MSP Airport Long Term Plan Stakeholder Advisory Panel

Meeting #3
January 30, 2020

Meeting Agenda

- Welcome
- Introductions
- Recap Experience MSP Public Event
- Public Survey Results
- MSP’s ASQ Survey Rankings
- MSP Airport Long-Term Plan Update
- Public Comment

EXPERIENCE msp

Exhibits

- MSP Airport Foundation
- Northwest Airlines History Center
- MSP Airport Winter Operations
- History of MSP Airport
- Community Relations
- Taste of MSP
- Kid’s Zone
- MAC
- MnDOT

EXPERIENCE msp

During this event, attendees:

- Learned about the MSP Long-Term Plan
- Discussed future airport usage projections
- Completed a short survey
- Spoke with MAC staff and exhibitors
- Enjoyed Kid Zone activities and Taste of MSP hosted by an airport restaurant

- 60 attendees
- What we heard:
  - Questions about future planning at MAC's reliever airports
  - The projected number of domestic/international flights, cargo flights and how the airfield is big enough to handle future projections
  - Questions about airport security/safety
  - Changes to security screening for passengers?

Experience MSP

The public is invited to the next Experience MSP event

April 9, 2020

Crowne Plaza Aire in Bloomington

Show up any time between 4 and 8 PM for MSP tastes, interactive booths and knowledgeable resources in a welcoming setting.

Presentation on the MSP Long-Term Plan will begin at 6:00 PM.

This event is the second in a four-part series where the public will receive updates on the Long-Term Plan and be given a platform to ask questions and provide feedback.

Please join us!

Public Survey Results

- Gain a greater understanding of traveler and community attitudes, perceptions and airport issues
- Encourage people to sign up to the LTP distribution list
- Understand preferred news sources for advertising future Experience MSP events
- Find examples of preferred airports and what makes them stand out to the general public
- Generate ideas and suggestions for airport improvements

Polco Survey #2 Results

- 9 Questions
- Open for 4 weeks beginning September 24, 2019
- Distributed through:
  - MSP newsletter to over 700 individuals subscribed to the MSP Long-Term Plan topic
  - MAC News newsletters
  - Postcard mailing to over 8,000 residents
  - Experience MSP public event
  - Emailed to the MAC Commission, Stakeholder Advisory Panel, and MSP Noise Oversight Committee
- 456 people participated

What is your favorite airport and why?

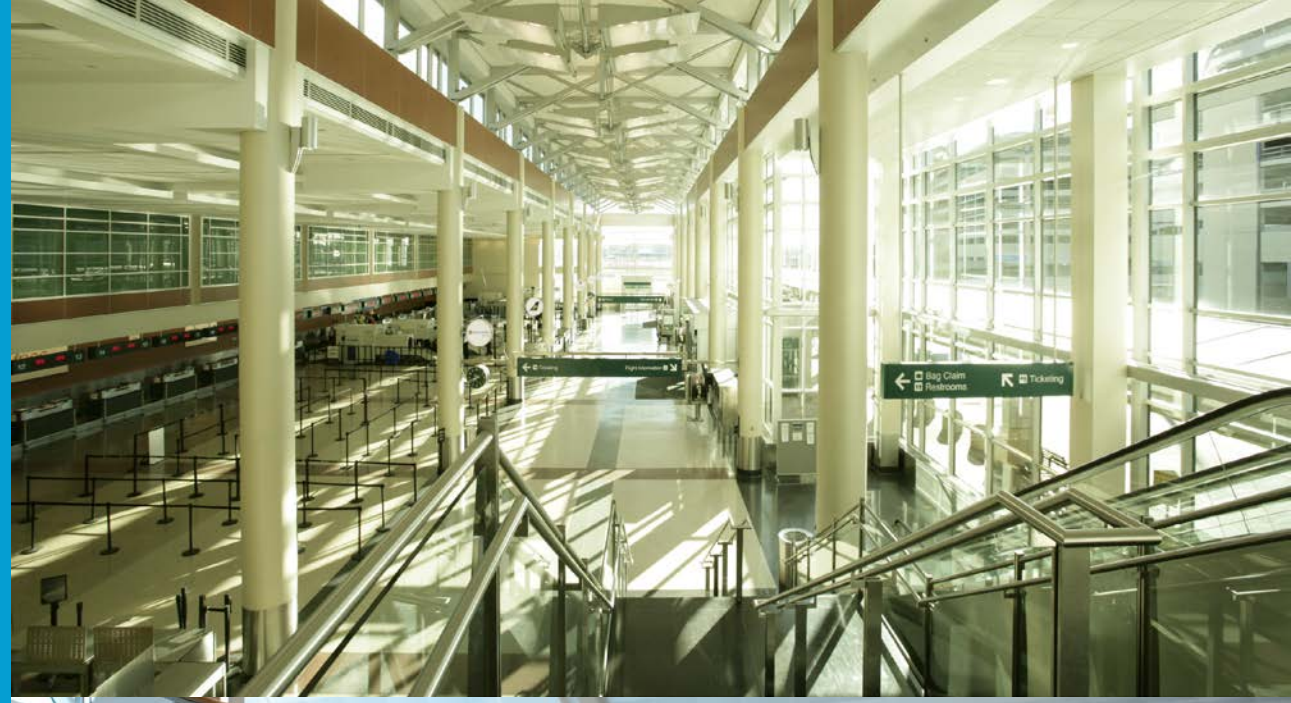
MSP Airport	**46%**
Other Airports	**54%**

95 other airports listed, including:

Detroit	3.7%
Denver	3.3%
DFW	2.0%
Las Vegas	2.0%
Amsterdam	1.8%
Phoenix	1.8%
Chicago O'Hare	1.5%
Singapore	1.3%
Atlanta	1.0%

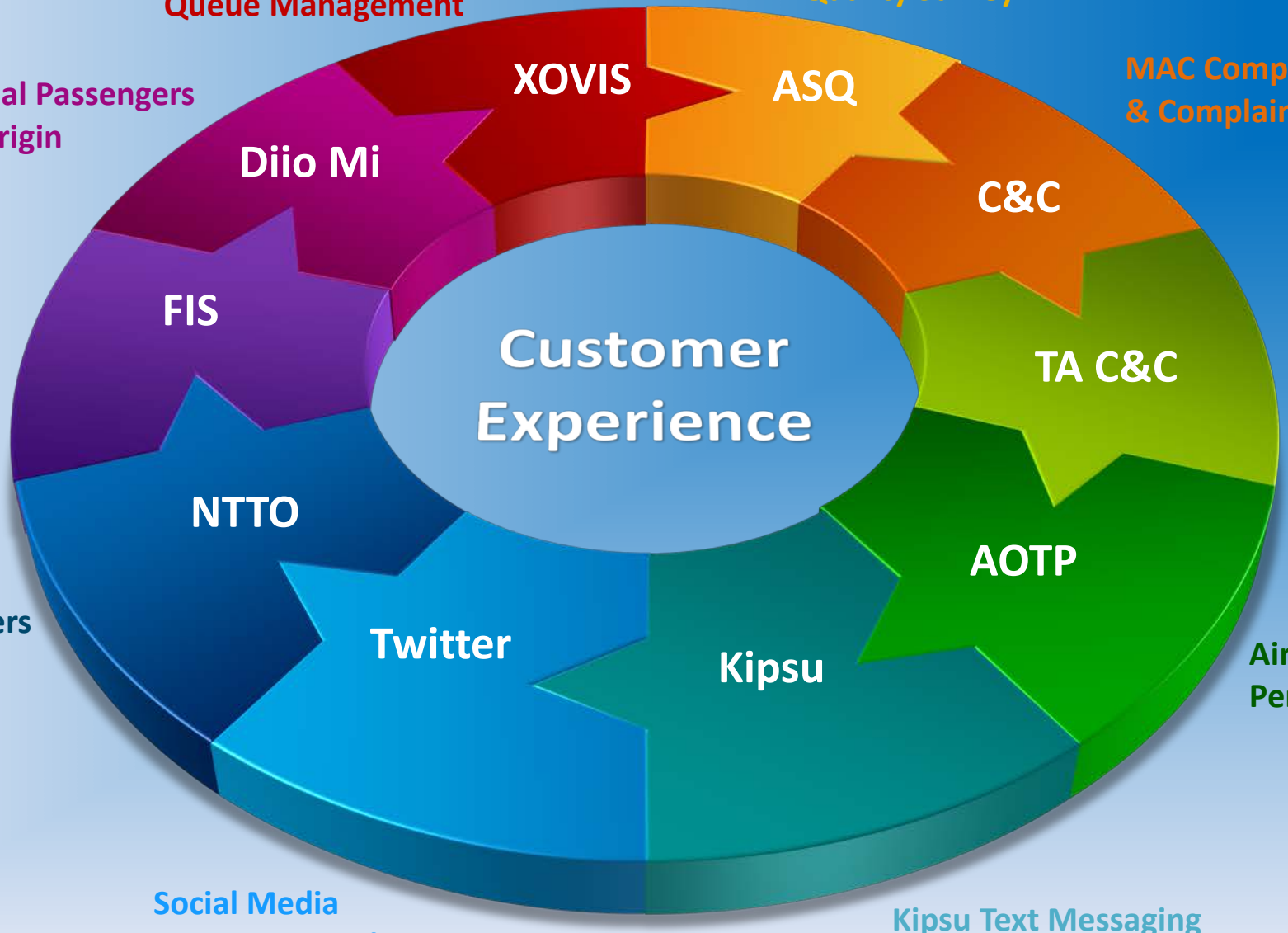
Of the following, what could be improved?

Curbside access	38%
Ticketing/Check-in	30%
Experience at your gate	29%
Safety and security	27%
Variety of flight options	26%
Baggage claim	25%



AIRPORT SERVICE QUALITY (ASQ)

Steve Gentry
Customer Research Analyst
CUSTOMER DATA AND ANALYTICS
METROPOLITAN AIRPORTS COMMISSION



Security Checkpoint Queue Management

Airport Service Quality Survey

International Passengers Points of Origin

MAC Compliments & Complaints

CBP Document Check Wait Times

Travelers Assistance Compliments & Complaints

International Passengers Departure Survey

Airport On-Time Performance

Social Media Sentiment Analysis

Kipsu Text Messaging

International Passengers Points of Origin

MAC Compliments & Complaints

CBP Document Check Wait Times

Travelers Assistance Compliments & Complaints

International Passengers Departure Survey

Airport On-Time Performance

Social Media Sentiment Analysis

Kipsu Text Messaging

- Airport Service Quality (ASQ) is the world's leading airport customer satisfaction benchmark survey. The program is owned and managed by Airports Council International.
- 346 airports in more than 50 countries use ASQ to survey their passengers each month.
- Participating airports receive results from all other participating airports allowing it to identify best practice and measure its own performance.

Best Airport in North America

25-40 million passengers

Internal Performance Metrics

MSP most current year compared to previous year.

2018 *compared to* ***2017***

HOW MSP USES ASQ DATA

External Performance Metrics

MSP current performance compared to our panel of airports.

2018 MSP ASQ AIRPORT PANEL

What does ASQ measure?

Essentially the customer journey from arriving at the airport to their departure gate

ACCESS

- Ground transportation to / from the airport
- Parking facilities
- Parking facilities value for money
- Availability of baggage carts / trolleys

AIRLINE CHECK-IN

- Waiting time in check-in queue / line
- Efficiency of check-in staff
- Courtesy, helpfulness of check-in staff

SECURITY

- Courtesy and helpfulness of Security staff
- Thoroughness of Security inspection
- Waiting time at Security inspection
- Feeling of being safe and secure

FINDING YOUR WAY

- Ease of finding your way through airport
- Flight information screens
- Walking distance inside the terminal
- Ease of making connections with other flights

FOOD & BEVERAGE / SHOPPING

- Restaurant / Eating facilities
- Restaurant facilities value for money
- Shopping facilities
- Shopping facilities value for money

AIRPORT STAFF

- Courtesy, helpfulness of airport staff

AIRPORT SERVICES

- Availability of bank / ATM facilities / money changers
- Internet access / Wi-fi
- Business / Executive lounges

AIRPORT FACILITIES

- Availability of washrooms / toilets
- Cleanliness of washrooms / toilets
- Cleanliness of airport terminal
- Comfort of waiting / gate areas

OVERALL SATISFACTION

- Ambience of the airport
- Overall satisfaction with the airport

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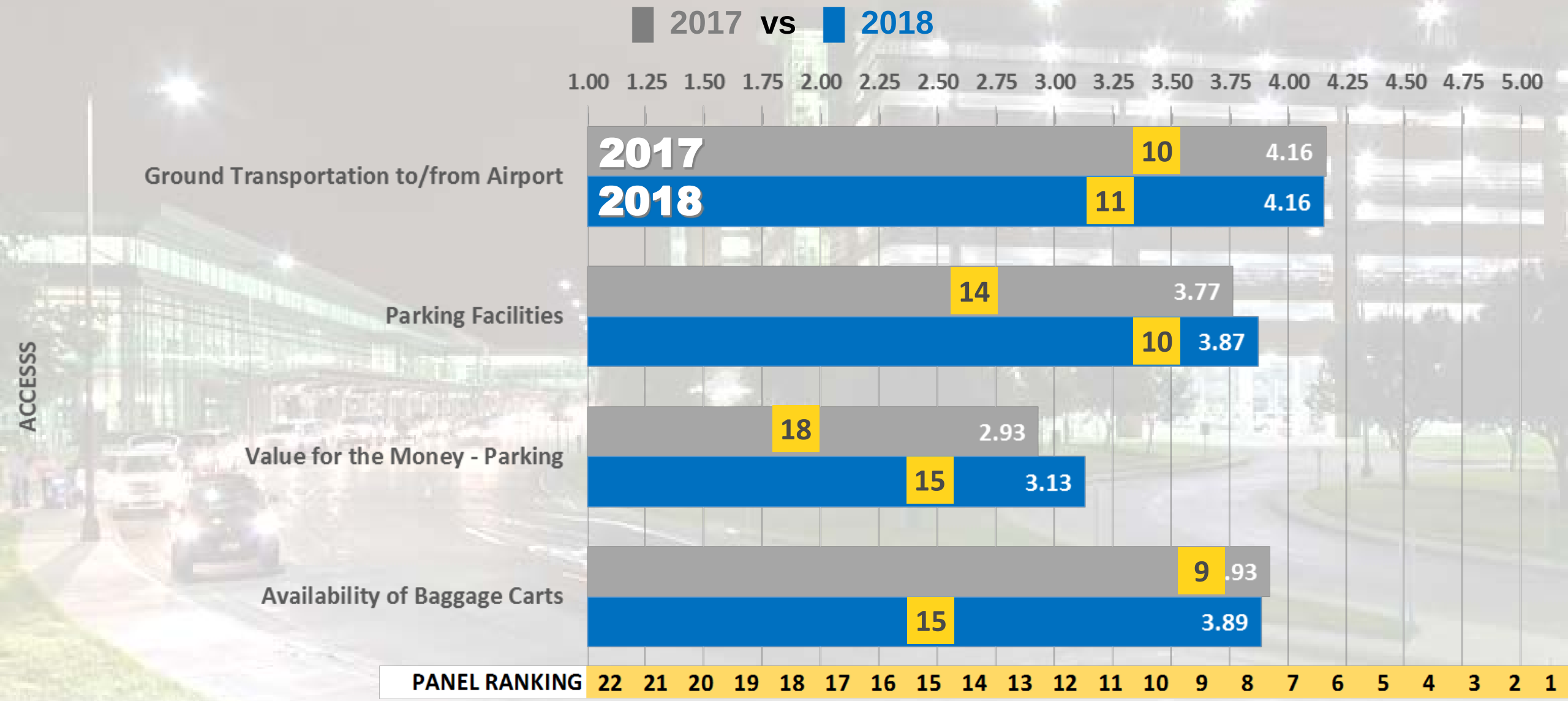
Access

MSP ASQ SCORES & PANEL RANKINGS

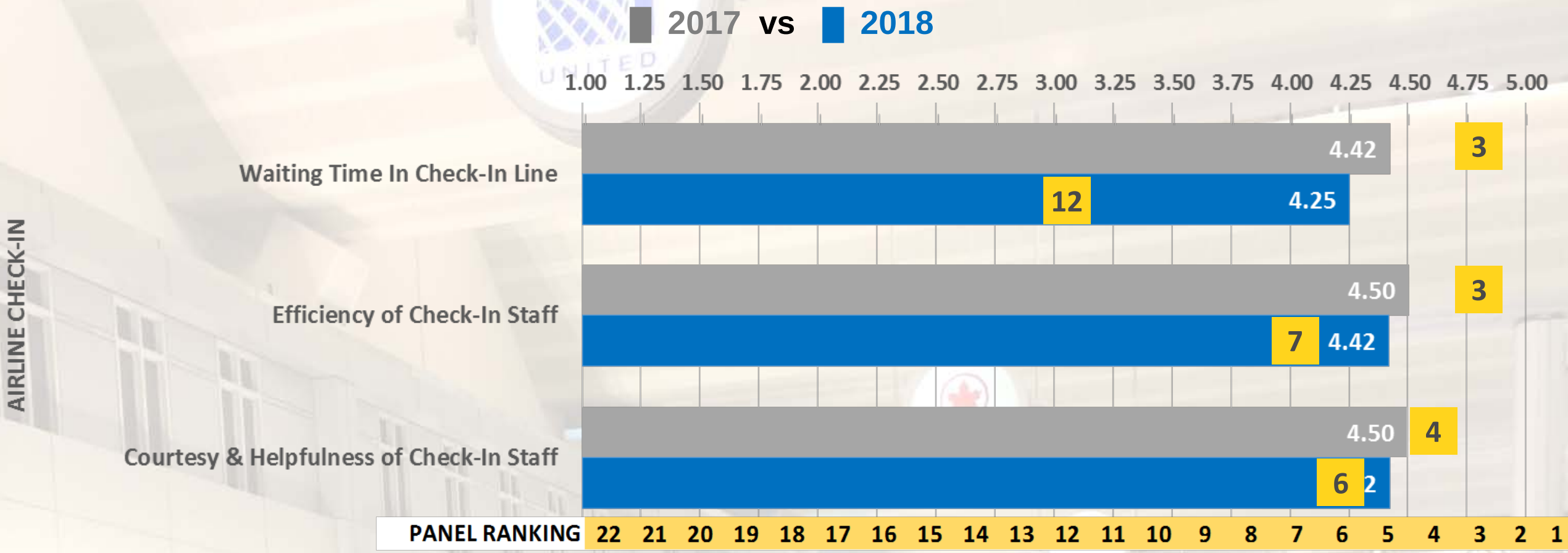


STAKEHOLDER ADVISORY PANEL


UNITED
AIR CANADA
STAR ALLIANCE
FRONTIER
Alaska
spirit
UNITED

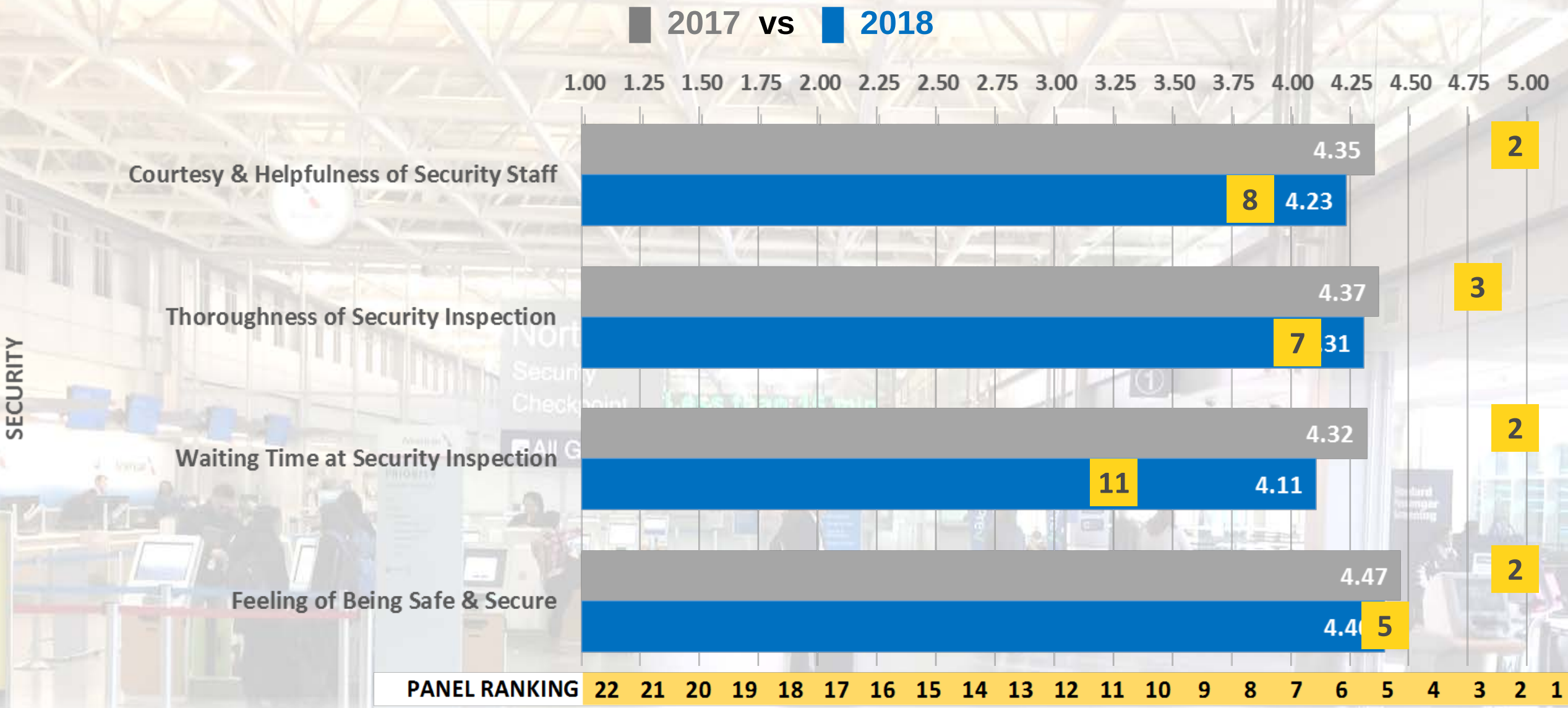
Check-In

MSP ASQ SCORES & PANEL RANKINGS



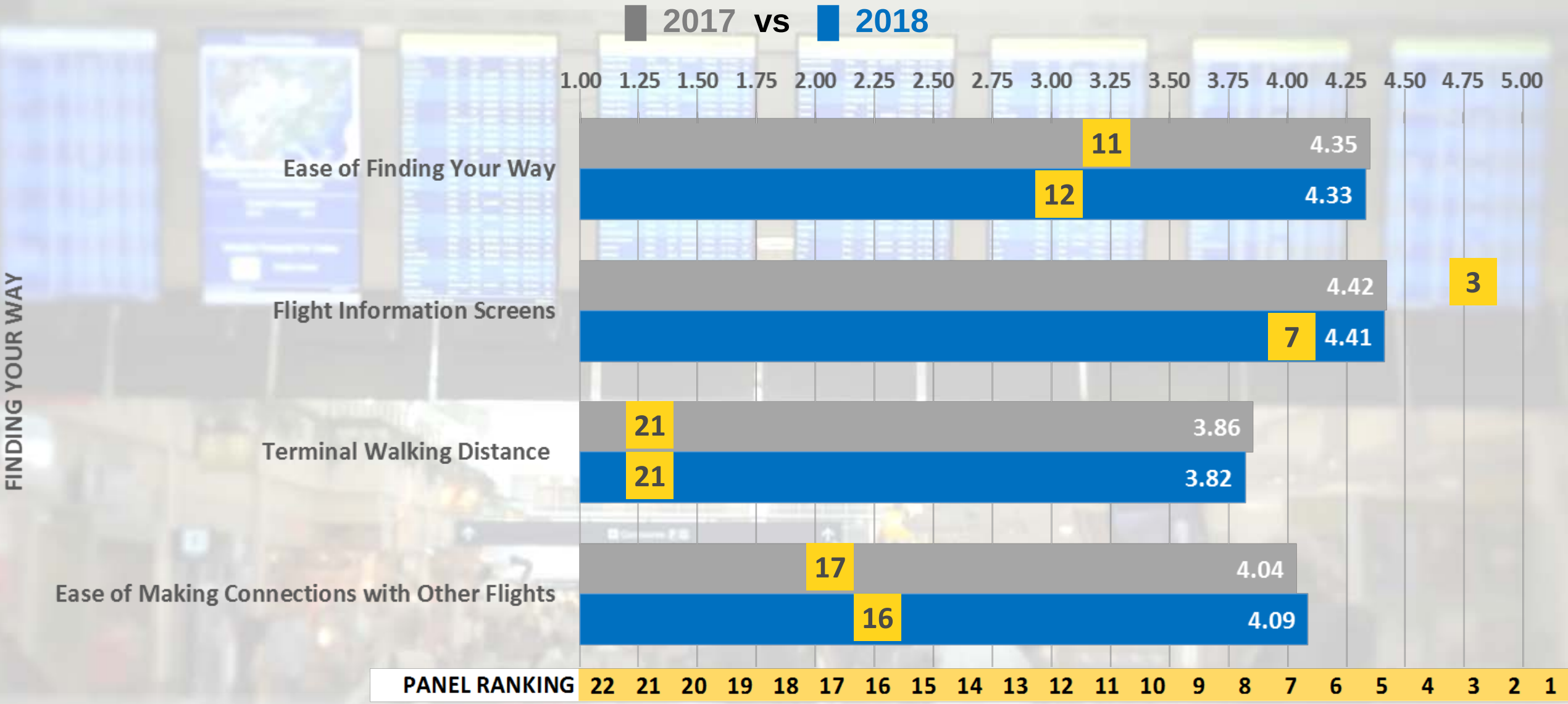

Security
American
Checkpoint
All Gates
PRIORITY
TSA Pre
Standard Passenger Screening

MSP ASQ SCORES & PANEL RANKINGS




Finding Your Way

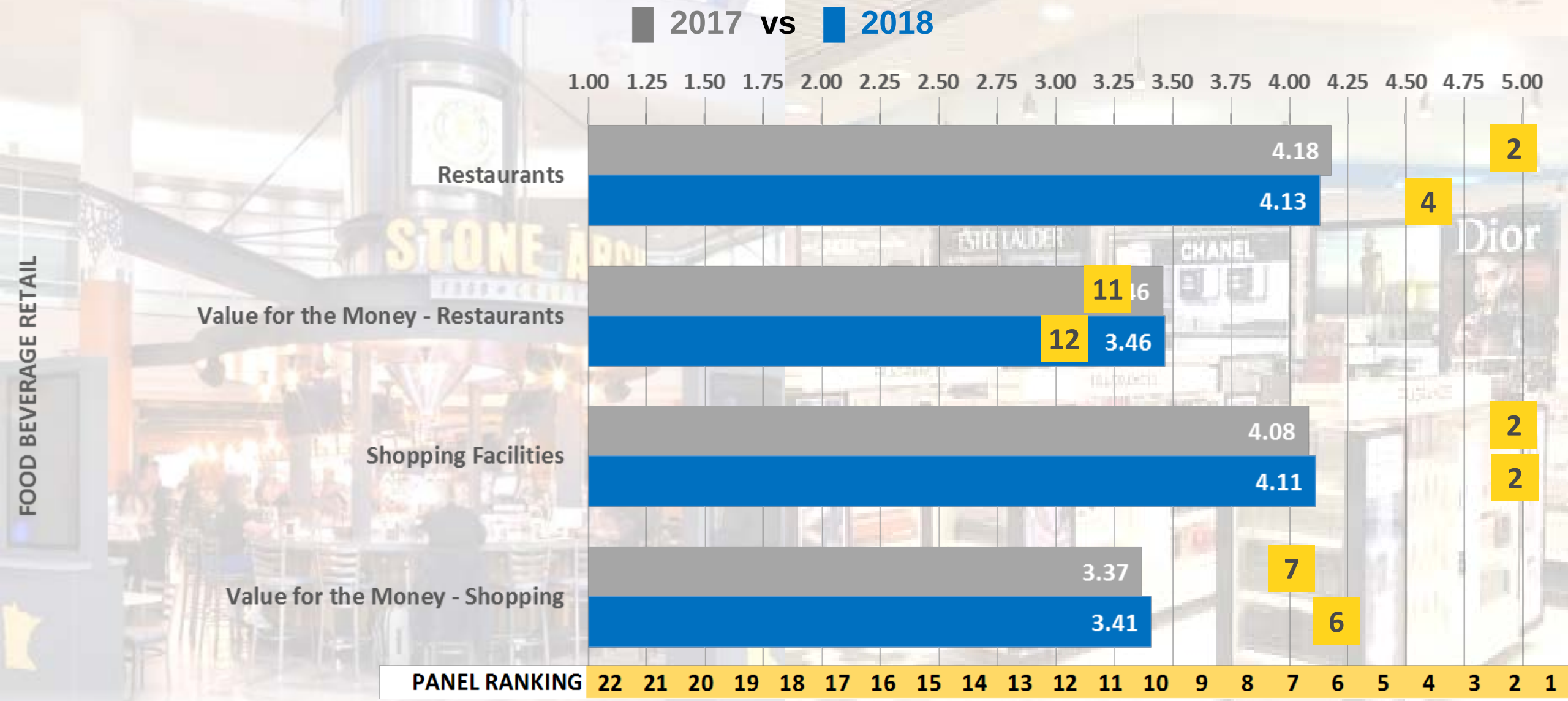
MSP ASQ SCORES & PANEL RANKINGS



Food & Beverage

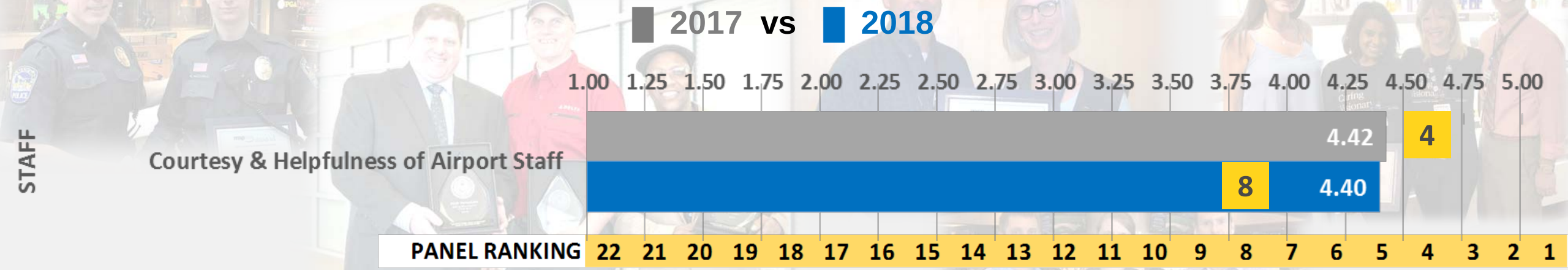
Shopping

MSP ASQ SCORES & PANEL RANKINGS




Courtesy & Helpfulness of Airport Staff

MSP ASQ SCORES & PANEL RANKINGS

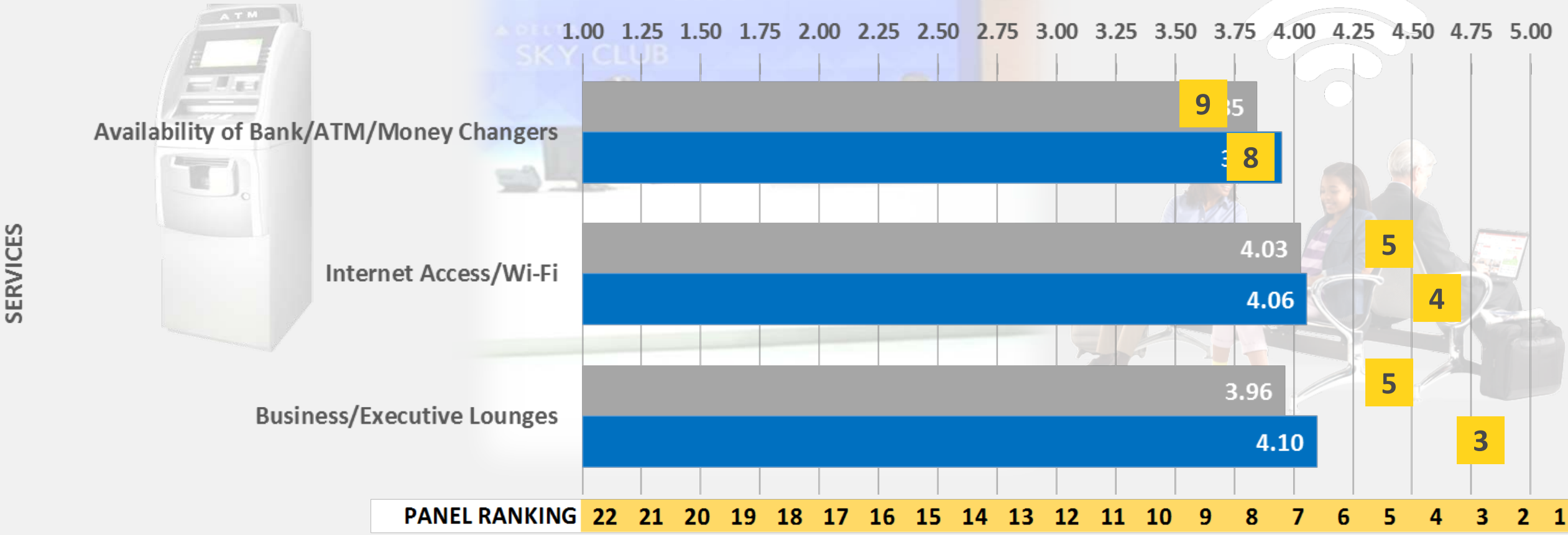


Availability of Bank, ATM & Money Changers

Business/Executive Lounges

Internet Access/Wi-Fi

MSP ASQ SCORES & PANEL RANKINGS

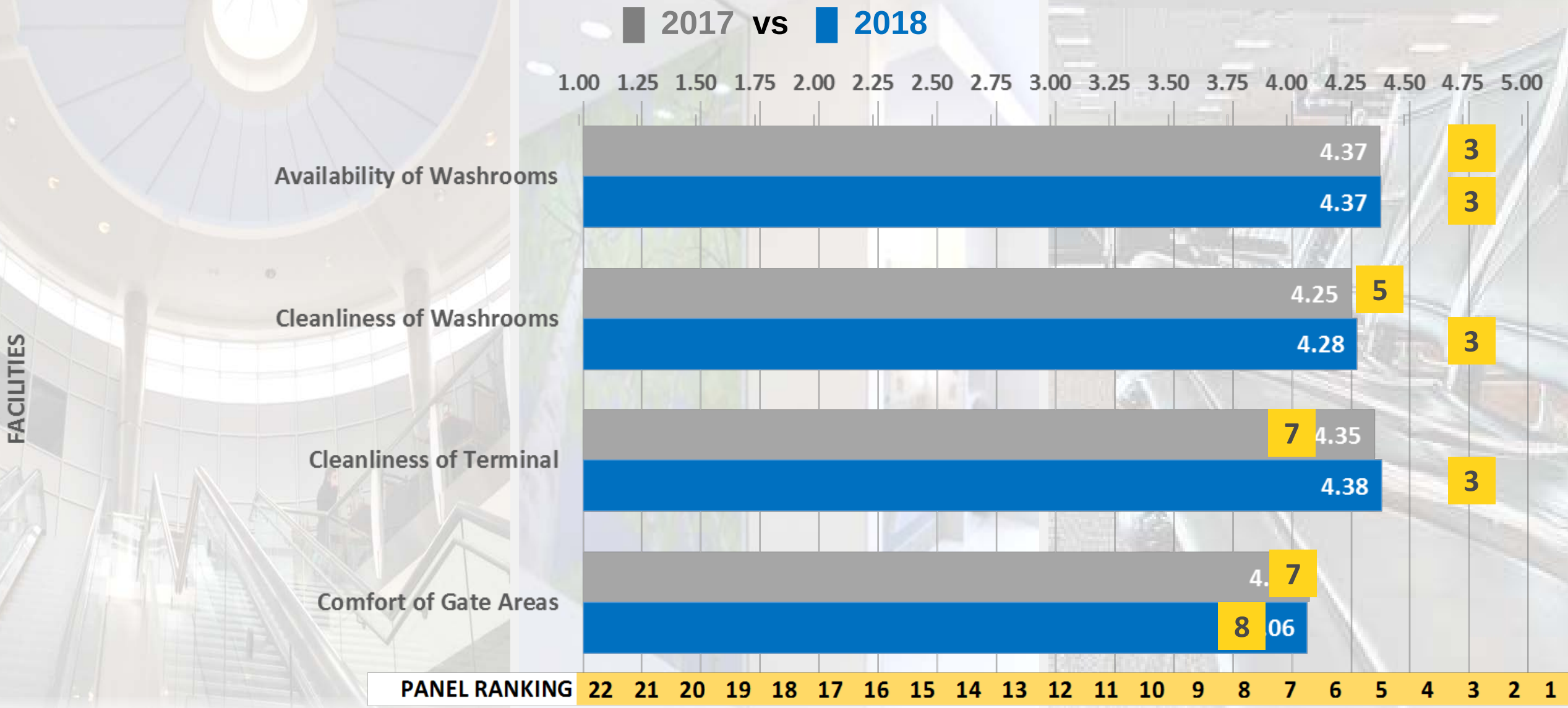



Terminal
Cleanliness


Restrooms


Comfort of
Gate Areas

MSP ASQ SCORES & PANEL RANKINGS



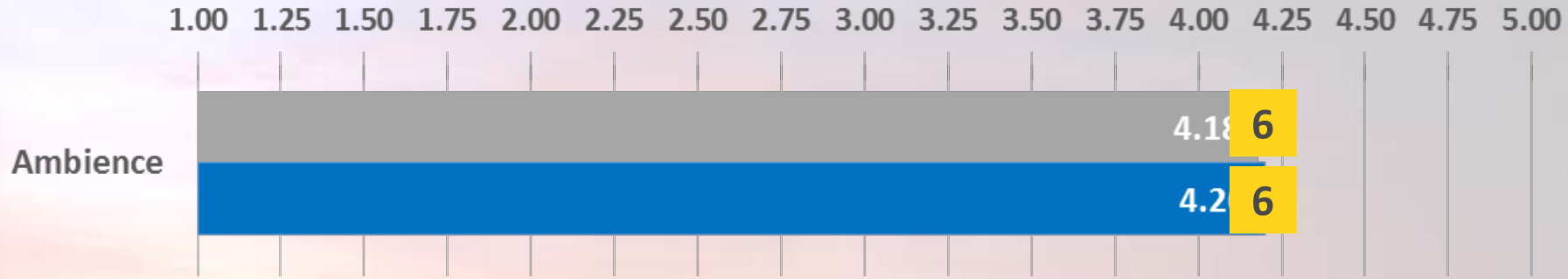
STAKEHOLDER ADVISORY PANEL


Overall Satisfaction

MSP ASQ SCORES & PANEL RANKINGS

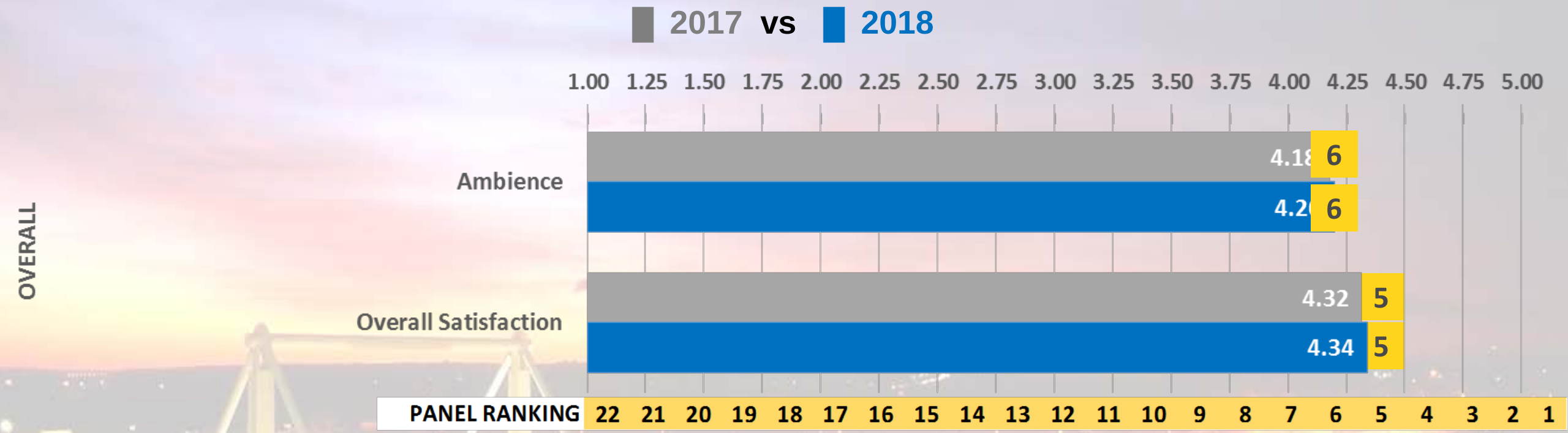
What is Ambiance?

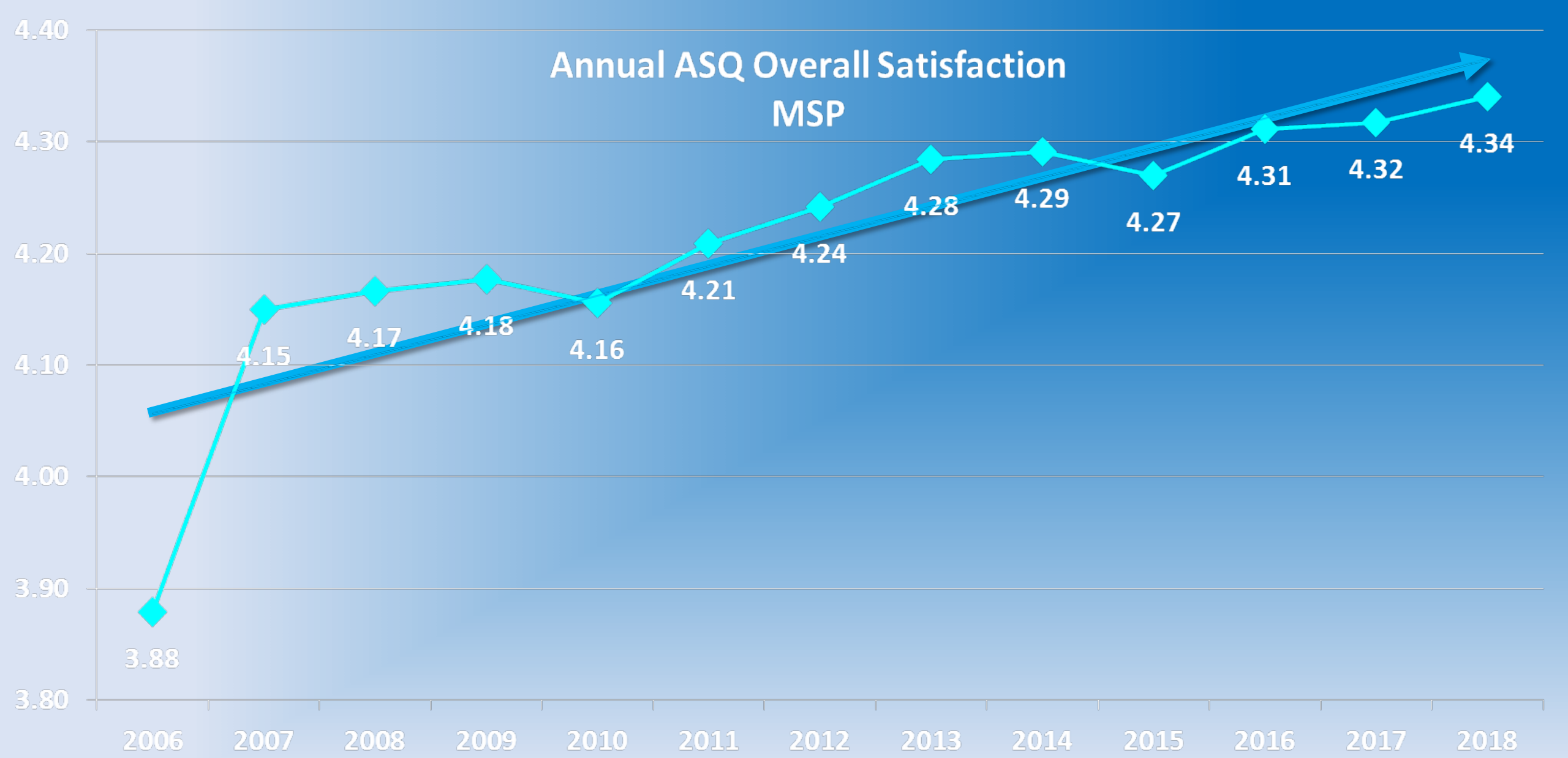
- Cleanliness
- Architecture
- Lighting
- Staff Courtesy



PANEL RANKING	22	21	20	19	18	17	16	15	14	13	12	11	10	9	8	7	6	5	4	3	2	1

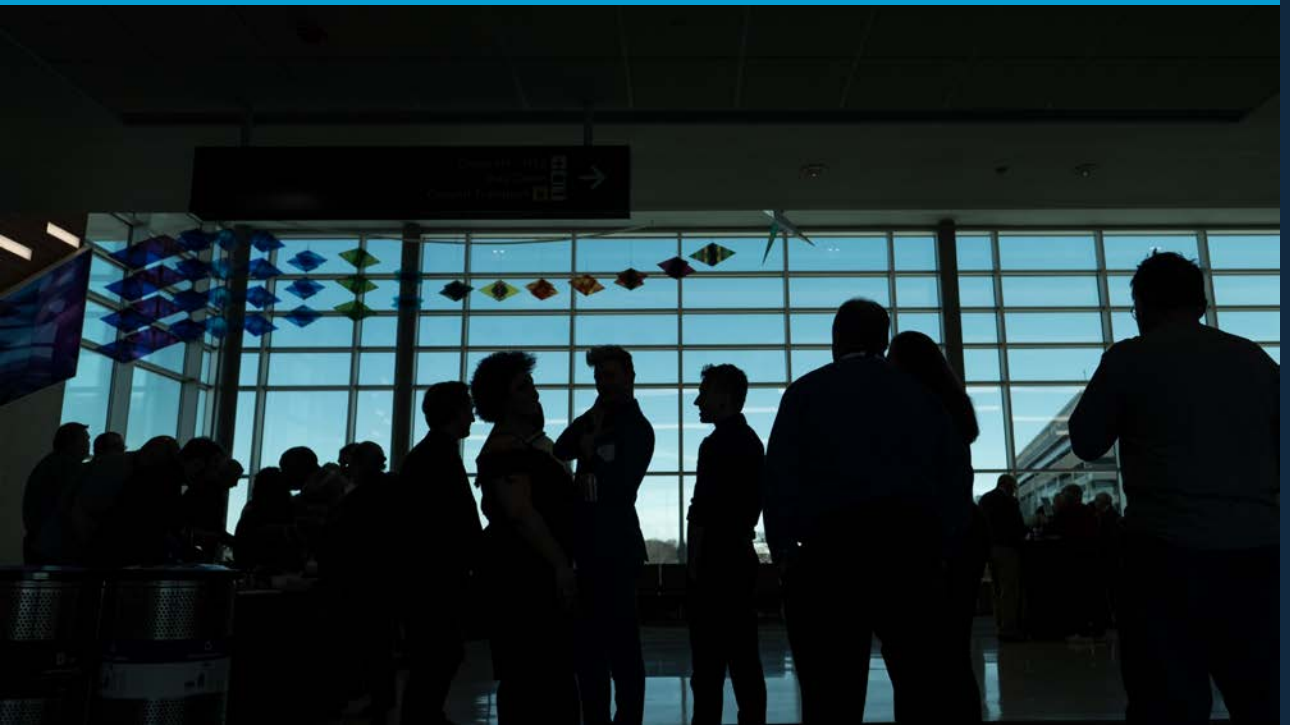
MSP ASQ SCORES & PANEL RANKINGS



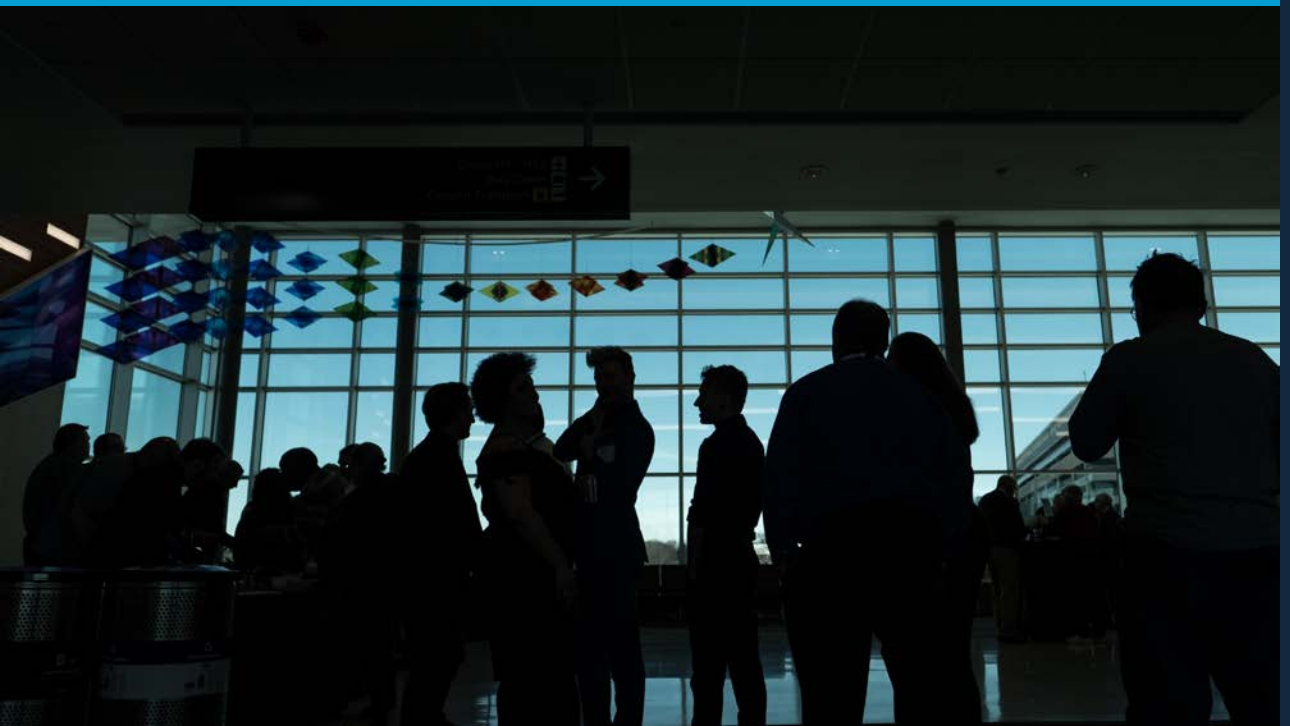

Annual ASQ Overall Satisfaction
MSP
4.40
4.30
4.20
4.10
4.00
3.90
3.80
3.88
4.15
4.17
4.18
4.16
4.21
4.24
4.28
4.29
4.27
4.31
4.32
4.34
2006
2007
2008
2009
2010
2011
2012
2013
2014
2015
2016
2017
2018

Questions?

MSP Airport Long-Term Plan Update



MSP Airport Long-Term Plan Update



1. **Plan for future facilities that will meet projected passenger activity levels in a manner that maintains and enhances customer service, while facilitating a seamless experience.**

2. **Produce a development plan that positions the MAC to**
   - **meet future demand levels,**
   - **enhance financial strength,**
   - **leverage environmental stewardship, and**
   - **infuse sustainable thinking.**

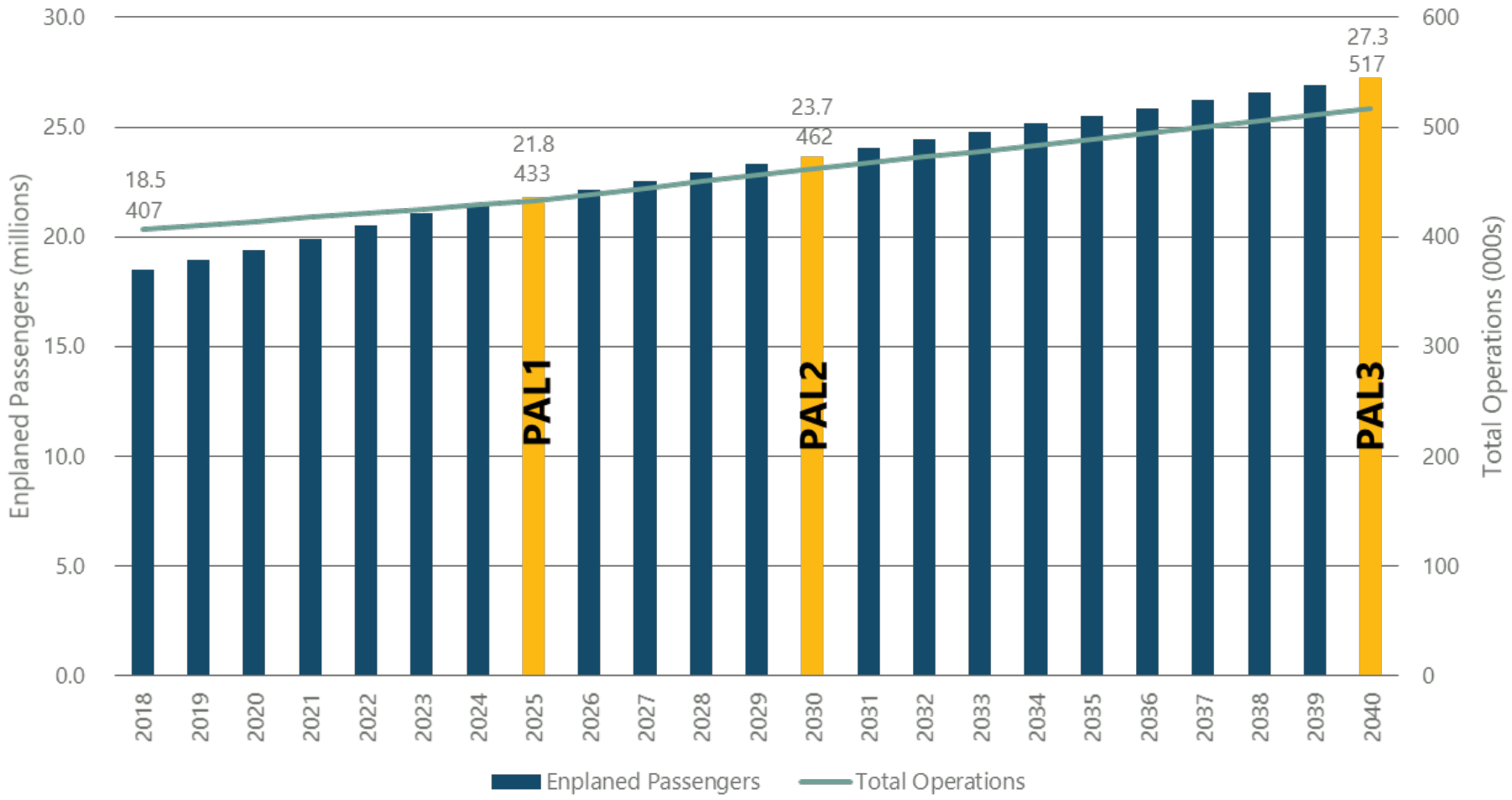
3. **Conduct the planning process in a manner that includes meaningful stakeholder engagement processes.**

Aviation Activity Forecasts

Aviation Activity Forecasts

Objective: develop aviation forecasts for MSP that identify a likely range of demand levels in a manner that will facilitate a meaningful evaluation of facility performance

Annual Forecast Summary



NOTE: PAL = Planning Activity Level

Design Day Flight Schedules (2040/PAL 3 Example)

2040 Representative Day

INBOUND																OUTBOUND												
A_CODE	DAY	Type	Termina	Mkt Al	Flight	Orig	A_TIME	LF	Total	Cnx	OD	Seats	V_EQP	AGATE	G_Time	D_CODE	DAY	Type	Mkt Al	Flight	Dest	D_TIME	LF	Total	Cnx	OD	Seats	V_EQP	DGATE
AA-1049	2	Sched Pax	1	AA	1049	CLT	9:00	86%	138	1	137	160	73H	E14	1:00	AA-1050	2	Sched Pax	AA	1050	CLT	10:00	82%	131	1	130	160	73H	E14
AA-1051	2	Sched Pax	1	AA	1051	DFW	9:46	96%	153	3	151	160	73H	E13	1:04	AA-1052	2	Sched Pax	AA	1052	DFW	10:50	94%	150	2	148	160	73H	E13
AA-1019	2	Sched Pax	1	AA	1019	PHL	10:13	78%	85	1	84	109	221	E16	0:41	AA-1020	2	Sched Pax	AA	1020	PHL	10:54	78%	85	1	84	109	221	E16
AA-1053	2	Sched Pax	1	AA	1053	CLT	11:07	86%	138	1	137	160	73H	E12	0:47	AA-1054	2	Sched Pax	AA	1054	CLT	11:54	82%	131	1	130	160	73H	E12
AA-1021	2	Sched Pax	1	AA	1021	PHL	11:13	78%	85	1	84	109	221	E15	0:40	AA-1022	2	Sched Pax	AA	1022	PHL	11:53	78%	85	1	84	109	221	E15
AA-1023	2	Sched Pax	1	AA	1023	MIA	11:28	89%	97	1	96	109	221	E14	0:32	AA-1024	2	Sched Pax	AA	1024	MIA	12:00	88%	96	1	95	109	221	E14
AA-1025	2	Sched Pax	1	AA	1025	ORD	11:47	89%	97	4	93	109	221	E13	0:32	AA-1026	2	Sched Pax	AA	1026	ORD	12:19	84%	92	4	87	109	221	E13
AA-1085	2	Sched Pax	1	AA	1085	DCA	11:55	86%	65	1	64	76	E75	E16	0:35	AA-1086	2	Sched Pax	AA	1086	DCA	12:30	84%	64	1	63	76	E75	E16
AA-1055	2	Sched Pax	1	AA	1055	DFW	12:38	96%	153	3	151	160	73H	E15	0:41	AA-1056	2	Sched Pax	AA	1056	DFW	13:19	94%	150	2	148	160	73H	E15
AA-1057	2	Sched Pax	1	AA	1057	ORD	13:37	89%	143	6	137	160	73H	E14	0:46	AA-1058	2	Sched Pax	AA	1058	ORD	14:23	84%	134	6	128	160	73H	E14
AA-1059	2	Sched Pax	1	AA	1059	PHX	13:46	86%	138	3	136	160	73H	E13	1:02	AA-1060	2	Sched Pax	AA	1060	PHX	14:48	86%	138	4	134	160	73H	E13
AA-1087	2	Sched Pax	1	AA	1087	LGA	14:10	72%	55	1	53	76	E75	E16	1:10	AA-1088	2	Sched Pax	AA	1088	LGA	15:20	72%	55	1	53	76	E75	E16
AA-1061	2	Sched Pax	1	AA	1061	CLT	14:25	86%	138	1	137	160	73H	E12	0:50	AA-1062	2	Sched Pax	AA	1062	CLT	15:15	82%	131	1	130	160	73H	E12
AA-1079	2	Sched Pax	1	AA	1079	DFW	14:39	96%	165	3	162	172	7M8	E11	0:45	AA-1080	2	Sched Pax	AA	1080	DFW	15:24	94%	161	2	159	172	7M8	E11
AA-1063	2	Sched Pax	1	AA	1063	ORD	15:04	89%	143	6	137	160	73H	E14	0:45	AA-1064	2	Sched Pax	AA	1064	ORD	15:49	84%	134	6	128	160	73H	E14
AA-1027	2	Sched Pax	1	AA	1027	PHL	15:22	78%	85	1	84	109	221	E15	0:43	AA-1028	2	Sched Pax	AA	1028	PHL	16:05	78%	85	1	84	109	221	E15
AA-1065	2	Sched Pax	1	AA	1065	DFW	15:30	96%	153	3	151	160	73H	E13	1:20	AA-1066	2	Sched Pax	AA	1066	DFW	16:50	94%	150	2	148	160	73H	E13
AA-1067	2	Sched Pax	1	AA	1067	CLT	16:32	86%	138	1	137	160	73H	E12	0:58	AA-1068	2	Sched Pax	AA	1068	CLT	17:30	82%	131	1	130	160	73H	E12
AA-1029	2	Sched Pax	1	AA	1029	ORD	16:45	89%	97	4	93	109	221	E14	0:45	AA-1030	2	Sched Pax	AA	1030	ORD	17:30	84%	92	4	87	109	221	E14
AA-1089	2	Sched Pax	1	AA	1089	LGA	16:49	72%	55	1	53	76	E75	E16	0:31	AA-1090	2	Sched Pax	AA	1090	LGA	17:20	72%	55	1	53	76	E75	E16
AA-1069	2	Sched Pax	1	AA	1069	DFW	17:07	96%	153	3	151	160	73H	E11	0:58	AA-1070	2	Sched Pax	AA	1070	PHX	18:05	86%	138	4	134	160	73H	E11
AA-1091	2	Sched Pax	1	AA	1091	DCA	17:22	86%	65	1	64	76	E75	E15	0:30	AA-1092	2	Sched Pax	AA	1092	DCA	17:52	84%	64	1	63	76	E75	E15
AA-1071	2	Sched Pax	1	AA	1071	PHX	17:35	86%	138	3	136	160	73H	E13	0:46	AA-1072	2	Sched Pax	AA	1072	DFW	18:21	94%	150	2	148	160	73H	E13
AA-1093	2	Sched Pax	1	AA	1093	LGA	18:10	72%	55	1	53	76	E75	E16	1:10	AA-1094	2	Sched Pax	AA	1094	LGA	19:20	72%	55	1	53	76	E75	E16
AA-1073	2	Sched Pax	1	AA	1073	ORD	18:31	89%	143	6	137	160	73H	E15	0:54	AA-1074	2	Sched Pax	AA	1074	ORD	19:25	84%	134	6	128	160	73H	E15
AA-1075	2	Sched Pax	1	AA	1075	DFW	19:00	96%	153	3	151	160	73H	E14	2:00	AA-1076	2	Sched Pax	AA	1076	PHX	21:00	86%	138	4	134	160	73H	E14
AC-1097	2	Sched Pax	1	AC	1097	YYZ	10:04	91%	69	7	62	76	E75	E08	0:41	AC-1098	2	Sched Pax	AC	1098	YYZ	10:45	91%	69	7	62	76	E75	E08
AC-1099	2	Sched Pax	1	AC	1099	YYZ	15:54	91%	69	7	62	76	E75	E08	0:41	AC-1100	2	Sched Pax	AC	1100	YYZ	16:35	91%	69	7	62	76	E75	E08
AC-1101	2	Sched Pax	1	AC	1101	YYZ	17:10	91%	69	7	62	76	E75	E08	1:50	AC-1102	2	Sched Pax	AC	1102	YYZ	19:00	91%	69	7	62	76	E75	E08
AF-1103	2	Sched Pax	1	AF	1103	CDG	15:45	94%	305	166	140	324	359	Unassigned	4:00	AF-1104	2	Sched Pax	AF	1104	CDG	19:45	92%	298	162	137	324	359	Unassigned
AF-1105	2	Sched Pax	1	AF	1105	CDG	17:00	94%	305	166	140	324	359	G04B	4:00	AF-1106	2	Sched Pax	AF	1106	CDG	21:00	92%	298	162	137	324	359	G04B
AS-1115	2	Sched Pax	1	AS	1115	SAN	11:45	83%	63	0	63	76	E75	E03	0:52	AS-1116	2	Sched Pax	AS	1116	SAN	12:37	83%	63	0	63	76	E75	E03
AS-1107	2	Sched Pax	1	AS	1107	SEA	11:51	89%	141	1	140	159	7M8	E01	0:59	AS-1108	2	Sched Pax	AS	1108	SEA	12:50	86%	138	1	136	159	7M8	E01
AS-1113	2	Sched Pax	1	AS	1113	SEA	13:43	89%	158	2	157	178	7M9	E01	1:06	AS-1114	2	Sched Pax	AS	1114	SEA	14:49	86%	154	2	152	178	7M9	E01
AS-1117	2	Sched Pax	1	AS	1117	PDX	15:18	83%	63	2	61	76	E75	E03	0:45	AS-1118	2	Sched Pax	AS	1118	PDX	16:03	83%	63	2	61	76	E75	E03
AS-1109	2	Sched Pax	1	AS	1109	SEA	17:45	89%	141	1	140	159	7M8	E04	0:57	AS-1110	2	Sched Pax	AS	1110	SEA	18:42	86%	138	1	136	159	7M8	E04
AS-1119	2	Sched Pax	1	AS	1119	SAN	19:56	83%	63	0	63	76	E75	E03	0:34	AS-1120	2	Sched Pax	AS	1120	SAN	20:30	83%	63	0	63	76	E75	E03
DL-3669	2	Sched Pax	1	DL	3669	ATL	0:11	93%	178	0	178	192	3N1	F03	7:34	DL-3670	2	Sched Pax	DL	3670	SEA	7:45	92%	177	32	145	192	3N1	F03
DL-3671	2	Sched Pax	1	DL	3671	LAX	5:15	96%	183	69	115	192	3N1	C09	2:45	DL-3672	2	Sched Pax	DL	3672	SFO	8:00	90%	173	41	132	192	3N1	C09
DL-3397	2	Sched Pax	1	DL	3397	LAS	5:18	96%	172	76	96	180	739	G06B	2:57	DL-3398	2	Sched Pax	DL	3398	GEG	8:15	79%	143	89	54	180	739	G06B
DL-3357	2	Sched Pax	1	DL	3357	HNL	5:32	96%	294	210	84	306	350	G03W	5:48	DL-3358	2	Sched Pax	DL	3358	HNL	11:20	93%	284	173	112	306	350	G06A
DL-3673	2	Sched Pax	1	DL	3673	SFO	5:40	96%	185	64	121	192	3N1	F08	3:05	DL-3674	2	Sched Pax	DL	3674	DTW	8:45	95%	183	66	116	192	3N1	F08
DL-3675	2	Sched Pax	1	DL	3675	SMF	5:43	78%	150	87	63	192	3N1	G15	3:02	DL-3676	2	Sched Pax	DL	3676	LAX	8:45	88%	169	58	111	192	3N1	G15

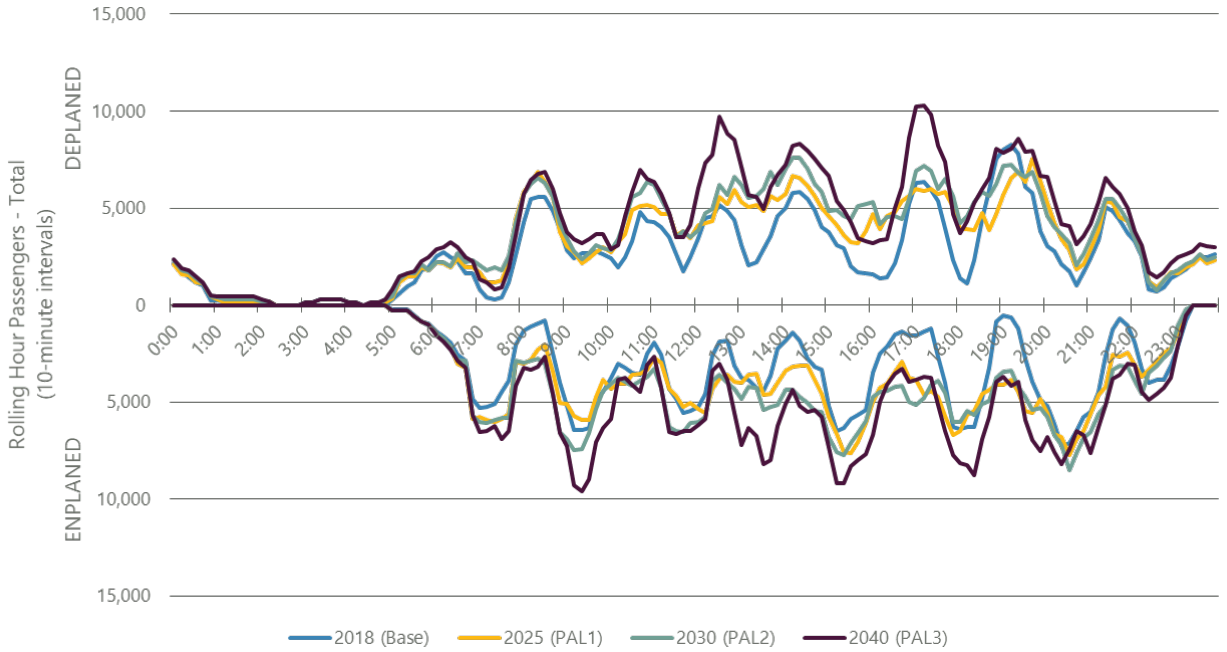
Design Day Flight Schedules – Summary of Results (Passengers)

	DOMESTIC	INTERNATIONAL	TOTAL	DOMESTIC	INTERNATIONAL
2018 (Base)	115,688	9,032	124,720	93%	7%
2025 (PAL1)	139,546	13,475	153,022	91%	9%
2030 (PAL2)	152,047	15,476	167,524	91%	9%
2040 (PAL3)	174,129	16,456	190,585	91%	9%

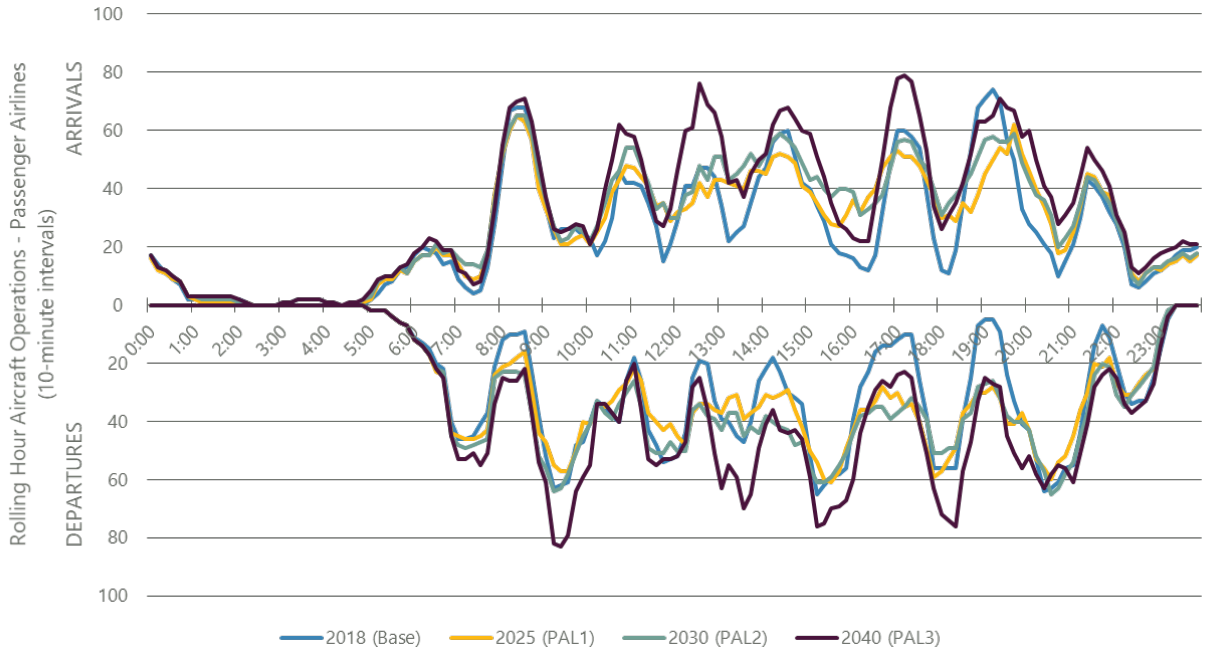
	O&D	CONNECTING	TOTAL	O&D	CONNECTING
2018 (Base)	73,396	51,324	124,720	59%	41%
2025 (PAL1)	89,178	63,843	153,022	58%	42%
2030 (PAL2)	97,251	70,273	167,524	58%	42%
2040 (PAL3)	112,482	78,103	190,585	59%	41%

	DELTA	OTHERS	TOTAL	DELTA	OTHERS
2018 (Base)	90,123	34,597	124,720	72%	28%
2025 (PAL1)	107,748	45,273	153,022	70%	30%
2030 (PAL2)	118,319	49,205	167,524	71%	29%
2040 (PAL3)	132,407	58,178	190,585	69%	31%

Design Day Flight Schedules – Summary of Results

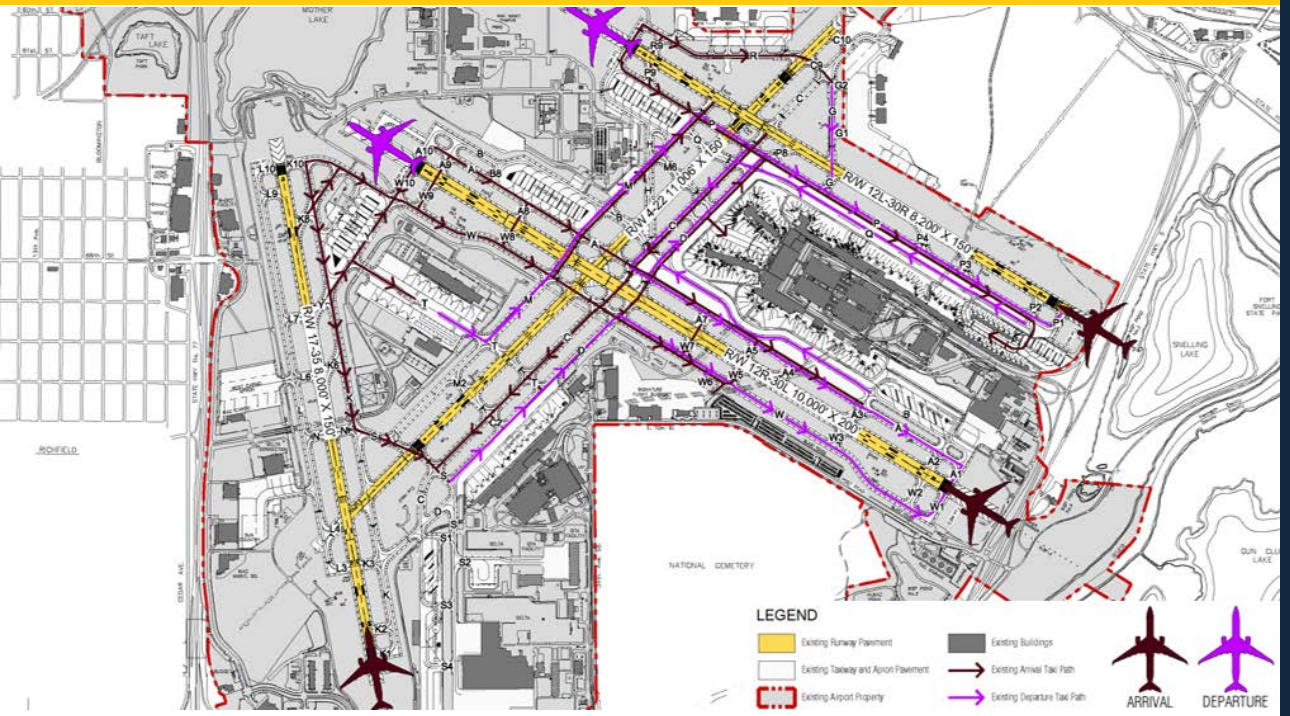


Rolling Hour Passenger Demand

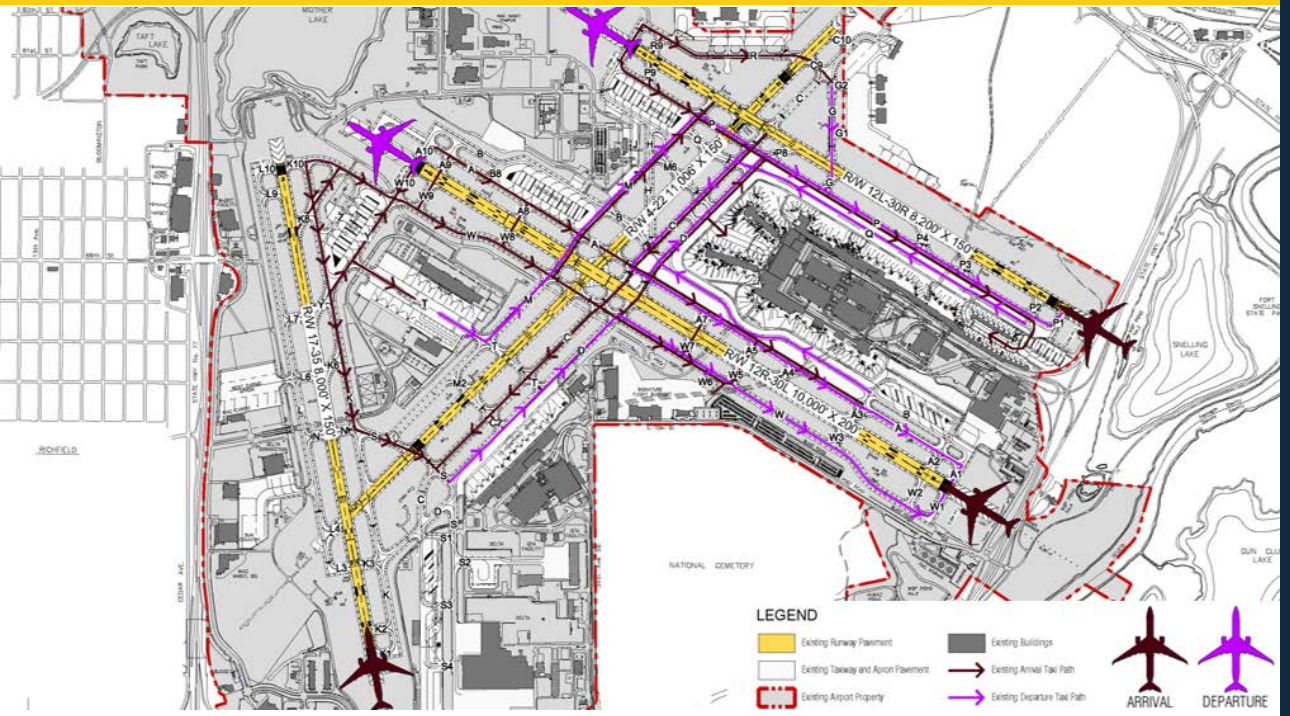


Rolling Hour Passenger Airline Operations

Airfield Capacity Study

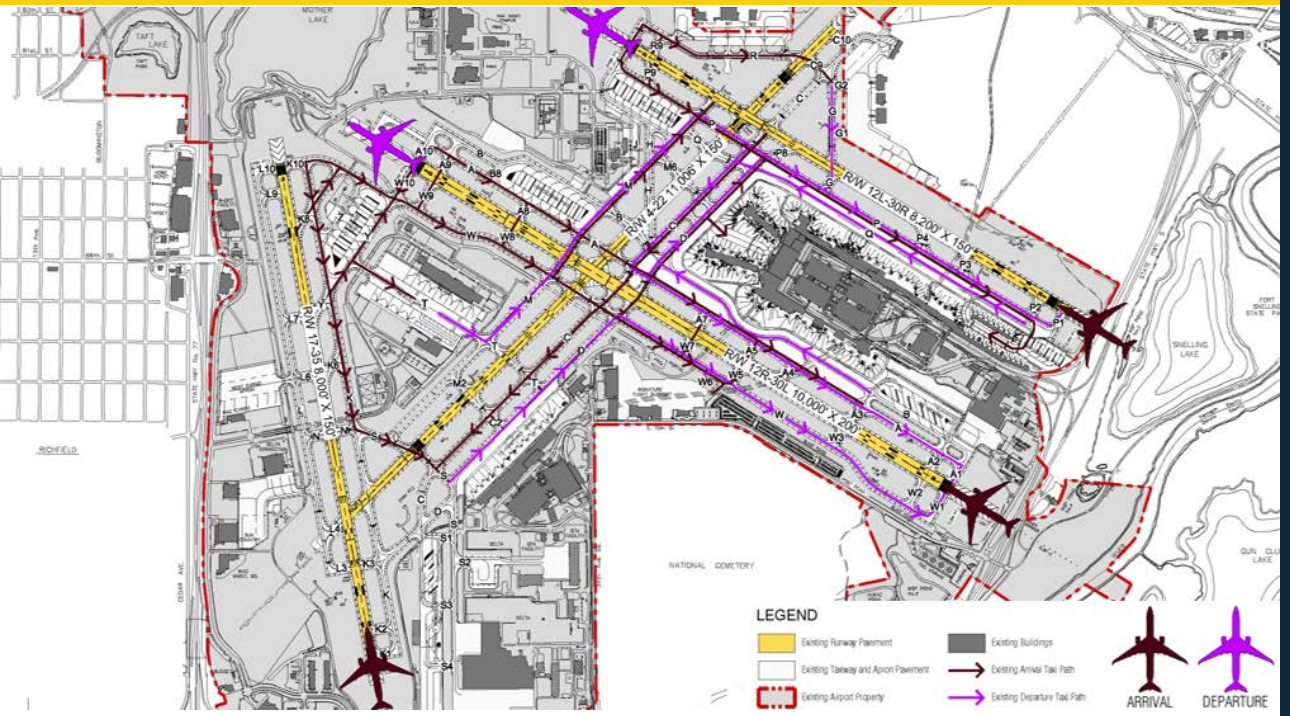


Airfield Capacity Study



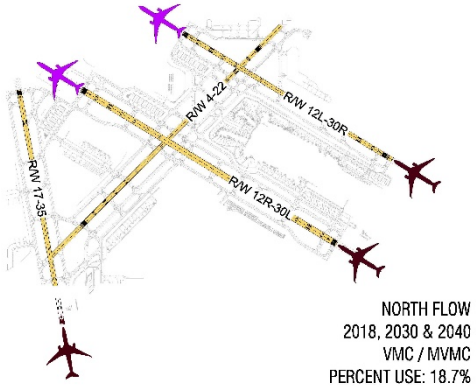
Objective: use state-of-the-art simulation tools to predict how the MSP airfield and close-in airspace will perform under forecasted aircraft activity levels

Airfield Capacity Study

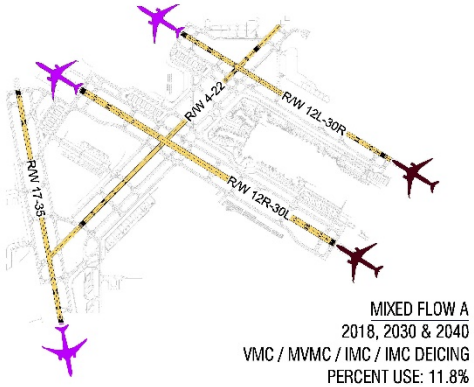


Baseline Results - 2018

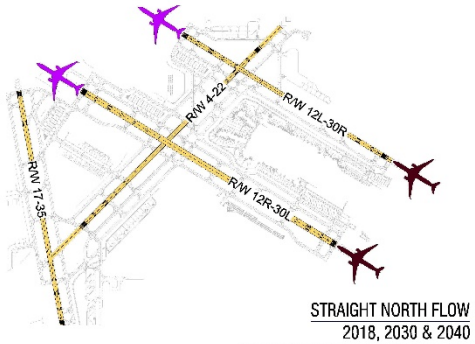
- **Average Delays**
- **Throughput Vs. Demand**
- **Throughput and Delay**
- **Animation of Simulated Traffic**



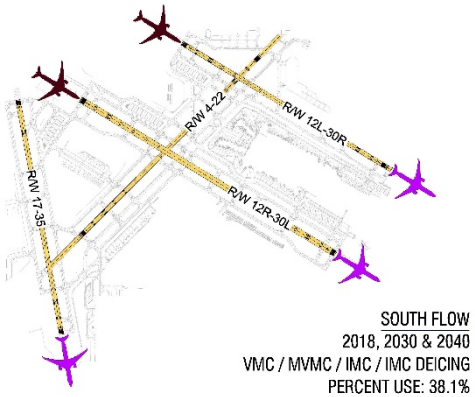
NORTH FLOW
2018, 2030 & 2040
VMC / MVMC
PERCENT USE: 18.7%



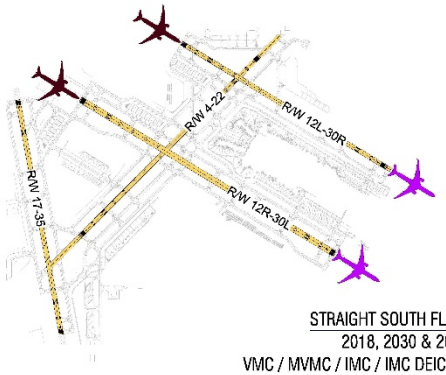
MIXED FLOW A
2018, 2030 & 2040
VMC / MVMC / IMC / IMC DEICING
PERCENT USE: 11.8%



STRAIGHT NORTH FLOW
2018, 2030 & 2040
VMC / MVMC / IMC / IMC DEICING
PERCENT USE: 17.5%



SOUTH FLOW
2018, 2030 & 2040
VMC / MVMC / IMC / IMC DEICING
PERCENT USE: 38.1%



STRAIGHT SOUTH FLOW
2018, 2030 & 2040
VMC / MVMC / IMC / IMC DEICING
PERCENT USE: 5.8%

VISUAL METEOROLOGICAL CONDITIONS (VMC)
CEILING HEIGHT > 2,500' AND VISIBILITY > 5 MILES
PERCENT USE: 75.50%

MARGINAL VISUAL METEOROLOGICAL CONDITIONS (MVMC)
CEILING HEIGHT < 2,500' AND > 800' OR
VISIBILITY < 5 MILES AND > 2 MILES
(FOR NORTH FLOW CEILING >1,700' AND VISIBILITY > 4 MILES)
PERCENT USE: 18.45%

INSTRUMENT METEOROLOGICAL CONDITIONS (IMC)
CEILING HEIGHT < 800' OR VISIBILITY < 2 MILES
PERCENT USE: 6.05%

SOURCE: FAA, AVIATION SYSTEM PERFORMANCE MTRICS, AIRPORT EFFICIENCY MODULE

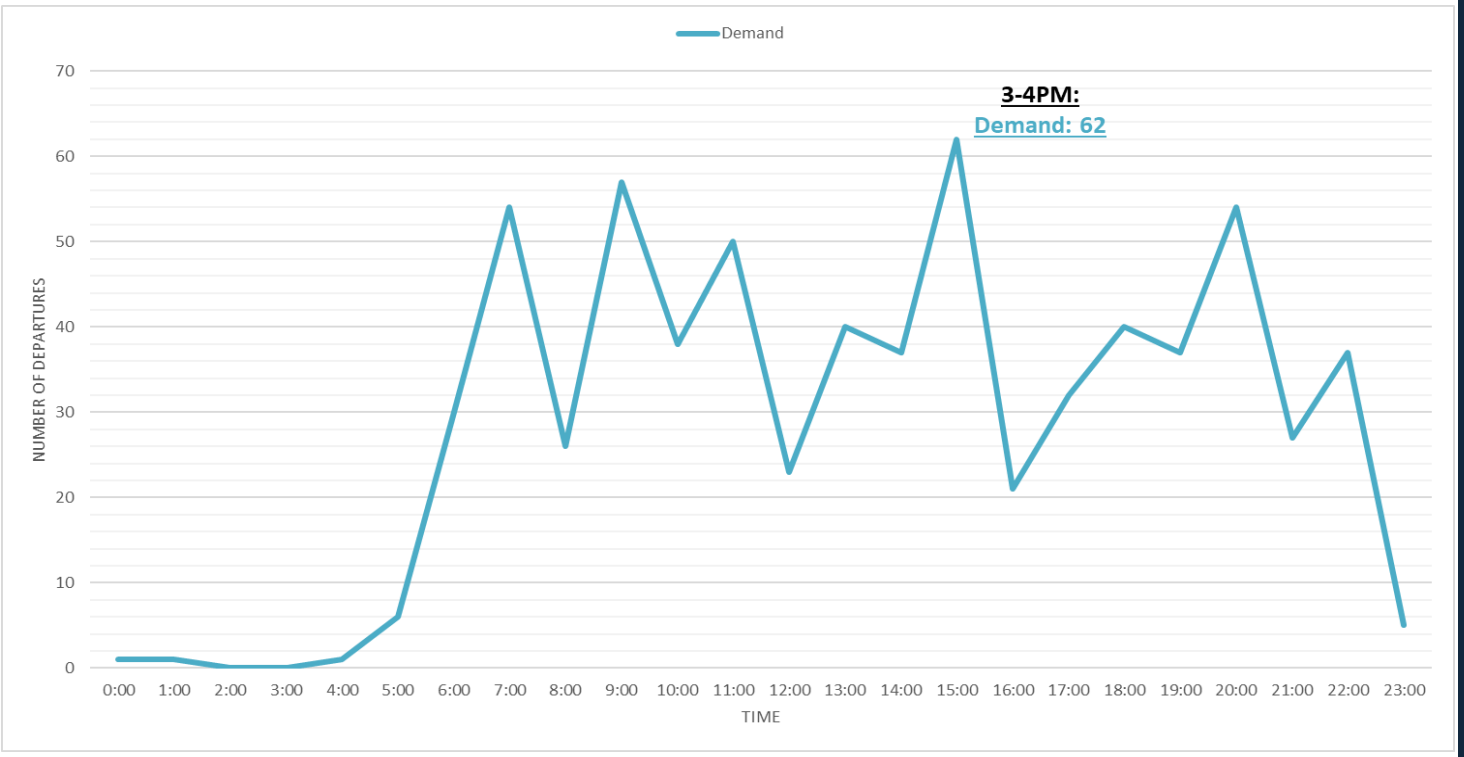
ARRIVAL DEPARTURE

Model Inputs

- Runway Use Configurations
  - Modeling the most commonly-used runway configurations representing 92% of total operations
  - Modeling operations in three weather conditions (visual, marginal visual, instrument)

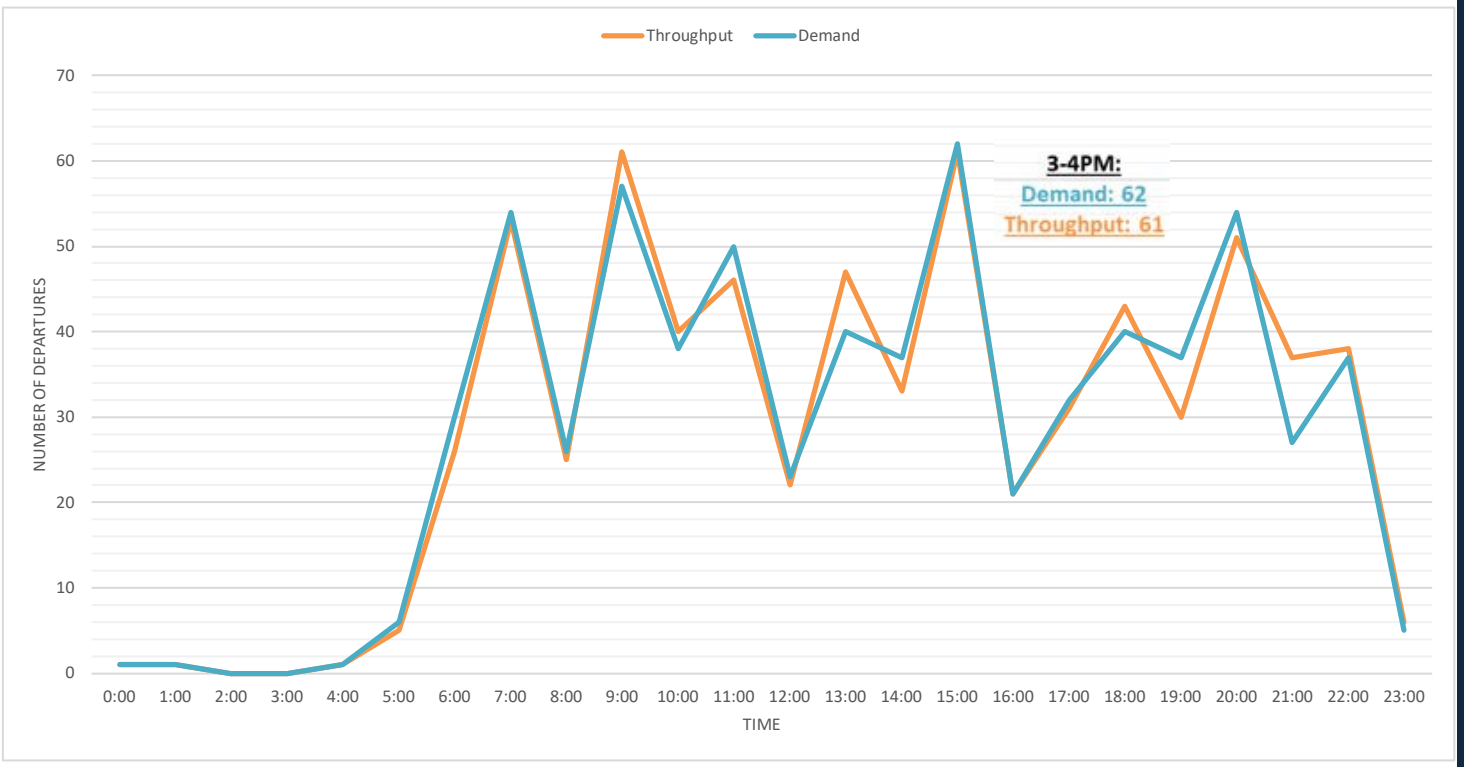
MSP Capacity Metrics Summary for 2018 ADPM Modeled Configurations (Minutes)

Flow	Weather Condition	Average Arrival Delay Per Operation	Average Departure Delay Per Operation	Average Total Delay Per Operation	Modeled Annual % In Flow	Average ADPM Delay
Straight North (N*)	VMC	2.93	3.88	3.41	11.18%	2.60
	MVMC	3.55	3.97	3.76	5.06%	
	IMC	3.67	4.27	3.97	1.30%	
North (N)	VMC	2.53	3.40	2.97	16.68%	
	MVMC	3.02	3.43	3.22	2.00%	
Mixed A (MA)	VMC	1.73	2.65	2.19	9.74%	
	MVMC	2.10	2.55	2.32	1.69%	
	IMC	2.13	2.57	2.35	0.38%	
South (S)	VMC	1.80	2.22	2.01	28.26%	
	MVMC	2.00	2.10	2.05	6.81%	
	IMC	1.98	2.27	2.12	2.99%	
Straight South (S*)	VMC	2.30	3.57	2.93	3.47%	
	MVMC	2.62	3.58	3.10	1.42%	
	IMC	2.67	3.80	3.23	0.94%	



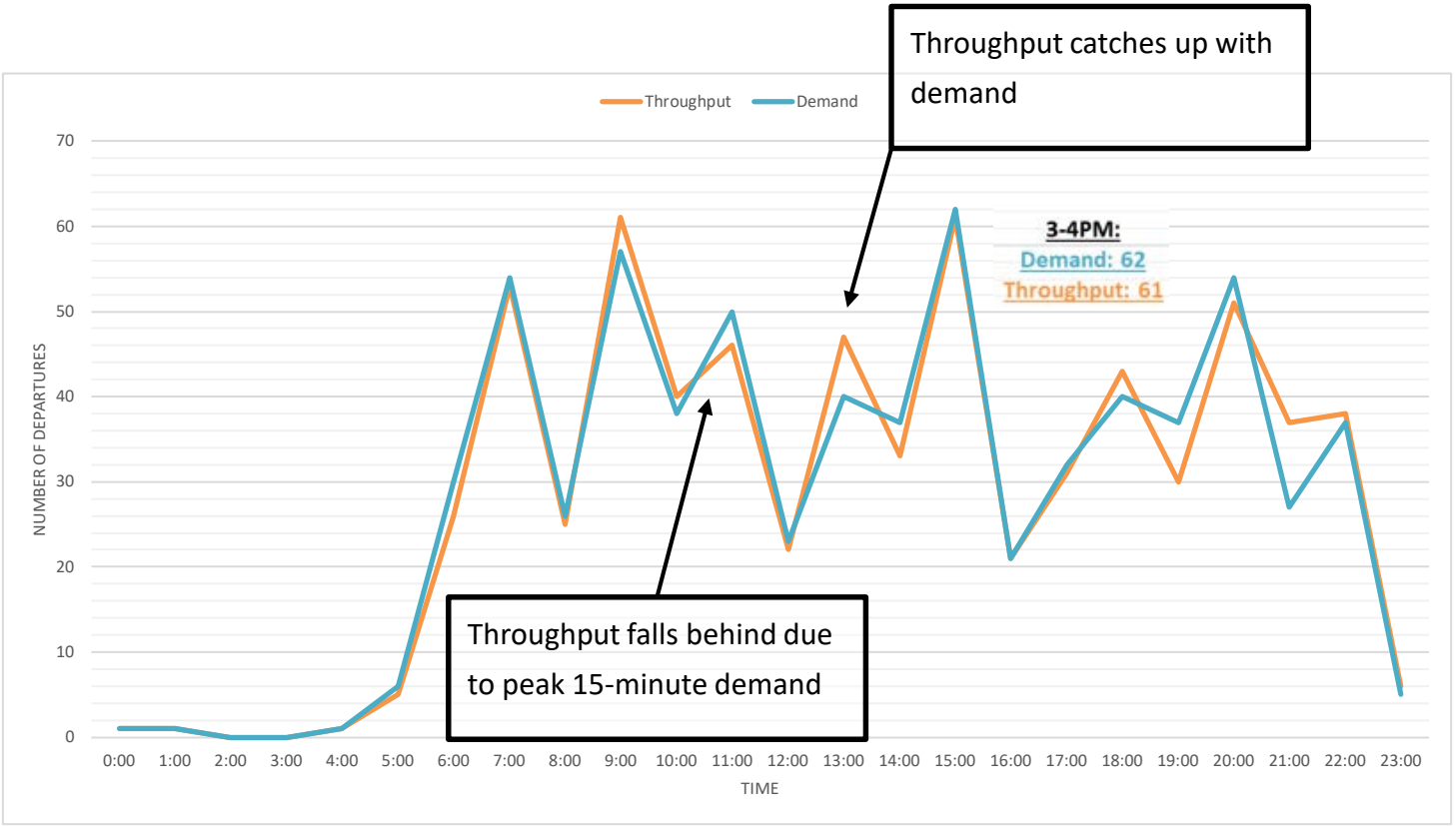
Hourly Demand

- Straight North Flow
- Low Clouds and/or Visibility (Instrument Conditions)
- Departures only



Hourly Throughput Vs. Demand

- Straight North Flow
- Low Clouds and/or Visibility (Instrument Conditions)
- Departures only
- Throughput generally keeps up with demand and recovers quickly



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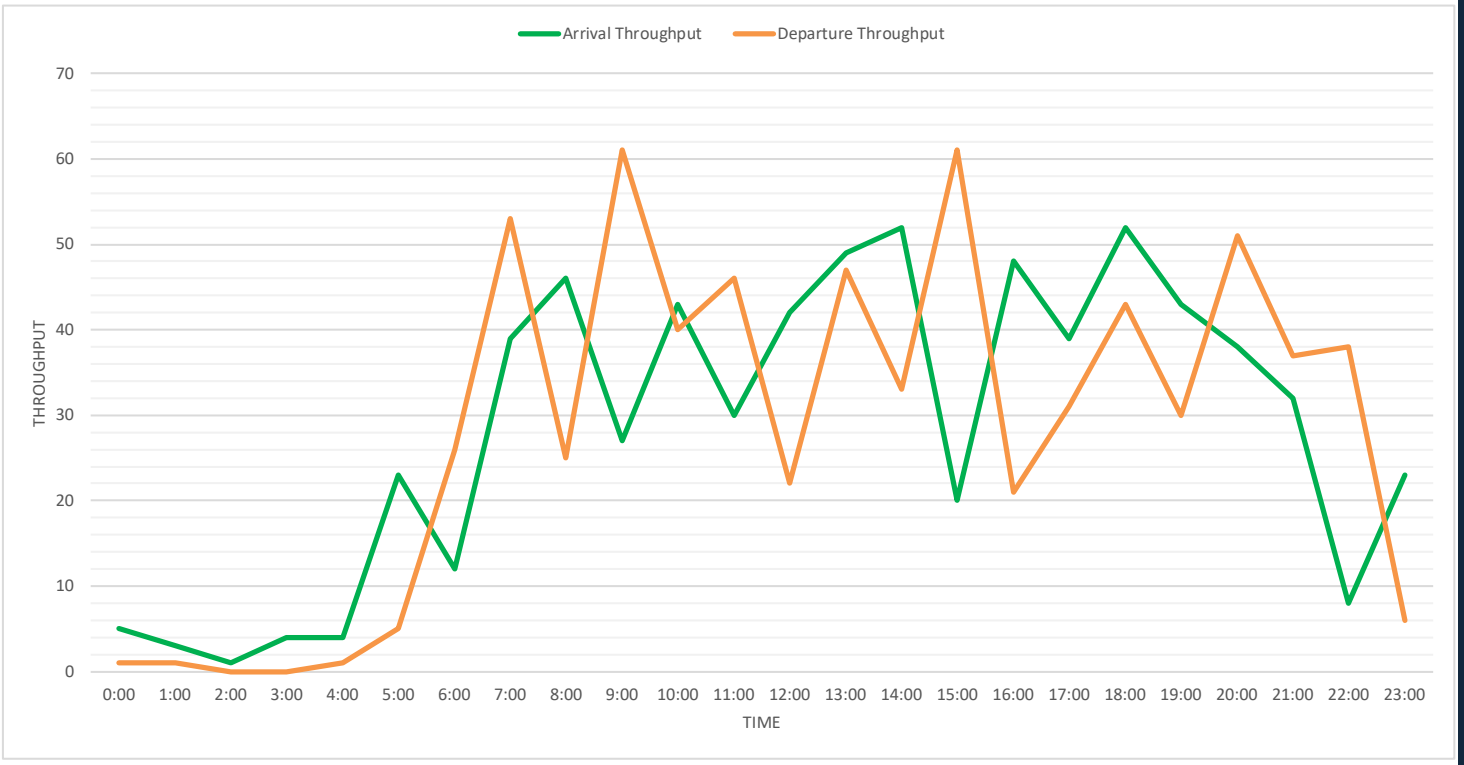
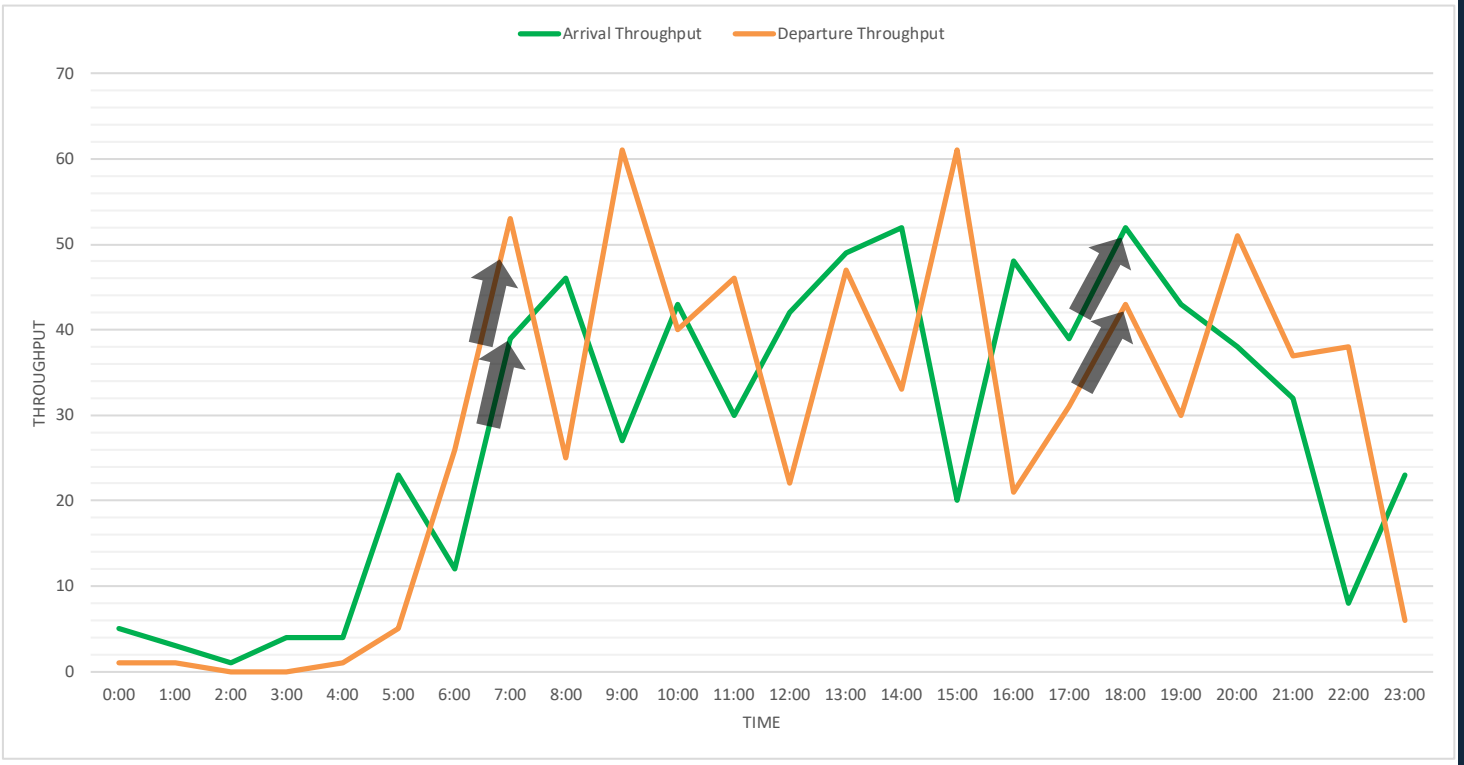


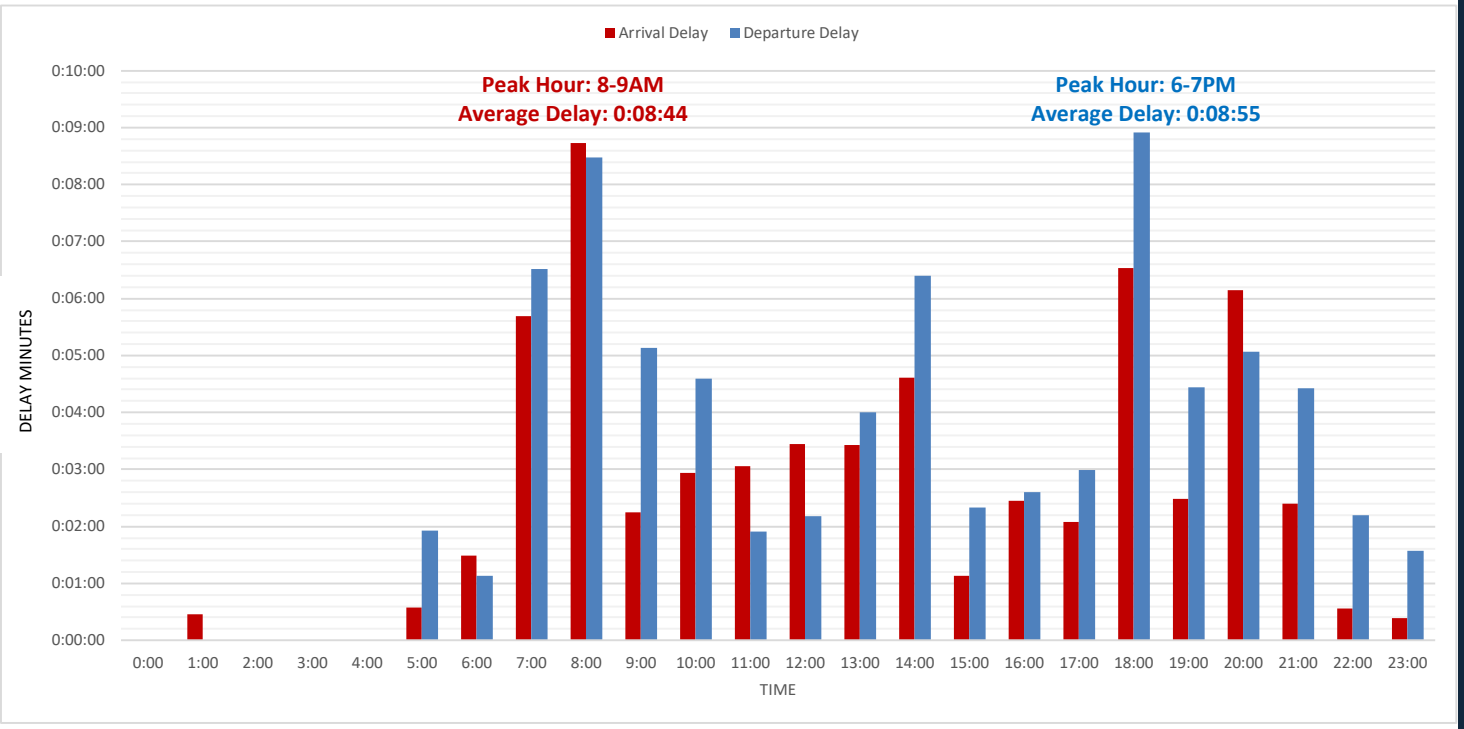
Arrival & Departure Throughput

- Straight North Flow
- Low Clouds and/or Visibility (Instrument Conditions)



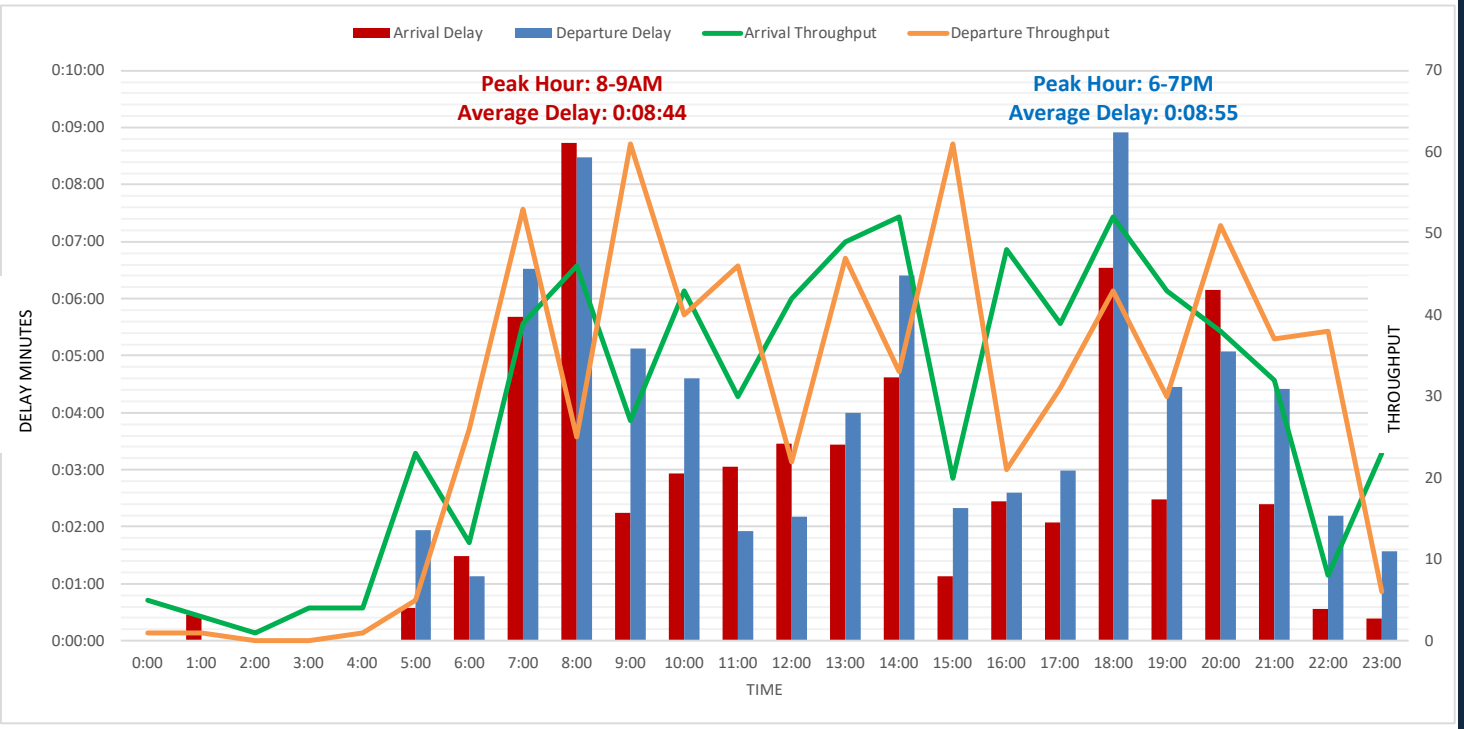
Arrival & Departure Throughput

- Straight North Flow
- Low Clouds and/or Visibility (Instrument Conditions)



Arrival & Departure Delays

- Straight North Flow
- Low Clouds and/or Visibility (Instrument Conditions)
- Peak Hour Average Delays Approaching 9 Minutes



Throughput-Delay Comparison

- Straight North Flow
- Low Clouds and/or Visibility (Instrument Conditions)
- Departures and Arrivals
- Peak Hour Average Delays Approaching 9 Minutes

Animation:

Peak Hour Average Departure Delays

- Straight North Flow
- Instrument Conditions

Industry Guidance on Delay vs. Level of Service

- **4 to 6 minutes of Annual Average Delay (AAD) per operation**
  - Limited peak-hour Visual Flight Rules (VFR) delays
  - Instrument Flight Rules (IFR) delays in moderate and extreme weather conditions
- **6 to 8 minutes of AAD per operation**
  - Increasing VFR delays in peak hours
  - Increasing high levels of delays throughout the day in IFR
- **8 to 10 minutes of AAD per operation**
  - Delays expand beyond peak hours in VFR
  - IFR delay levels that can result in some cancellations
- **Over 10 minutes of AAD per operation**
  - Delays expand beyond peak hours in VFR in all but optimum conditions
  - Very high delays in IFR conditions, resulting in significant flight cancellations

Terminal Facilities Planning

Terminal Facilities Planning

Objective: use state-of-the-art simulation tools to predict how the MSP terminals will perform under forecasted aircraft activity levels, and define terminal capital improvements through 2040 to accommodate growth and deliver a one-journey passenger service experience

Terminal Facility Planning

PEOPLE + FACILITIES + PROCESSES

Passenger Personas & Attributes

- Reasons for travel & cultural background
- Type of consumer & air travel frequency
- Type of passenger & getting to/from the airport
  - Originating/Terminating/Connecting
  - Domestic/International

Terminal Facility Inventory, Conditions and Capabilities

- Landside Terminal Facilities
  - Ground transportation services
  - Check-in
  - Commercial services and amenities
  - Security Checkpoints
- Airside Terminal Facilities
  - Concourses
  - International Arrivals
- Terminal and Ramp Operational Areas
  - Baggage operations
  - Aircraft parking (in-service aircraft)

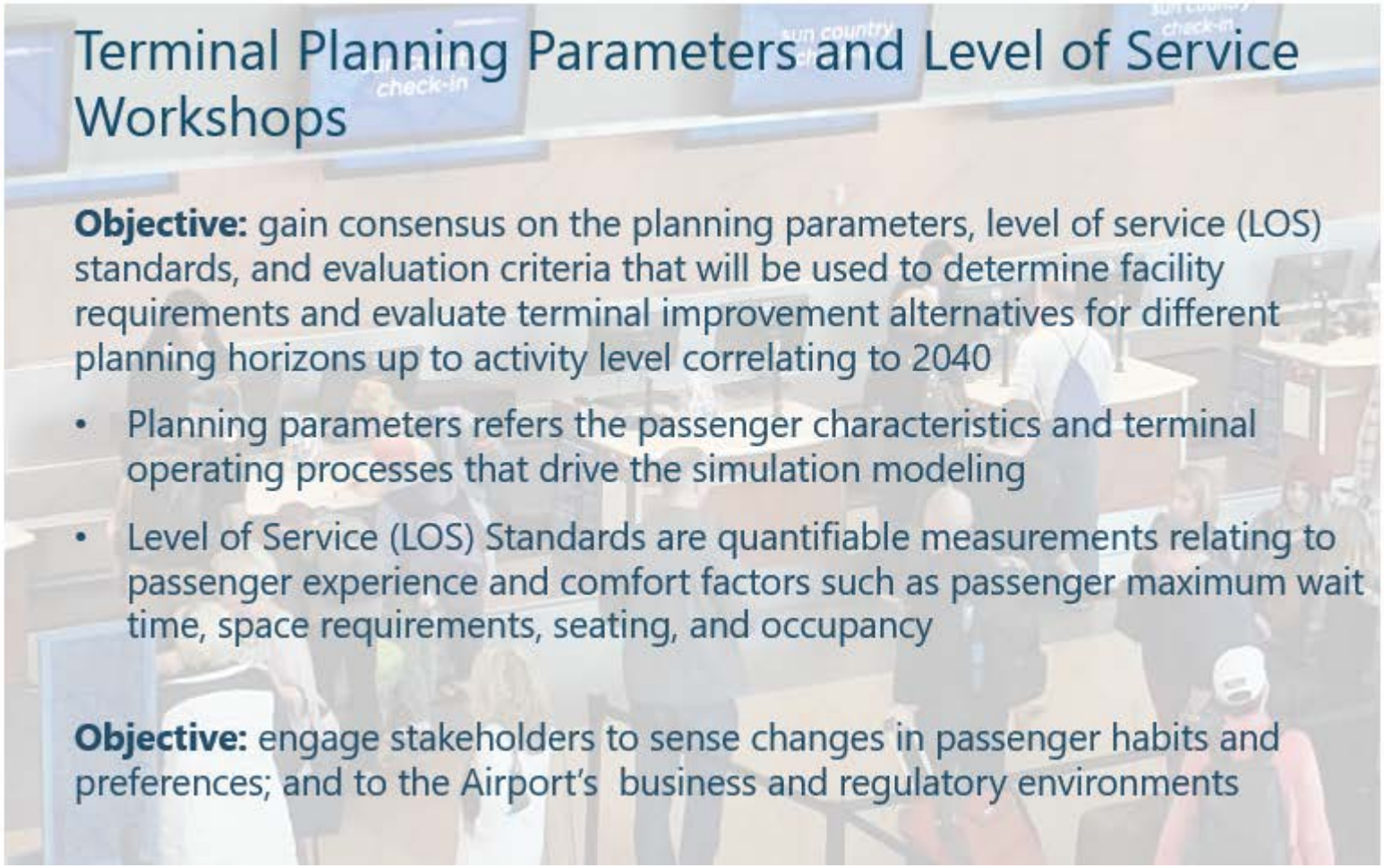
Operating Concepts, Guidelines and Level of Service

- Guidelines, Benchmarks and Trends
  - Technology
  - Passenger interaction and processing rates
  - Operating clearances and spatial comfort
- Future-proofing & resiliency

Terminal Facility Planning Workshops

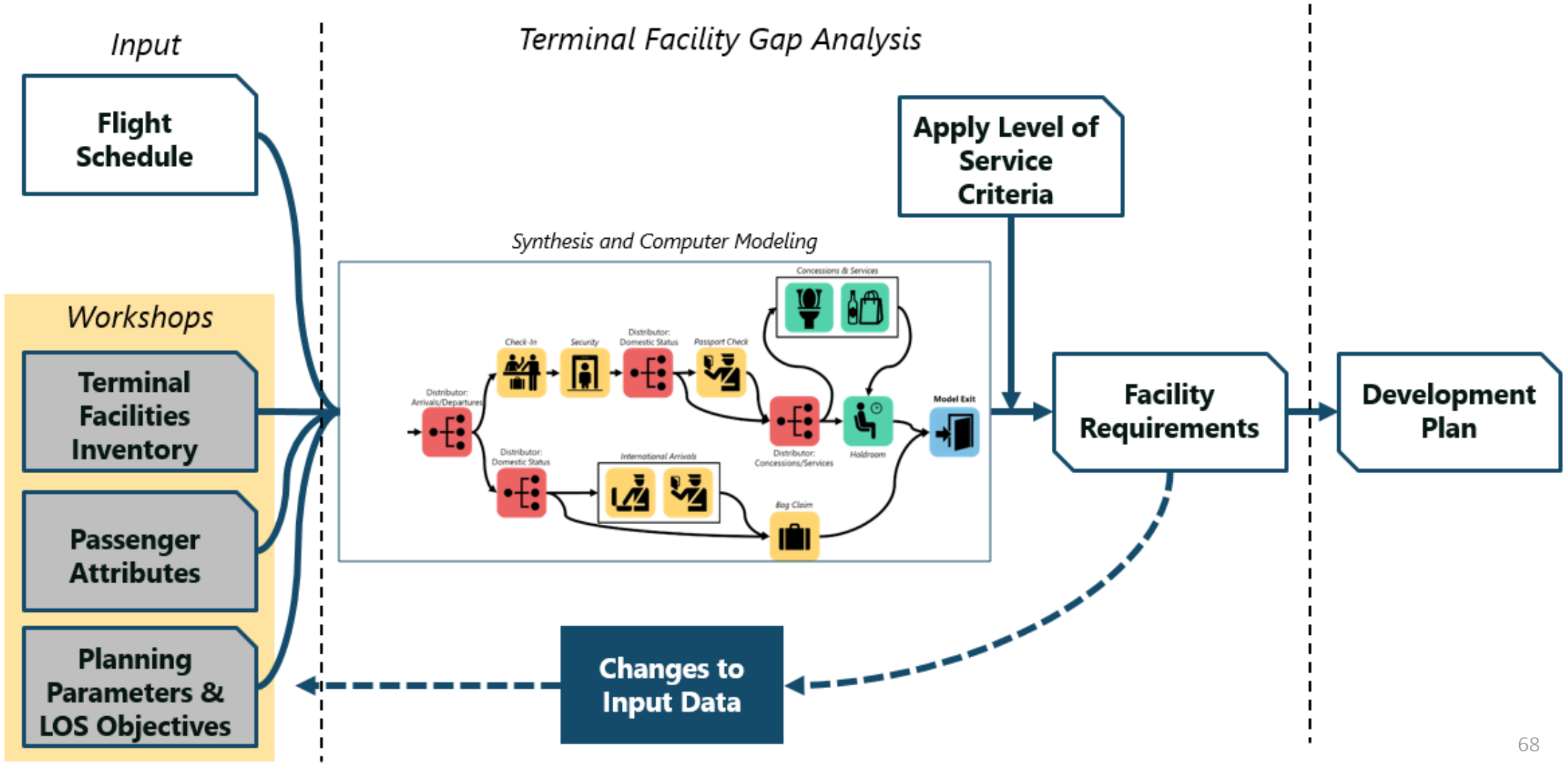
Terminal Planning Parameters and Level of Service Workshops:

WS#1 – Landside/Non-Secure Terminal
WS#2 – Airside/Secure Terminal
WS#3 – Transportation Security Administration
WS#4 – U.S. Customs and Border Protection
WS#5 – Terminal Support/Ramp Operations



Terminal Facility Planning

Stakeholder input is critical to embedding continuous improvement into the planning process



Public Comment

- Each speaker will have one opportunity to speak and is allotted three (3) minutes.
- If you would like to speak, stand up and state your name and address. If you are affiliated with any organization, please state your affiliation.
- Tonight's comments will not be responded to by MAC staff nor members of the Panel. Rather, they will be recorded as part of the meeting minutes.
- If you are asking a question, the planning staff will respond to those questions and include them in a document published on the Long-Term Plan project website.


Thank you
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