



Minneapolis-St. Paul International Airport

Air Cargo Assessment Summary
Presented by Kevin Hoffmann
October 4, 2021



Agenda

- Overview of Study and Findings
- Glossary of Terms
- Air Cargo Market Overview
- MSP Cargo Forecast
- MSP Capacity Needs and Potential Options
- Study Conclusions

Overview of Study and Findings

Overview of Study

- Goal was to conduct a study that emphasized engagement and market research to understand potential to grow cargo at MSP
- Process included:
 - Completed property assessment of MSP campus
 - Analyzed U.S. and MSP cargo history
 - Conducted more than 25 stakeholder interviews to understand current and future air cargo needs
 - Developed a 20-year cargo forecast for MSP
 - Gap analysis of forecasted air cargo demand to MSP facility needs
 - Identified potential expansion possibilities to meet forecast

Overview of Findings

- Domestic air cargo market is mature and well-served at MSP
- Existing Amazon facility is not sufficient to accommodate Landrum & Brown's projected Amazon growth, representing potential facility development opportunity
- International air cargo market growth is limited (more opportunity for belly)
 - All international MSP air cargo is served via belly
 - Biggest untapped belly opportunity would be through MSP securing regular year-round passenger service to Germany
 - Growth in scheduled freighter service or all-cargo operators unlikely:
 - MSP region is neither a heavy importer or exporter of international goods
 - ORD is accommodating most existing/future demand
 - Regional effort to establish MSP as U.S. cargo hub, comparable to Liege in Europe, not supported by data or analysis

Glossary of Terms

Glossary of Terms

Belly Cargo or Belly

- Cargo that is transported in the belly of passenger aircraft (i.e. Delta)

All-cargo or Freighters

- Cargo that is transported in cargo-specific aircraft that do not carry passengers (i.e. FedEx, UPS, DHL, Amazon)

Air Cargo Hub

- Airport that accommodates hub operations by FedEx, UPS, DHL, or Amazon.

International Gateway or Gateway

- Airport that accommodates large passenger airline operations and is not an air cargo hub.

Air Cargo Market Overview & History

MSP Ranks in Top 30 U.S. Air Cargo Airports

- Nearly all airports in Top 30 are:
 - An air cargo hub (4 FedEx, 5 UPS, 5 Amazon, 1 DHL, 1 transpacific tech stop)
 - International gateway airport, and/or Passenger Airline hub
 - All triple digit growth airports added a cargo hub except Tampa
- MSP ranked 29th in 2020 vs. 24th in 2010
 - MSP is one of only 4 in the top thirty U.S. cargo airports with a net decrease between 2010 and 2020
- MSP established as a passenger airline hub
 - MSP is a mature business community less focused today on manufacturing

ACI Rank	Airport Code	2010	2020	% Growth	Cargo Function
1	Memphis (MEM)	3,916,811	4,613,380	18%	FedEx Hub
2	Anchorage (ANC)	2,646,695	3,157,684	19%	Transpacific Tech Stop
3	Louisville (SDF)	2,166,656	2,917,243	35%	UPS Hub
4	Los Angeles (LAX)	1,747,629	2,234,532	28%	Gateway
5	Miami (MIA)	1,835,797	2,137,699	16%	Gateway
6	Chicago (ORD)	1,376,552	2,003,342	46%	Gateway
7	Cincinnati (CVG)	371,297	1,300,758	250%	DHL/Amazon Hub
8	Indianapolis (IND)	1,012,589	1,101,478	9%	FedEx Hub
9	New York (JFK)	1,344,126	1,088,230	-19%	Gateway
10	Ontario (ONT)	355,932	843,832	137%	UPS Hub/Amazon Hub
11	Dallas/Ft. Worth (DFW)	645,426	790,229	22%	UPS Hub
12	Newark (EWR)	855,594	667,230	-22%	FedEx Hub
13	Atlanta (ATL)	659,129	599,184	-9%	Gateway
14	Oakland (OAK)	510,947	578,866	13%	FedEx Hub
15	Philadelphia (PHL)	419,702	565,915	35%	UPS Hub
16	Honolulu (HNL)	440,733	457,695	4%	Gateway
17	Seattle (SEA)	283,425	455,214	61%	Gateway
18	Houston (IAH)	423,483	446,271	5%	Gateway
19	San Francisco (SFO)	426,725	438,788	3%	Gateway
20	Phoenix (PHX)	250,704	380,729	52%	Gateway
21	Rockford (RFD)	377,745	377,745	52%	UPS Hub/Amazon Hub
22	Portland (PDX)	190,117	304,315	60%	Gateway
23	Denver (DEN)	251,777	299,817	19%	Gateway
24	Boston (BOS)	259,539	271,115	4%	Gateway
25	Baltimore (BWI)	102,362	269,784	164%	Amazon Hub
26	Fort Worth (AFW)	126,577	253,256	100%	Amazon Hub
27	Tampa (TPA)	87,882	230,757	163%	Gateway
28	Salt Lake City (SLC)	145,412	214,928	48%	Gateway
29	Minneapolis (MSP)	211,691	203,697	-4%	Gateway
30	Orlando (MCO)	135,895	202,416	49%	Gateway
34	Detroit (DTW)	193,344	171,171	-11%	Gateway

MSP Ranks 8th Relative to Midwest Region Airports

Midwest Region Airports

RANK	CITY	CODE	2020 METRIC TONNES	CARGO FUNCTION
1	Memphis	MEM	4,613,380	FedEx Hub
2	Louisville	SDF	2,917,243	UPS Hub
3	Chicago	ORD	2,003,342	Gateway
4	Cincinnati	CVG	1,300,758	DHL/Amazon Hub
5	Indianapolis	IND	1,101,478	FedEx Hub
6	Philadelphia	PHL	565,915	UPS Hub
7	Rockford	RFD	377,745	UPS Hub
8	Minneapolis-St. Paul	MSP	203,697	Gateway
9	Detroit	DTW	171,114	Gateway
10	Columbus	LCK	119,985	Gateway

- Chicago (ORD) is the only gateway airport larger than MSP in Midwest region
- All Midwest airports ranked higher than MSP are air cargo hubs for a major cargo carrier

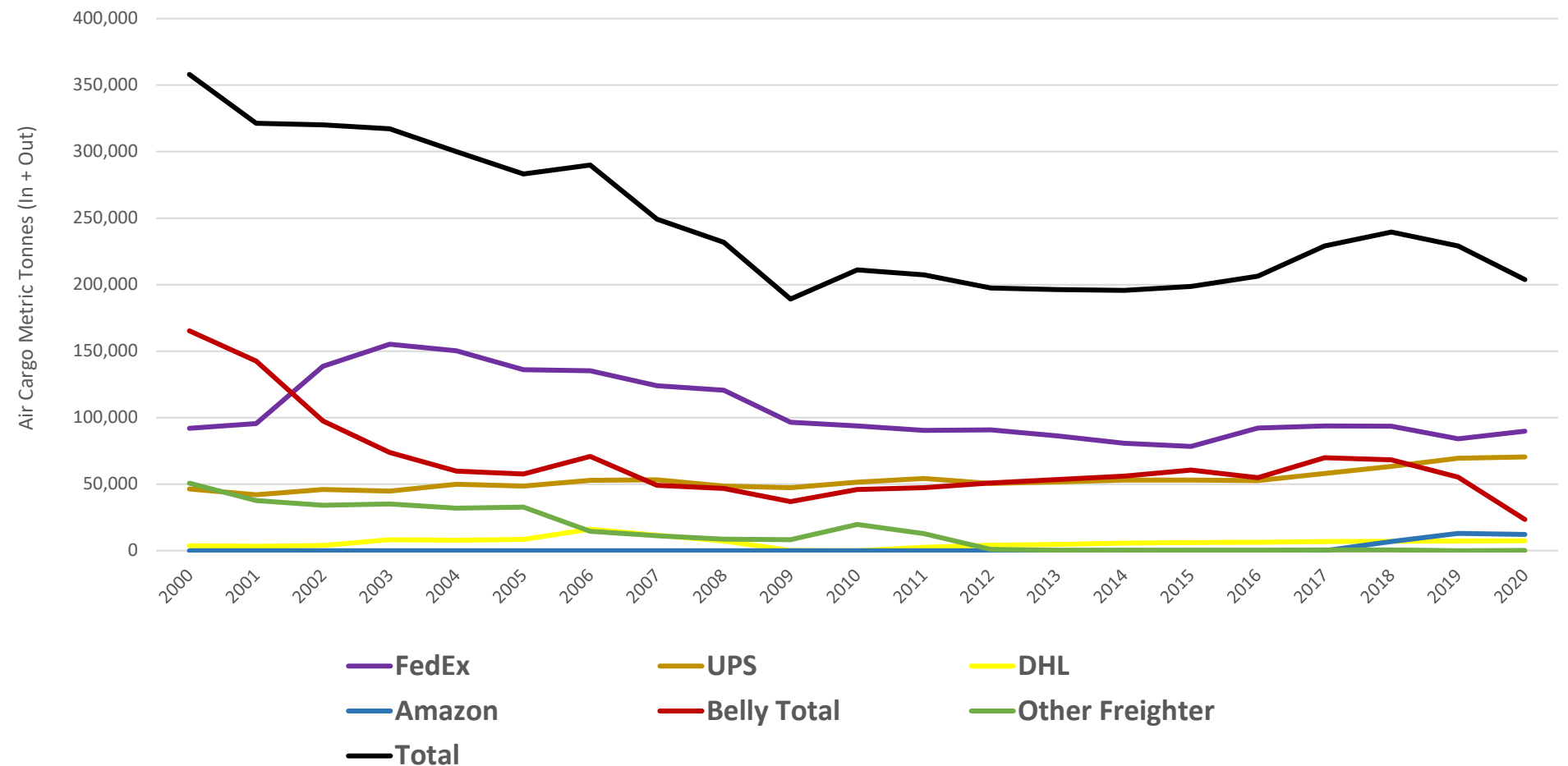
MSP Air Cargo Volume Has Decreased Since 2000

- Belly cargo declines due to:
 - NW cargo de-emphasis and financial struggles
 - NW belly cargo with acquisition by Delta
- FedEx increased from 2001-2003 (mail shift from NW), then declined with less demand for mail
- Other Freighters declined due to loss of Emery and Airborne

On the contrary...

- UPS shows consistent growth
- Amazon is new and growing

MSP Total Cargo Tonnage 2000-2020



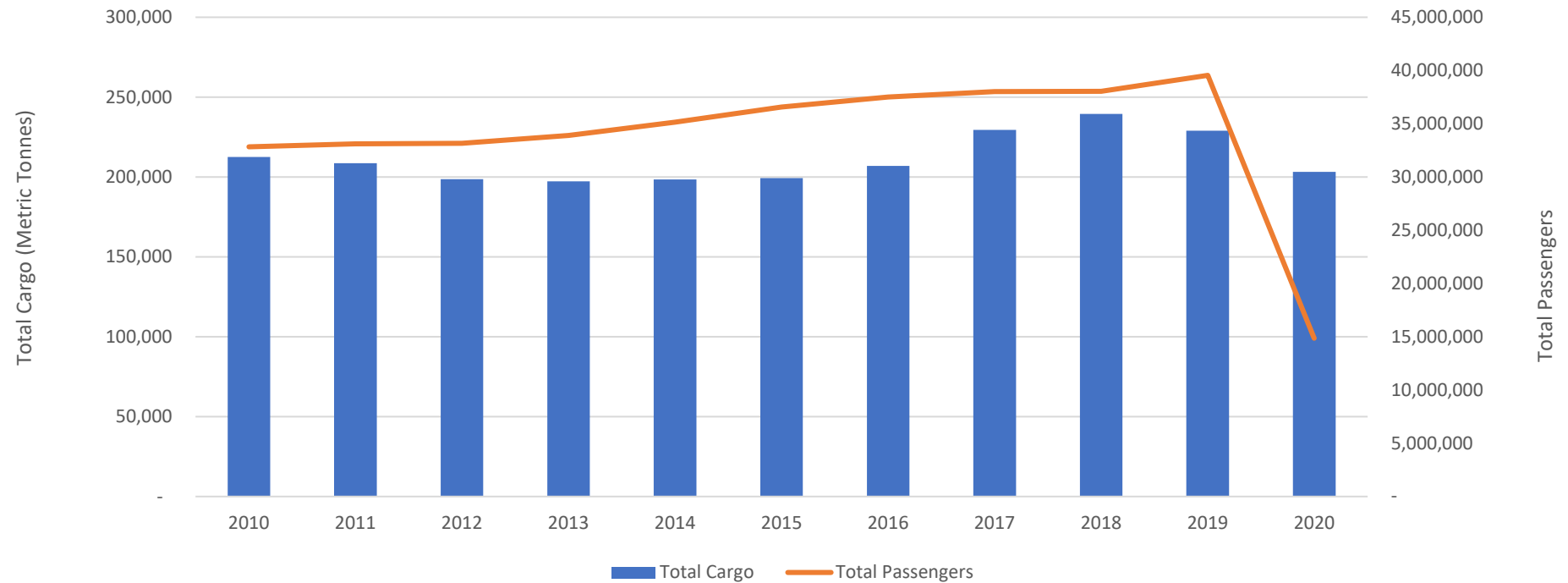
Source: MSP airport data with analysis by L&B, Inc.

Similarities and Consistency in Cargo Trends

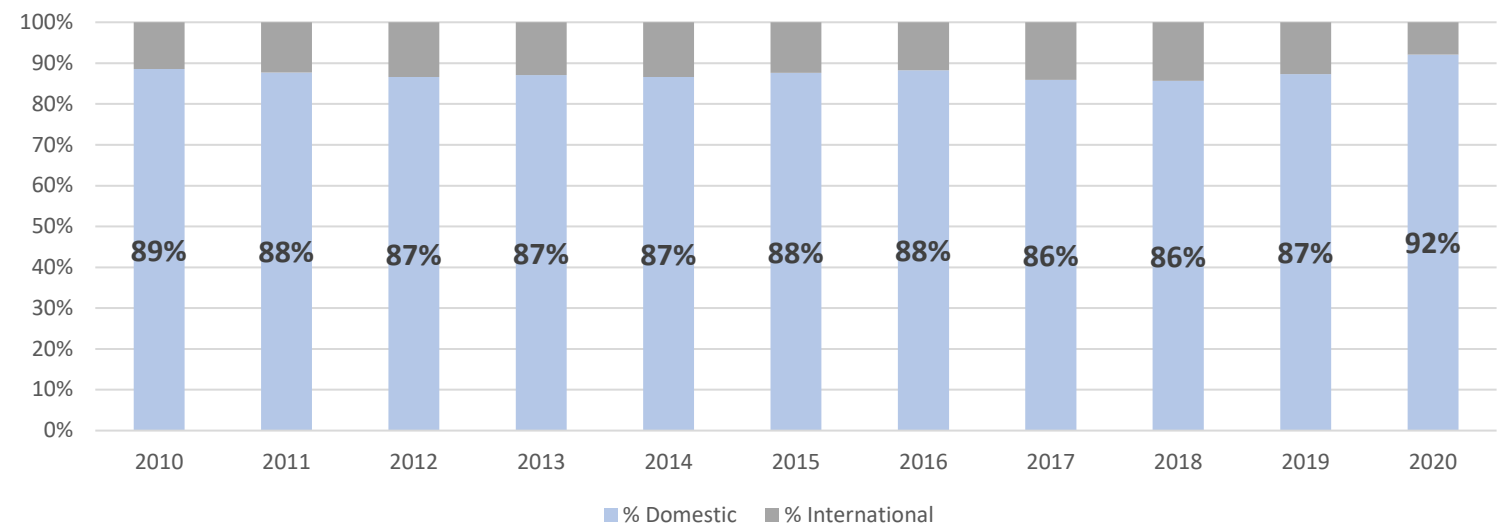
– MSP cargo trend similar to passenger trend except for 2019

– Domestic/international cargo split steady until 2020


Total Cargo and Total Passengers for MSP for Period 2010 - 2020



MSP Air Cargo Tonnage Shares by Domestic/International



MSP Air Cargo Five-Year Volume Trends

Year	FedEx	UPS	Amazon	DHL	Belly	Others	Total
2016	92,761	52,673	0	6,260	54,822	419	206,935
2017	94,177	57,933	0	6,941	69,874	494	229,419
2018	93,524	63,326	 6,805	7,037	68,280	571	239,544
2019	84,066	69,502	12,932	7,213	55,298	15	229,026
2020	89,793	70,567	12,217	7,531	23,466	125	203,697
CAGR 2016 - 2020	-0.8%	7.6%	N/A	4.7%	-19.1%	-26.1%	-0.4%
YTD 2021 % Change*	4.4%	16.9%	77.6%	-12.3%	-7.6%	-97.1%	11.3%

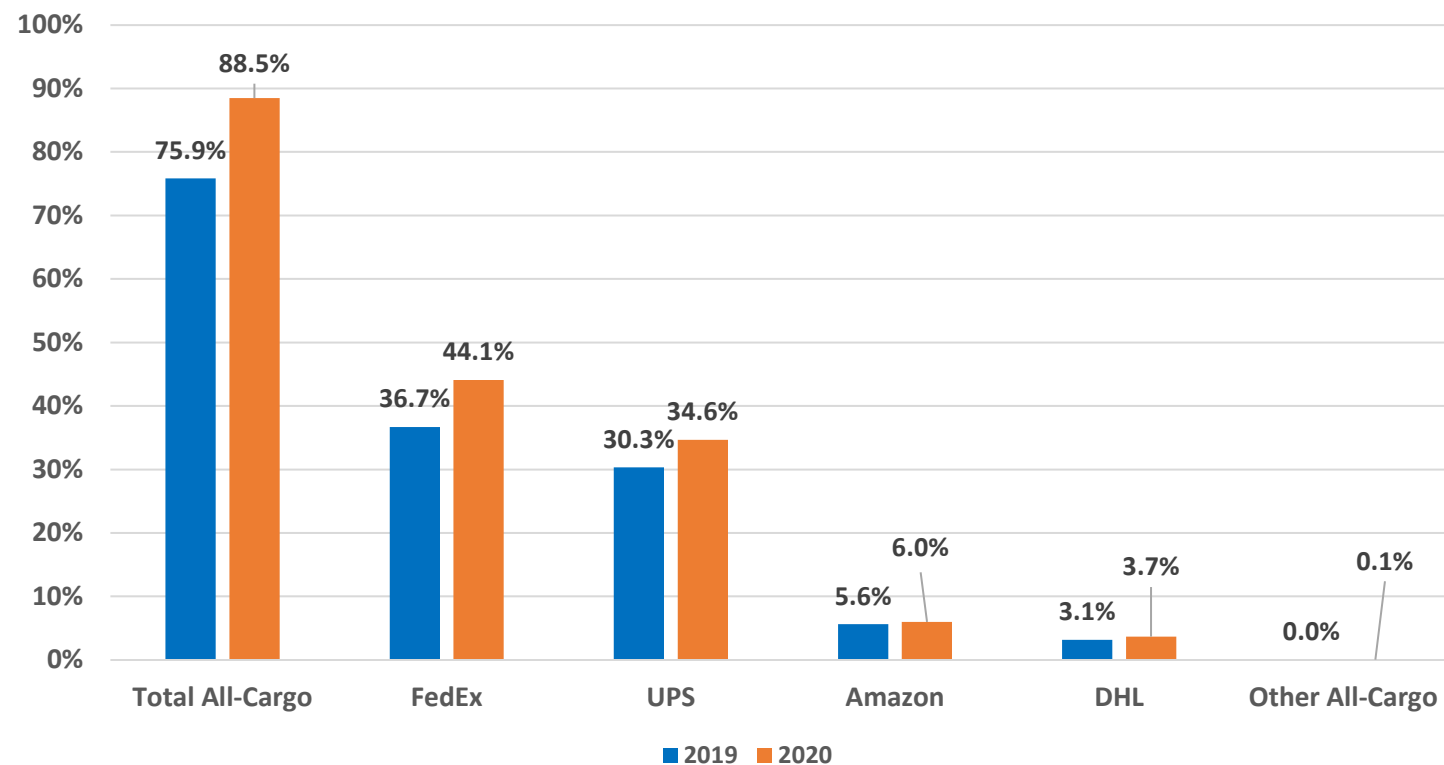
- Steady growth in all segments through 2018
- Amazon enters market in 2018
- Tariffs and trade tension drive reduction in 2019
- Pandemic severely impacted belly segment in 2020
- Solid YTD growth in major segments for 2021 (+11.3% overall)

Source: MSP Operations Report with CAGR analysis by L&B, Inc. *Thru July 2021

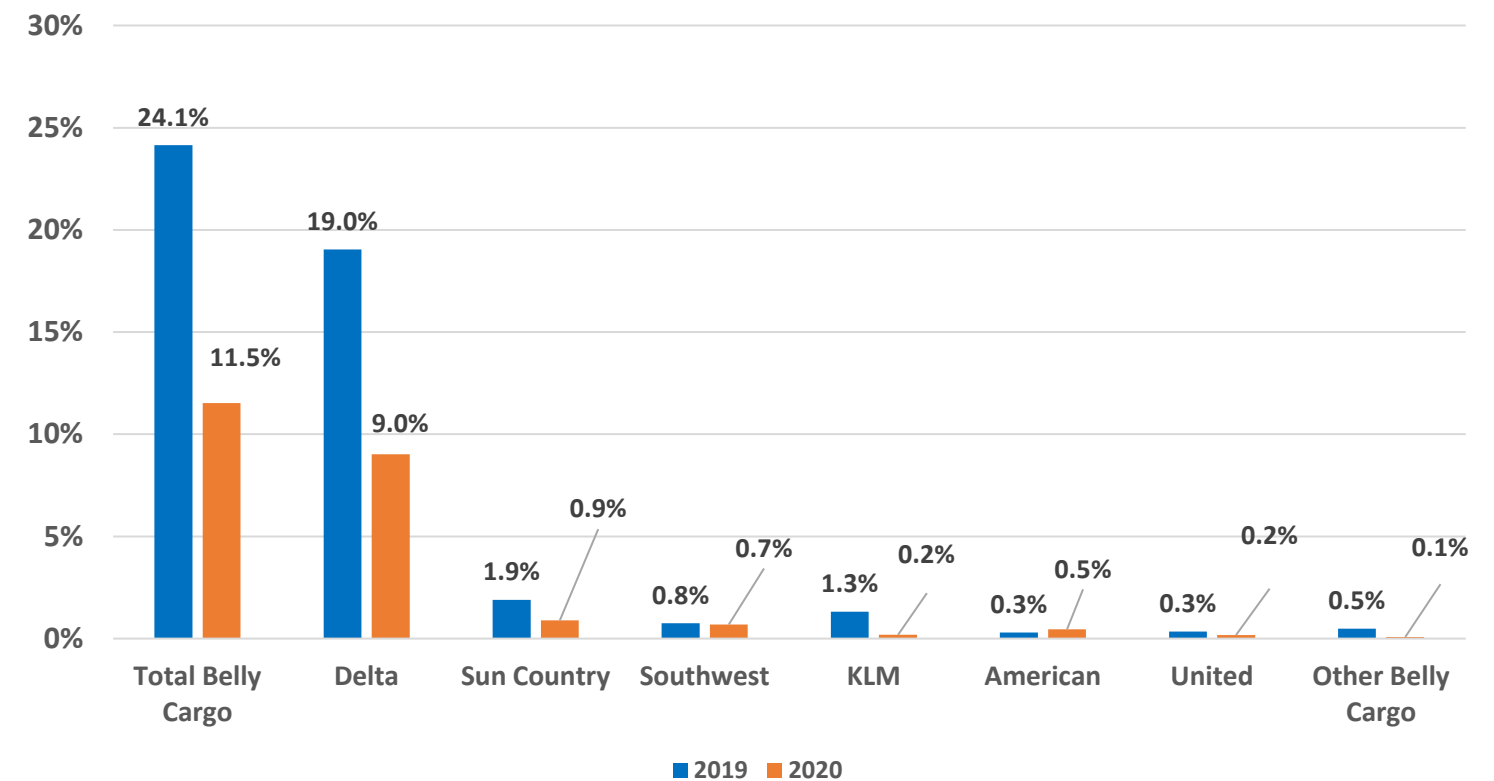
MSP Belly Cargo Shrank During Pandemic

- All-Cargo carriers activity (dedicated freighters) gained share while passenger airlines activity (belly cargo) shrank in 2020 due to pandemic
- All-Cargo carriers share increased to 88.5% in 2020
- FedEx, UPS, Delta are MSP's largest air cargo carriers
- Delta remained the largest belly cargo airline with nearly 80% of all belly cargo

2019 - 2020 All-Cargo Market Share Comparison



2019 - 2020 Belly Cargo Market Share Comparison



Air Cargo at MSP Relative to Top 10 Delta Airports

2019 Top 10 Delta Airports – Pax & Cargo Rank

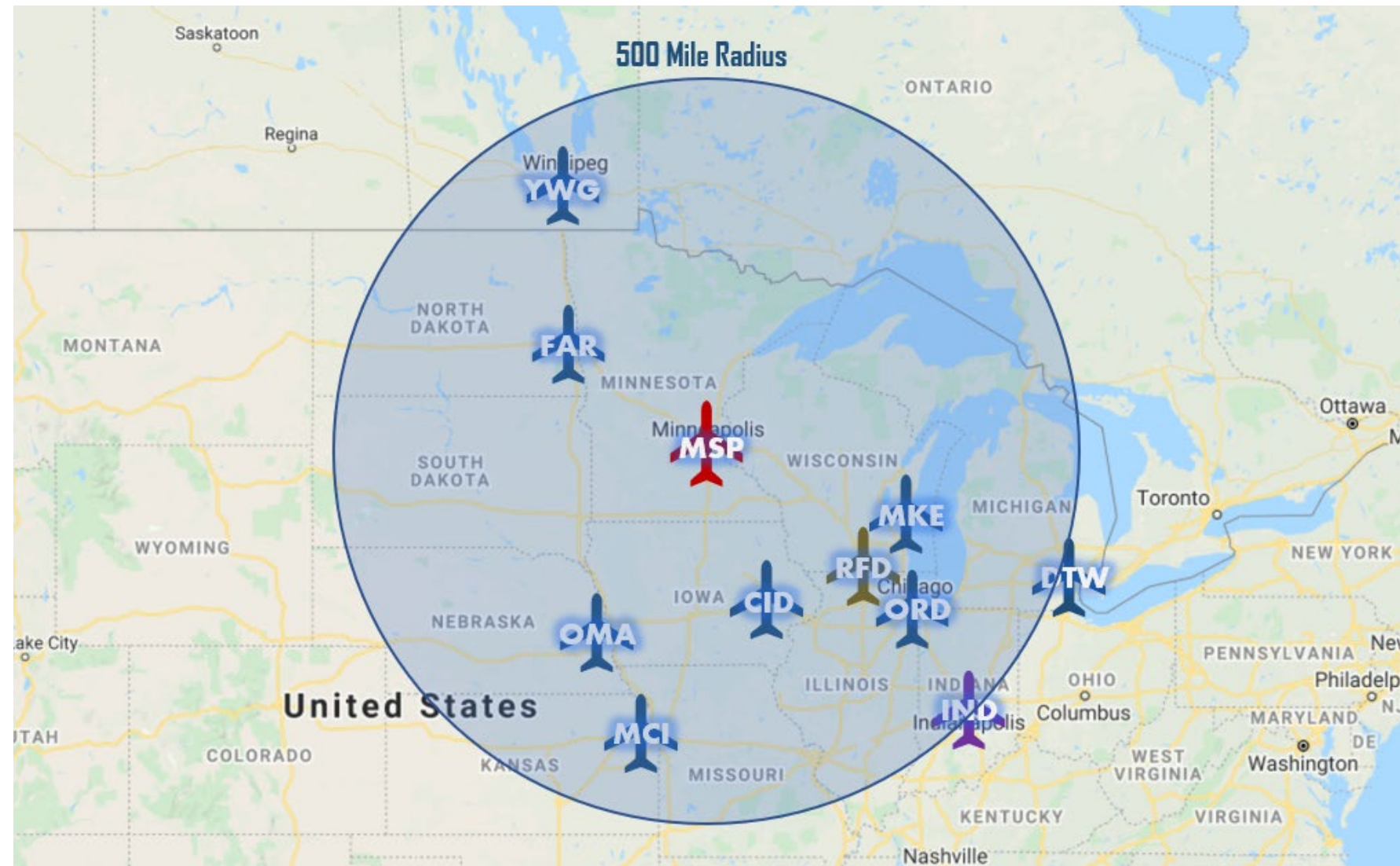
CARGO RANK	PAX RANK	CODE	DELTA METRIC TONNES	TOTAL METRIC TONNES
1	1	ATL	173,718	599,184
2	5	JFK	113,802	1,088,230
3	6	LAX	80,490	2,234,532
4	3	DTW	75,112	171,114
5	2	MSP	49,163	229,026
6	8	SEA	30,790	455,214
7	9	BOS	20,616	271,115
8	4	SLC	20,244	214,928
10	10	MCO	6,180	220,036
15	7	LGA	3,268	9,515

Sources: U.S. DOT Schedule T100 data with analysis by L&B, Inc.

- MSP second largest Delta passenger airport, but 5th largest air cargo airport
- Other Delta airports with bigger cargo volume are international gateways
- MSP opportunity for international belly cargo with more international markets



International Air Cargo for MSP Is Impacted by Chicago (ORD)



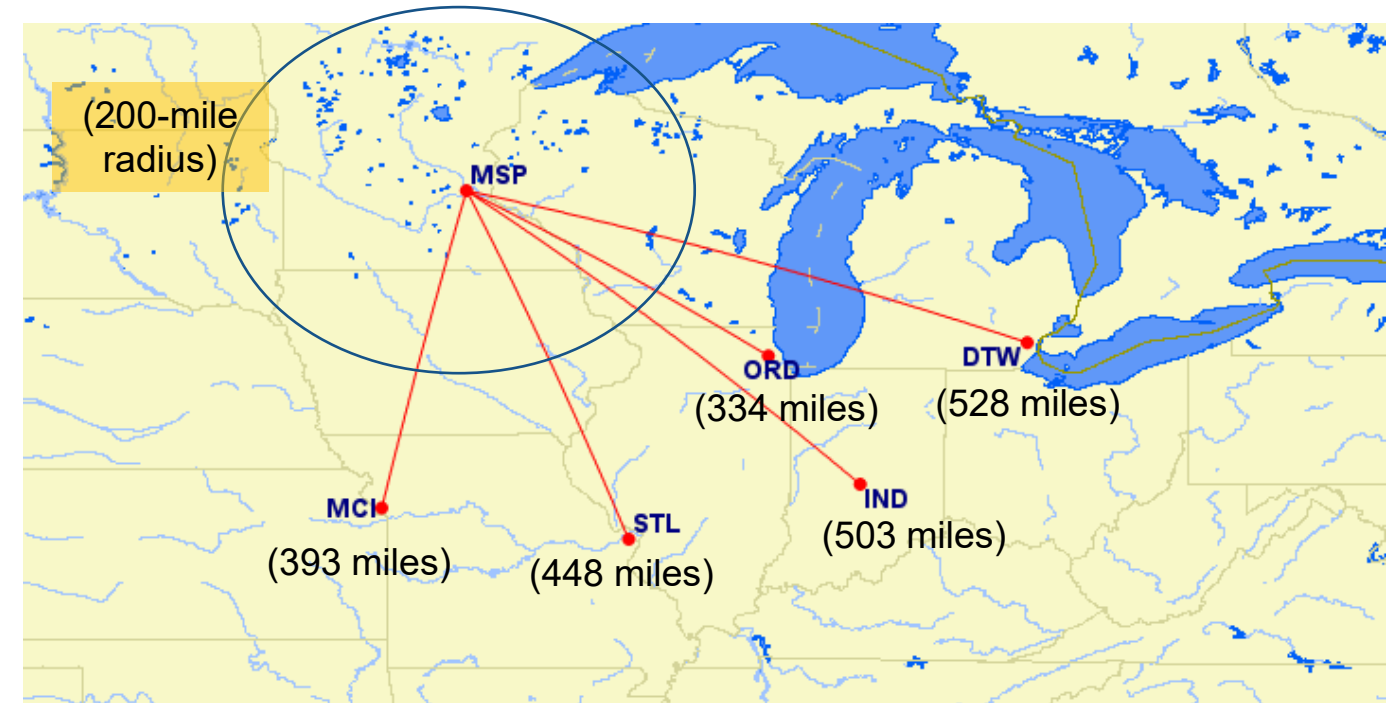
- MSP resides within existing air cargo catchment for Chicago via ORD
- ORD provides:
 - Large mix of widebody passenger and dedicated widebody freighter aircraft
 - Availability of competitive options creates economies of scale to keep rates low
 - Relatively inexpensive to truck freight from MSP catchment area to ORD
- Less significant but still notable air cargo alternatives in MSP catchment:
 - UPS regional hub (RFD – Rockford)
 - FedEx regional hub (IND – Indianapolis)

Air Cargo Dynamics at Liege (LGG) and MSP Are Different



Liege

- Liege is located within the logistics “golden triangle” – an area between Amsterdam, Frankfurt, Paris (each less than 175 miles from Liege), in addition to other large cities nearby
- Infrastructure supports nearly 70% of all European transport running through the golden triangle area
- Liege has been an international cargo hub since the 1990’s



MSP

- The closest large city to MSP is Chicago, 330+ air miles. Kansas City, St. Louis, Indianapolis and Detroit all 390+ miles from MSP
- MSP cargo is primarily O&D, with geography disadvantage to ORD, which accommodates significant transfer cargo
- MSP is a large passenger hub with limited vacant real estate; ORD has been a freighter hub since the 1960’s

International Belly Cargo Opportunity: Germany

- Three of five top import/export countries currently have non-stop passenger service
 - Netherlands, United Kingdom, Canada (and South Korea is expected to return soon)
- Germany does not have year-round non-stop service but is MSP's largest air-import partner and 4th largest air-export partner



2020 MSP Air Imports by Country

Port	Air Total Imports SWT (kg)	Air Total Imports Value (\$US)
Germany	1,043,147	\$72,069,053
Netherlands	453,971	\$10,770,509
United Kingdom	382,319	\$32,887,100
South Korea	330,005	\$10,556,826
Denmark	304,168	\$9,749,011
Japan	285,217	\$25,486,885
Taiwan	268,357	\$28,035,539
China	253,872	\$18,602,370
Italy	229,300	\$18,644,642
France	147,791	\$14,764,057



2020 MSP Air Exports by Country

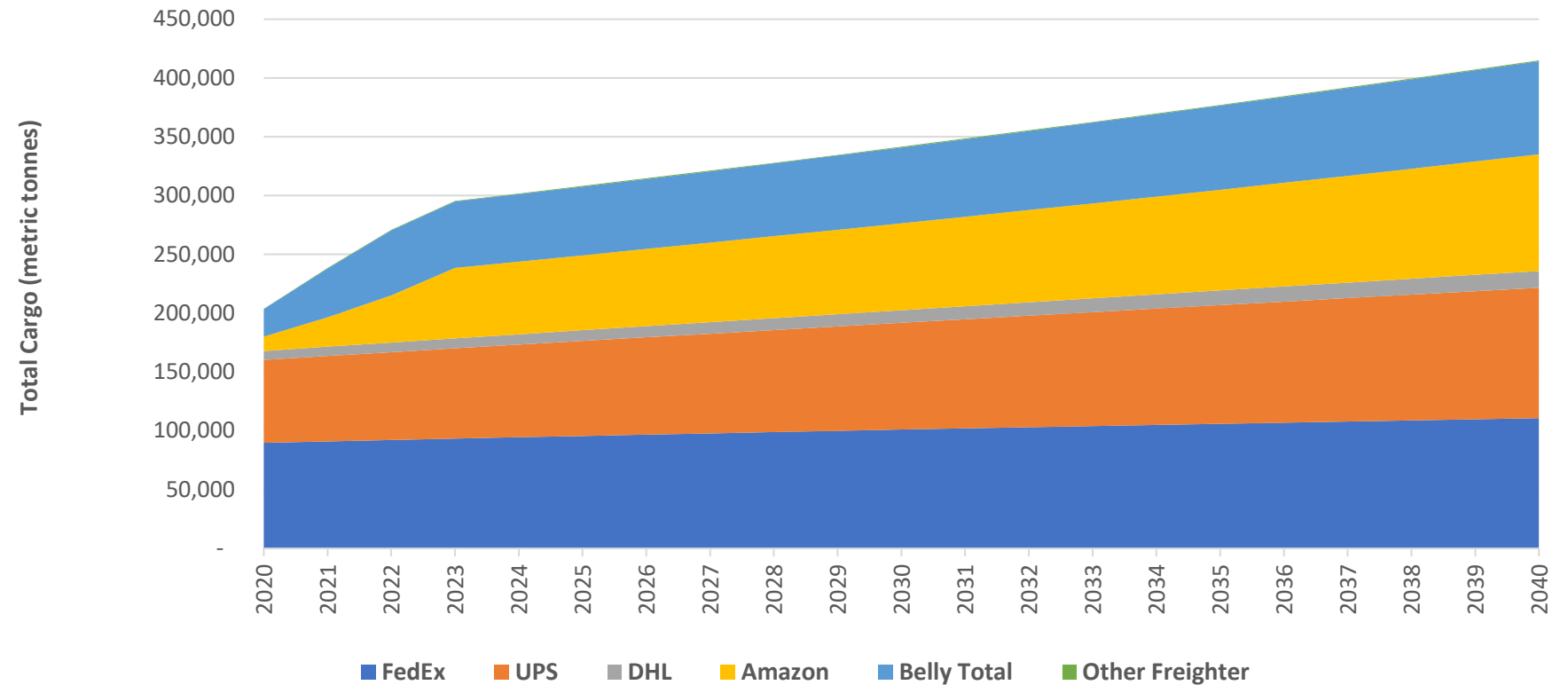
Port	Air Total Exports SWT (kg)	Air Total Exports Value (\$US)
Canada	1,730,462	\$163,999,693
Netherlands	579,924	\$52,721,888
United Kingdom	471,971	\$47,293,816
Germany	347,951	\$40,908,624
South Korea	331,389	\$28,314,197
Hong Kong	297,187	\$4,091,107
Japan	231,648	\$50,856,852
China	206,965	\$13,621,604
France	189,631	\$26,937,122
Belgium	188,351	\$15,517,901



MSP Air Cargo Forecast

L&B MSP Air Cargo 20-Year Forecast (2040)

- **Total cargo forecast to be 415,000 metric tonnes in 2040 (+3.6% CAGR)**
- **Freighter tonnage to remain the largest share at ~81%**
 - 1.1% 20-year CAGR forecast for FedEx
 - 2.3% 20-year CAGR forecast for UPS
 - 3.2% 20-year CAGR forecast for DHL
- **Amazon growth potential:**
 - 11.0% 20-year CAGR forecast
- **Belly cargo expected to recover with passenger service and then grow similarly**



Year	FedEx	UPS	Amazon	DHL	Belly	Others	Total
2020	89,793	70,567	12,217	7,531	23,466	125	203,697
2025	95,700	80,700	63,700	9,200	58,400	500	308,200
2030	101,000	90,800	73,800	10,800	64,500	600	341,500
2035	106,000	100,900	85,500	12,500	71,500	700	377,200
2040	110,700	111,000	99,200	14,200	79,200	700	415,000
CAGR	1.1%	2.3%	11.0%	3.2%	6.3%	9.0%	3.6%

Source: Analysis by L&B, Inc. using MSP Operations Report

MSP Capacity Needs and Potential Options

Existing Facility Summary and Forecast Needs

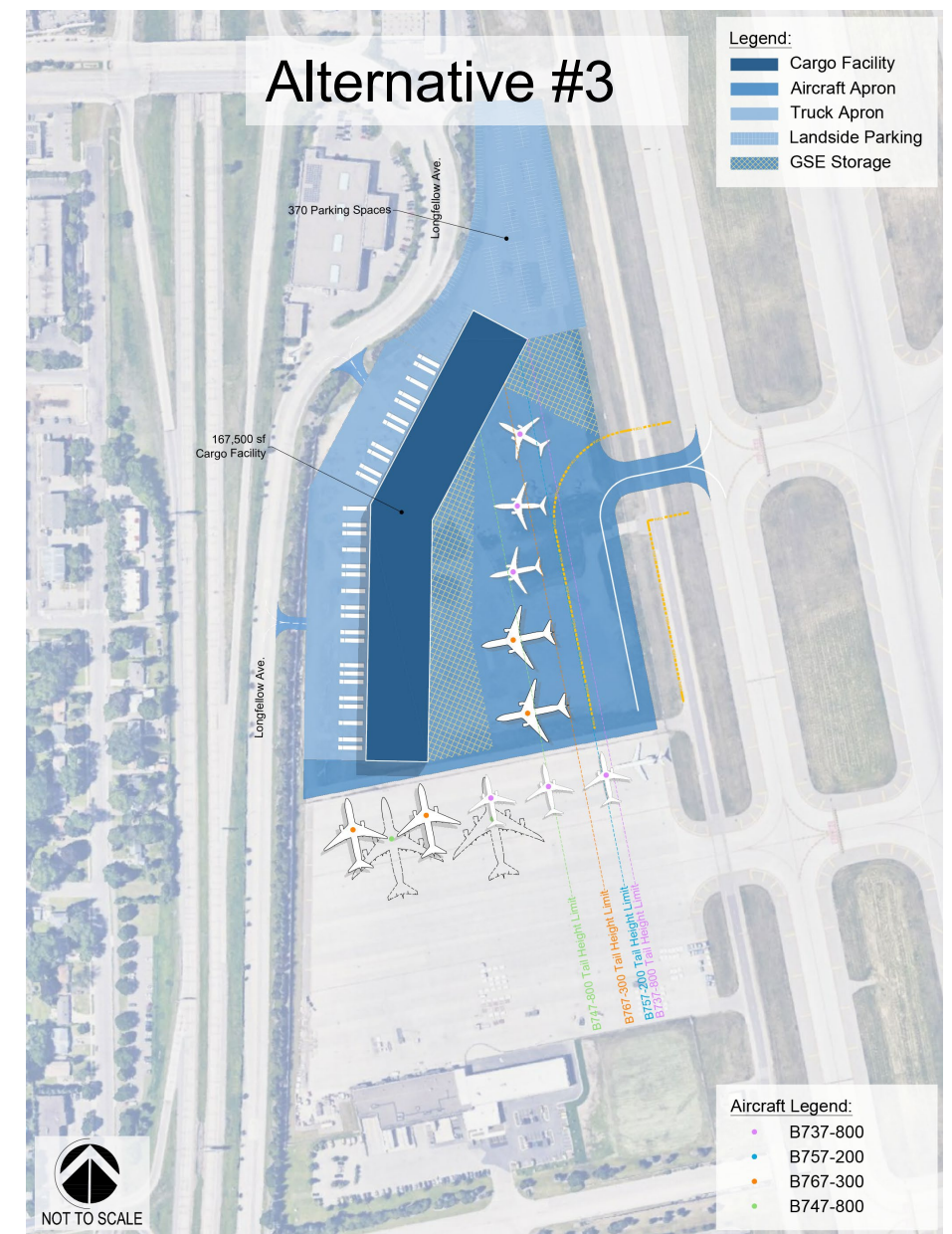
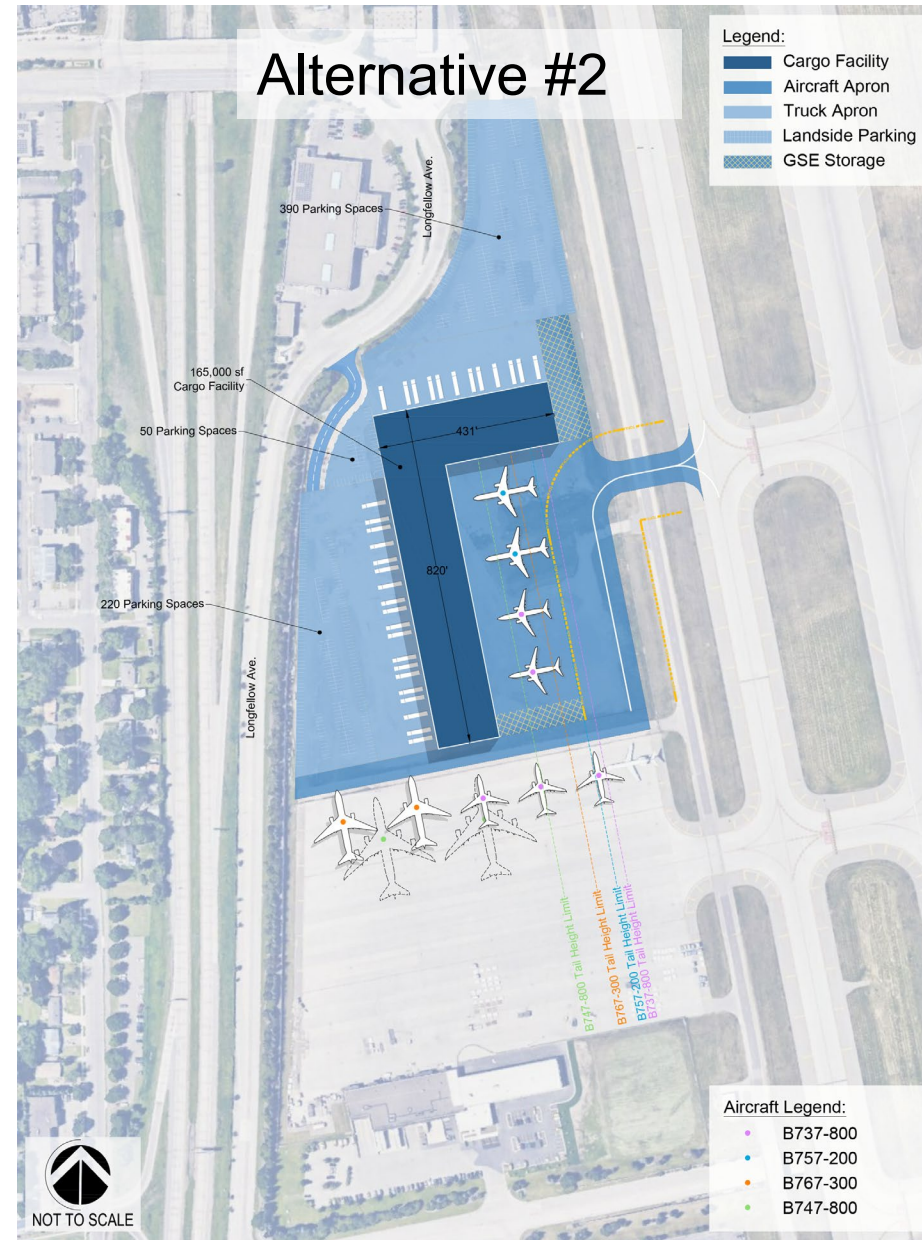


Facility	2020 MTs	2040 MT Forecast	Theoretical Building Capacity (MTs)	2020 Building SF	Projected 2040 Building SF Needed
FedEx	89,793	110,700	304,500	203,000	84,900
UPS	70,567	111,000	100,500	67,000	85,100
DHL/Amazon	7,531	14,200	46,427	43,418	16,300
Amazon	12,217	99,200	-	3,009	114,100
Delta	18,365	63,400	79,575	106,100	97,100
Air Cargo Center	3,387	10,200	70,489	93,986	16,000
Sun Country HDQ	1,837	6,300	4,624	6,165	6,165
TOTAL	203,697	415,000	606,115	522,678	419,665

Facility	2020 Freighter Parking	2040 Freighter Parking
FedEx	6	6
UPS	5 (+16 Small Feeder)	6
DHL	3	3
Amazon	2	4

- MSP cargo facilities have an estimated 522,678 SF of building space and 16 aircraft parking positions in 2020
- Legacy tenants have sufficient building and aircraft parking capacity for 20-year forecast of 415,000 metric tonnes (total existing capacity = 606,115 metric tonnes) *{UPS can expand existing facilities if improved efficiencies are not achieved}
- Based on Landrum & Brown projections, existing Amazon facility is not sufficient to accommodate projected Amazon growth

Potential Cargo Development Alternatives



– Each development alternative provides 100,000+ SF of building space and at least seven aircraft parking positions, which meet 2030 and 2040 requirements

All analysis and projections provided by L&B, Inc.

Study Conclusions

Study Conclusions

- Solid air cargo growth of 3.6% CAGR projected for MSP through 2040
- Existing Amazon facility is not sufficient to accommodate projected Amazon growth, representing an opportunity to consider facility development
- Each all-cargo operator should have adequate facility capacity to accommodate operations through 2040 with no development needed or with small improvements or expansion on existing leasehold area.
- International cargo opportunity exists primarily via international belly cargo → greatest potential via new international widebody scheduled passenger service to Germany

Thank you

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