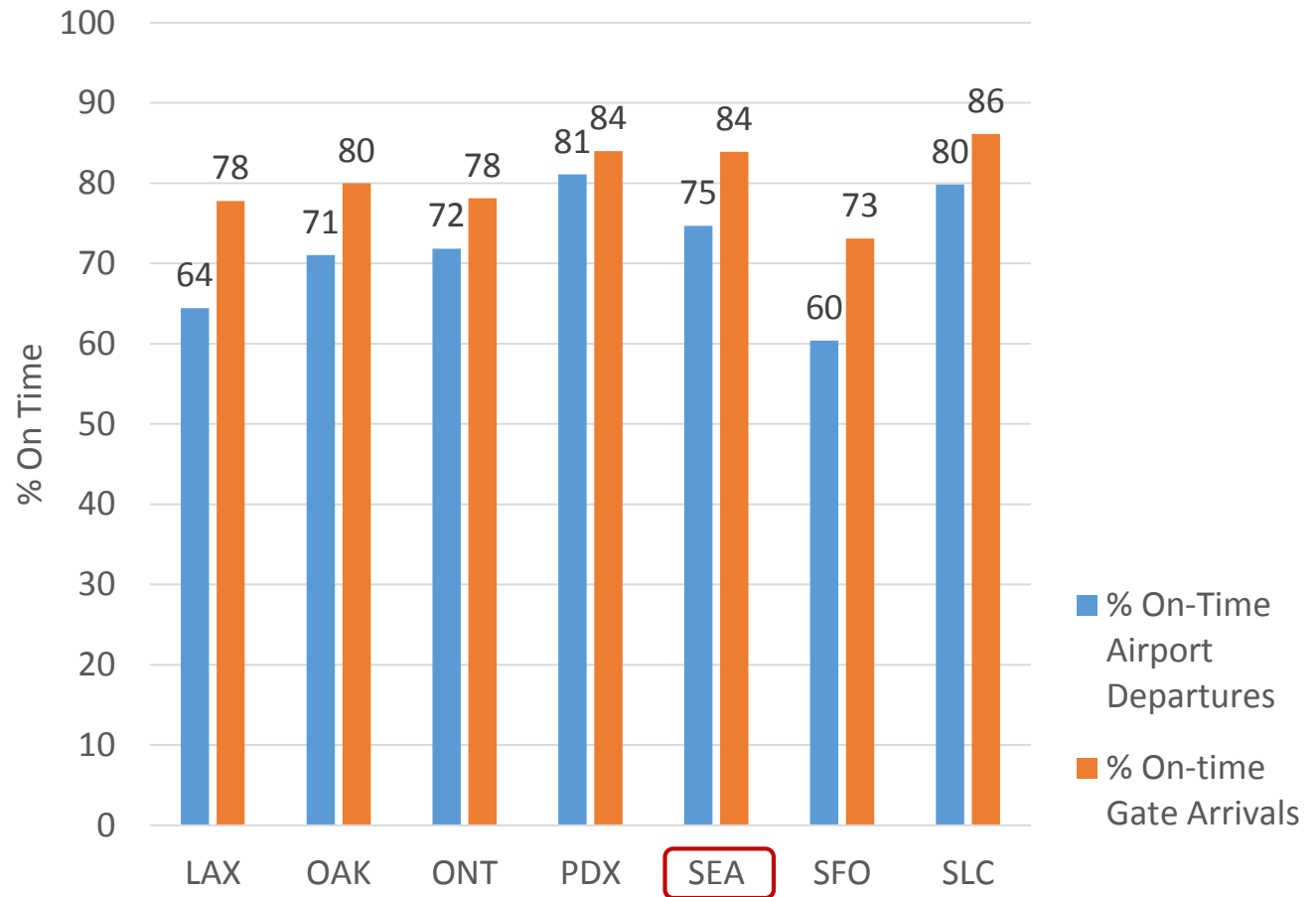
- LAX and SFO offer exceptional belly capacity to Asia and Europe, competing strongly with Washington state airports for these markets.
- Of the regionally competitive airports, LAX provides the only direct service to South America.
- GEG handles a comparable number of domestic freighter flights as SEA, while SEA has significant belly and freighter capacity to Asia and Europe.
- Integrators provide most of the cargo capacity at ONT, BFI, and GEG. SEA, SFO, and LAX provide greater belly capacity for freight forwarders.
- The integrator hubs at ONT and OAK offer significant numbers of freighter flights.



## SEA Airside Capacity Adequate for Flight Schedules

SEA operates better than competing airports such as SFO and LAX.

SEA on par with other regional airports such as PDX, OAK, and SLC.



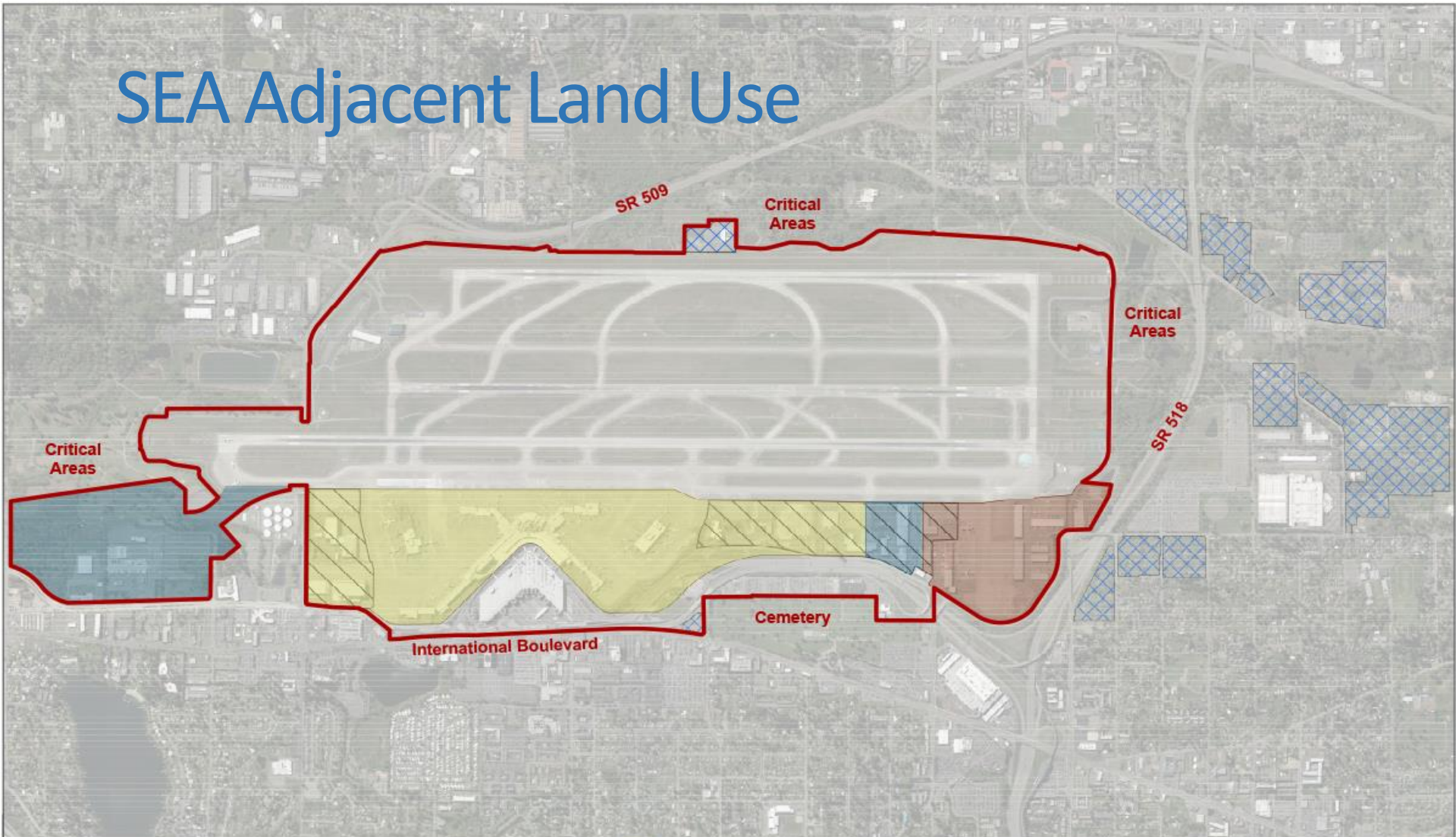


## SEA Landside Capacity

- May be inadequate to meet the cargo needs due to competition with growing passenger requirements.
- Could begin having a building deficit in 2021.
- If expansion of cargo building capacity not done on-airport, off-site facilities will be needed.
- Distribution center availability in Kent has tightened, yet air cargo volumes are relatively small compared to regional trucking and distribution.
- New designs and automation are enabling DCs with more effective capacity per acre.



# SEA Adjacent Land Use



Critical Areas

SR 509

Critical Areas

Critical Areas

SR 518

International Boulevard

Cemetery

- Terminal
- Cargo
- Displaced Facilities
- Off-airport Development Areas
- Areas to Accomodate Displaced Facilities

### Future Airport Land Uses

DRAFT - Preliminary Concepts  
Development Constraints



SHEET 1 of 1  
  
 Prepared by:  
 Aviation Planning  
 Date:  
 November 2014





# New Prologis Georgetown Crossroads Warehouse

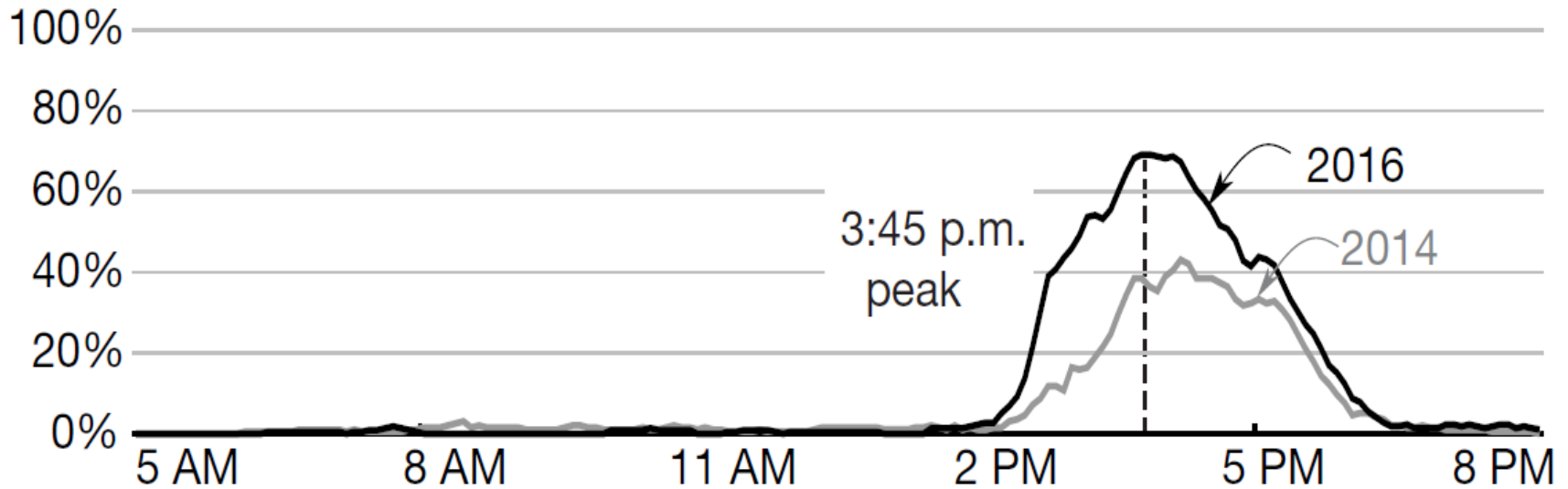


- Opening 2018, 2.4 miles from BFI
- 590,000 SF in 3 stories on 13.7 acres - vs. typical 47 acres
- Designed for e-commerce fulfillment activities



# Road Access Capacity

Percentage of Days Seattle to SEA Commute Slower than 36mph (weekdays)



- Congestion is increasing, raising costs to shippers and cargo operators
- Roadway congestion is also worsening at competing airports such as SFO and LAX
- WSDOT Gateway Program has highway projects to improve access





# Capacity Overview: Major Cargo Airports

Airport	Airside Capacity			Landside Capacity		Access Capacity	
	Freight Service	Runways and Taxiways	Cargo Aprons	Freight Buildings	Parking	Roads	Off-site Facilities
SeaTac (SEA)				✘	✘	✘	
Boeing Field (BFI)			✘		✘	✘	
Spokane International Airport (GEG)				✘	✘		

Capacity is not an issue at remaining airports in the state due to limited or specialized freight demand.



# Economic Importance of Washington Airports

- WA airports handled \$47.6 billion in freight in 2015, compared to state GDP of \$452 billion.
- Air cargo value in the state will more than triple to \$174 billion by 2045, an increase of \$126 billion.
  - Source: federal long range forecasts
- The top 4 commodity groups account for 83% of 2015 freight value and 86% of the increment through 2045.
- ➔ Air cargo represents an ever-growing share of the State's economy to which it is already vitally important.



# Economic Importance of Washington Airports

Rank	Commodity (2-SCTG2)	2015		Value Forecast		
		Value (M USD)	% of Total	Value 2045 (\$M)	Incremental Value 2015 to 2045	Growth Rate 2015 - 2045
1	37 Other Transportation Equipment	14,966	31%	36,064	21,098	3.0%
2	35 Electronic Equipment	13,571	29%	55,741	42,170	4.8%
3	34 Machinery	5,952	13%	23,372	17,420	4.7%
4	38 Precision Instruments	4,842	10%	31,958	27,115	6.5%
5	40 Miscellaneous Manufactured Products	1,736	4%	6,183	4,447	4.3%
6	20 Basic Chemicals	1,719	4%	5,637	3,917	4.0%
7	30 Textiles and Leather	714	1%	2,174	1,461	3.8%
8	39 Furniture, Lighting, Signage	438	1%	2,638	2,199	6.2%
9	21 Pharmaceutical Products	413	1%	1,479	1,066	4.3%
10	36 Vehicles and Parts	385	1%	619	233	1.6%
11	23 Other Chemical Products	381	1%	1,333	952	4.3%
12	33 Articles of Base Metal	367	1%	1,128	761	3.8%
13	03 Agricultural Products	340	1%	1,203	863	4.3%
14	14 Metallic Ores and Concentrates	326	1%	58	-268	-5.6%
15	32 Base Metals and Shapes	304	1%	541	237	1.9%
	Other	1,138	2%	3,519	2,381	3.8%
	Total	47,593	100%	173,647	126,053	4.4%

Source: FHWA FAF 4.3



## Costs of Congestion: Road Feeder Service Diversion Scenario

- A 10% shift of demand from SEA to other airports is estimated to increase truck VMT in Washington State by 520,000 to 740,000 per year.
- This increase would generate significant emissions of pollutants and increase the accident risk on highways.
- Having to truck freight to other regional airports would cost shippers from \$760,000 to \$5 million per year.



# Alternative Airports in Scenario

Competing Airport	Distance from Seattle (mi)	Cost/Truck Dray Haul
LAX - Los Angeles	1131	\$1,629
OAK - Oakland	802	\$1,155
ONT - Ontario	1165	\$1,678
PDX - Portland	165	\$238
SFO - San Francisco	810	\$1,166
SLC - Salt Lake City	837	\$1,205



## Air Cargo Supply Chains Particularly Sensitive to Congestion and Unreliability

- High-value supply chains that rely on air cargo place a very high premium on travel times and reliability.
- Shippers value travel time by air **18** times more than travel time by truck.
- Shippers value reliability **142** times more by air than by truck.
- Reliability is the most important reason shippers use air freight service.
- Risks to reliability from air cargo congestion impose a substantial economic penalty.



# State Interest and Role in Air Cargo

How does air cargo fit into the state's broader interest in transportation?





# State Transportation Goals

- Economic Vitality
- Preservation
- Safety
- Mobility
- Environment
- Stewardship



# State Freight Objectives

- Maintaining Washington's competitive position as a global gateway to the nation with intermodal freight corridors serving trade and international and interstate commerce, and the state and national Export Initiatives.
- Supporting farm-to-market, manufacturing, and resource industry sectors in rural economies.
- Developing an urban goods movement system that provides goods delivery to residents and businesses, supports jobs, bolsters the economy, and affords clean air for all.



# Themes Emerging from Stakeholder Advisory Committee

- Economic development
  - Enhance across state
  - What is needed to bring air cargo to eastern WA?
  - Factors that affect capacity and growth
  - What would a cargo airport need to be successful?
- Innovation and efficiency
  - Emerging technologies
  - Evaluate logistical factors
  - Address regulatory hurdles while meeting other goals
- Infrastructure, capacity and congestion
  - Determine infrastructure needs to accommodate growth
  - Decongest transportation system
  - Sustainable growth across all modes
- Implementation
  - Consider workforce issues
  - Template for other areas
  - Jurisdictional collaboration



## For Opportunities and Constraints

- Given the state interest in air cargo, what is its appropriate role?



# Summary

What are key takeaways that will inform opportunities and constraints analysis?



## Key Findings

- Air cargo in the state is primarily generated at Sea-Tac, Boeing Field, and Spokane International.
- Non-hub and small commercial passenger airports account for less than 5 percent of state volume
- Most of the expansion of air cargo within the state has been driven by the increase in international wide-body aircraft passenger service at Sea-Tac and recent growth in e-commerce related express cargo.
- The growth in e-commerce presents opportunities statewide.
- The forecast air cargo growth rate for Washington state is 3.5 percent compounded annually.



## Key Findings

- Sea-Tac is a significant gateway for export and import trade with East Asian countries.
- For most products, Sea-Tac is accommodating Washington state demand but exceptions present opportunities.
- Statewide, airport facilities able to absorb future volume.
- The exception may be Sea-Tac due to the competition between cargo facility and passenger terminal needs on the airport and off-airport congestion and growth.
- Air cargo congestion could create costs for state shippers and impact the environment.