Administrative Draft

SILICON VALLEY'S AIRPORT

SJC

06/30/2021

City of San Jose Construction Crane Fee Program Analysis
Developer Working Group Meeting #2

Crane Fee Program Analysis
Executive Summary

- Forecasted airline impacts that occur during Runway 12L/12R departures (south flow)
- Winter season has more impacted departures, summer season is characterized by higher load factors (LF), this creates similar Denied Boarding Cost (DBC) across both seasons
- Denied Boarding (DB) financial impact
  - 63% of DBs are on international routes
  - Tokyo, London & mostly Beijing

Forecasted Costs to Airlines

	Full Schedule	No Beijing	No International
Full Year	$2.8 m	$1.7m	$1.1m
Apr-Sept	$1.1m	$777k	$615k
Oct-Mar	$1.7m	$959k	$417k

Denied Boarding Methodology

- Two types of DBs, voluntary and involuntary
  - A voluntary DB is where a passenger has been offered a seat on their current flight but has accepted compensation in exchange for a seat on a later flight or another carrier
  - An involuntary DB is where a passenger has not been offered a seat on their current flight regardless of their flight re-accommodation and any compensation they may receive

- According to data from the Bureau of Transportation Statistics and the Government Accountability Office (GAO) (domestic passengers only) on average less than 5% of DBs are involuntary
  - For the purposes of this study, it should be assumed the ratio of involuntary (5%) and voluntary (95%) DBs will be in-line with these statistics
  - There are a couple scenarios where this industry data errors towards being more conservative on involuntary DBs
    - The DBs are occurring close to departure and the volunteer solicitation process is compromised
    - The DBs are a significant percentage of aircraft capacity and well beyond the upper end of how many passengers would volunteer

Voluntary Denied Boarding Cost (DBC)

- Domestic voluntary DB cost numbers $300/$600 are in-line with the value of a free ticket which is the compensation typically offered when airlines solicit volunteers
  - The GAO reports that it does not have any data on compensation received from voluntary DBs because it typically isn't a monetary amount but rather a free ticket/travel voucher

- The compensation numbers for voluntary domestic and international DBs, do not include the additional cost of hotel and meal/travel accommodations.
  - Based on input from a major US carrier, per diem costs were set at $200 for SJC origin flights (domestic/intl) and include any meal and transportation accommodations in addition to inconvenience factor
  - Due to the likelihood of not being able to provide a same day flight re-accommodation, hotel costs should be added to intl DBs ($300)
  - Domestic destination passengers, the probability of this hotel cost being incurred significantly increases for flights that are later in the day

Denied Boarding Cost (per passenger)		
	Domestic	International
Voluntary	$300	$600
Per Diem (Origin)	$200	$200
Per Diem (Destination)	$500	$500

Involuntary Denied Boarding Cost (DBC)

- For an involuntary DB the U.S. DOT minimum compensation (i.e. money) that must be given to involuntary DBs is based on the length of the passenger's delay
  - $775 for 1-2 hour domestic delay and 1-4 hour international delay
  - $1550 for 2+ hours domestic and 4+ hours international delays

- For the purposes of this study, a domestic involuntary DB will receive cash compensation of $1000.
  - According to the GAO, in 2018, the average amount of cash compensation a passenger received who was involuntarily denied boarding was $937
  - A major network carrier uses $1000 for its involuntary DB cost as an input in their overbooking model based on historical amounts paid out

- An international passenger who is involuntarily denied boarding will receive cash compensation of $2000.
  - The higher cost for international passengers is mainly due to less flight re-accommodation options

Denied Boarding Cost (per passenger)		
	Domestic	International
Involuntary	$1000	$2000
Per Diem (Origin)	$200	$200
Per Diem (Destination)	$500	$500

Denied Boarding Cost Per Passenger Assumptions

Assumed Denied Boarding Cost per Passenger: By Point of Origin & Denied Boarding Compensation (DBC) Type

	Traffic mix of Denied Boardings								DBC per Passenger		
	SJC Origin &		SJC Destination &		Hotels, Per Diem Vouchers		Airline DBC per Passenger		Hotels,	Air	
Impacted SJC Market	Voluntary	Involuntary	Voluntary	Involuntary	SJC Origin	SJC as Destination	Voluntary	Involuntary	Per Diem	Fare	Total
	(A)	(B)	(C)	(D)	(E)	(F)	(G)	(H)	(I)	(J)	(K)
Asia: Beijing (PEK), Tokyo (NRT)	57%	3%	38%	2%	$200	$500	$600	$2,000	$320	$670	$990
Hawaii: HNL, KOA, OGG	78%	4%	17%	1%	$200	$500	$300	$1,000	$254	$335	$589
Europe - Lufthansa***	59%	3%	36%	2%	$200	$500	$600	$2,000	$314	$670	$984
Europe - British Airways	55%	3%	40%	2%	$200	$500	$600	$2,000	$326	$670	$996
Newark (EWR) - Alaska Airlines	52%	3%	43%	2%	$200	$500	$300	$1,000	$335	$335	$670
JFK - Alaska & Delta	50%	3%	45%	2%	$200	$500	$300	$1,000	$341	$335	$676
JFK - Alaska & jetBlue	50%	3%	45%	2%	$200	$500	$300	$1,000	$341	$335	$676

***Lufthansa not in operation

Estimation/Model of Denied Boardings

- Maximum Load Factors (LF) derived from aircraft assessment studies done earlier
- Ran current LFs based upon CY 2019, by month, carrier, route and aircraft type
- Comparison by route, aircraft and carrier of maximum LFs versus actual LFs to estimate DBs
- In addition, select airlines supplied their own estimates...

Seat Penalty Assumptions by Route/Airline/Aircraft

		Estimated Seats that can be Filled/Lost			
		Oct-Mar: Max. Seats Filled Calc.		Apr-Sept: Max. Seats Flown Calc.	
Market/Aircraft/Carrier	(A) Seats/Departure (DOT T100) *	(B) Max Seats Filled**	(C=A-B) Lost Seats	(D) Max Seats Filled**	(E=A-D) Lost Seats
NRT-787-800 (NH)	172	119	53	129	43
NRT-787-900 (NH)	217	166	51	172	45
PEK-787-800 (HU)	213	128	85	127	86
PEK-787-900 (HU)	288	128	160	127	161
LHR 787-900 (BA)	216	182	34	175	41
FRA-A340-300 (LH)	300	300	0	300	0
NYC-A320 (B6)	150	146	4	139	11
NYC-A319 (AS)	148	146	2	139	9
NYC-737-800					
- AS	159	175	0	175	0
- DL	160	174	0	168	0
NYC-737-900ER					
- AS	178	175	3	175	3
- DL	180	173	7	157	23
Hawaii-A321-NEO (HA)	189	189	0	184	5
Hawaii-A330-200 (HA)	278	278	0	278	0
Hawaii-767-300 (HA)	264	264	0	264	0
Hawaii-737-800					
- AS	159	139	36	133	26
- WN	175	175	0	175	0
Hawaii-737-900ER (only AS)	178	139	36	152	26

* For CY 2019. Is what was reported to USDOT in aggregate. For NH, is a mix of aircraft, although was primarily the 169-seat 787-800; Note that as of October 2019, NH operated 3 configerations of the 787-800 (169, 184 and 240 seats)

** Based upon modeled runway impacts in Appendix (all Scenario 3B) or airline recommendations (AS, WN & DL)

% of Departures in South Flow

SJC: % of Departures in Southeast Flow by Hour and Month

	Month											
Hour	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
6	20%	24%	25%	16%	14%	18%	24%	20%	12%	15%	17%	22%
7	20%	24%	29%	17%	16%	19%	26%	22%	13%	14%	18%	23%
8	22%	22%	31%	17%	17%	19%	25%	22%	14%	14%	17%	24%
9	22%	23%	30%	17%	17%	18%	24%	21%	14%	14%	17%	24%
10	21%	21%	28%	16%	14%	12%	18%	15%	11%	14%	17%	23%
11	20%	20%	28%	13%	11%	9%	9%	8%	8%	12%	17%	22%
12	20%	20%	25%	13%	8%	5%	4%	4%	5%	10%	15%	22%
13	18%	19%	24%	12%	8%	4%	2%	2%	3%	8%	13%	22%
14	19%	18%	22%	11%	7%	3%	1%	2%	3%	7%	13%	21%
15	18%	18%	22%	11%	7%	2%	1%	2%	2%	6%	12%	19%
16	17%	16%	20%	9%	7%	2%	1%	1%	3%	6%	12%	19%
17	17%	16%	20%	9%	6%	2%	1%	1%	3%	6%	12%	19%
18	18%	15%	19%	8%	6%	2%	1%	1%	3%	7%	12%	19%
19	18%	16%	19%	8%	6%	2%	1%	1%	2%	7%	11%	17%
20	19%	15%	18%	8%	5%	1%	1%	1%	3%	7%	12%	18%
21	19%	16%	19%	9%	6%	2%	1%	1%	3%	8%	13%	19%
22	20%	16%	18%	9%	6%	2%	1%	2%	3%	8%	14%	19%
23	19%	17%	18%	9%	6%	2%	1%	2%	4%	8%	14%	19%
Average	19%	19%	23%	12%	9%	7%	8%	7%	6%	10%	14%	21%

Source: FAA ASPM Airport Efficiency Daily Configuration By Hour, 1/1/2010 to 12/31/2020

- Relative to monthly averages, there are more deviations at the hourly level
- Morning departures are more heavily impacted consistently for both seasons
- Afternoon & evening departures less impacted
- Biggest deviations are during summer months

SJC Departure Detail: August

August Scheduled SJC Departing Flights by Time, Airline, Destination and Aircraft Time

% of Flights SE Flow	Airline Code / Destination Code / Equipment Code / Depart Time	AS EWR 738 Departs	AS HNL 738 Departs	AS HNL 739 Departs	AS JFK 738 Departs	AS JFK 739 Departs	AS KOA 738 Departs	AS KOA 739 Departs	AS OGG 738 Departs	B6 JFK 320 Departs	BA LHR 789 Departs	DL JFK 739 Departs	HA HNL 321 Departs	HA OGG 321 Departs	HU PEK 789 Departs	NH NRT 788 Departs	LH FRA 343 Departs	WN HNL 738 Departs	WN OGG 738 Departs	TOTAL Departs
22%	0700		4	19																23
22%	0715													31						31
22%	0720				24	2														26
22%	0730			3					2											5
22%	0800						9	13												22
21%	0830	22																		22
21%	0840	4																		4
21%	0850						3		23											26
21%	0915												31							31
15%	0940																		5	5
8%	1055																	26		26
8%	1115																	5		5
4%	1225															31				31
2%	1240																		26	26
2%	1400				4	1														5
2%	1430														18					18
2%	1505																22			22
1%	2010										31									31
2%	2150											16								16
2%	2154											14								14
2%	2245											1								1
2%	2254									31										31
	TOTAL	26	4	22	28	3	12	13	25	31	31	31	31	31	18	31	22	31	31	421

DB Summary by Season & Financial Impact

Estimated Financial Impact: Denied Boardings & Denied Boardings Compensation (DBC)

			Oct - March		Apr-Sept		Full Year	
Airline	Destination	Aircraft Type	DB Psgrs	Financial Impact	DB Psgrs	Financial Impact	DB Psgrs	Financial Impact
AS	EWR	Boeing 737-800	-	-	-	-	-	-
AS	EWR	Boeing 737-900ER	-	-	-	-	-	-
AS	HNL	Boeing 737-800	122	$71,790	78	$46,027	200	$117,816
AS	HNL	Boeing 737-900ER	210	$123,408	299	$176,190	509	$299,598
AS	JFK	Airbus Industrie A319	1	$949	-	-	1	$949
AS	JFK	Airbus Industrie A320-100/200	5	$3,677	-	-	5	$3,677
AS	JFK	Boeing 737-800	0	-	-	-	0	-
AS	JFK	Boeing 737-900ER	-	-	-	-	-	-
AS	KOA	Boeing 737-800	82	$48,335	81	$47,765	163	$96,100
AS	KOA	Boeing 737-900ER	122	$71,648	155	$91,466	277	$163,114
AS	OGG	Boeing 737-800	149	$87,927	283	$166,449	432	$254,376
B6	JFK	Airbus Industrie A320-100/200	13	$8,555	21	$14,258	34	$22,813
B6	JFK	Airbus Industrie A321	2	$1,032	-	-	2	$1,032
BA	LHR	B787-900 Dreamliner	100	$99,166	72	$72,195	172	$171,361
DL	JFK	Boeing 737-800	$0	$0	$0	$0	0	$0
DL	JFK	Boeing 737-900ER	-	-	37	$24,905	38	$26,004
DL	JFK	Boeing 757-200	-	-	-	-	-	-
HA	HNL	Airbus Industrie A321-200n	0	-	45	$26,240	45	$26,240
HA	HNL	Airbus Industrie A330-200	-	-	-	-	-	-
HA	HNL	Boeing 767-300/300er	-	-	-	-	-	-
HA	OGG	Airbus Industrie A321-200n	0	-	38	$22,145	38	$22,145
HU	PEK	B787-800 Dreamliner	270	$267,688	18	$18,034	289	$285,722
HU	PEK	B787-900 Dreamliner	481	$475,729	295	$291,965	775	$767,694
LH*	FRA	A340-300	-	-	-	-	-	-
NH	NRT	B787-800 Dreamliner	439	$434,232	84	$83,460	523	$517,692
NH	NRT	B787-900 Dreamliner	8	$8,276	6	$5,718	14	$13,994
WN*	HNL	Boeing 737-800	0	-	0	-	0	-
WN*	OGG	Boeing 737-800	0	-	0	-	0	-
		TOTAL	2,005	$1,702,411	1,512	$1,086,819	3,517	$2,790,328

Example Monthly Crane Fee Rates (Forecasted Costs to Airlines + Admin Fee)

Administrative Draft

	April - September (Summer Season)			October - March (Winter Season)		
# Developers	Full Schedule	No Beijing	No International	Full Schedule	No Beijing	No International
1 Developer	$210,833/mo.	$148,925/mo.	$117,875/mo.	$325,833/mo.	$183,808/mo.	$79,925/mo.
2 Developers	$105,417/mo.	$74,463/mo.	$58,938/mo.	$162,917/mo.	$91,905/mo.	$39,963/mo.
3 Developers	$70,278/mo.	$49,642/mo.	$39,292/mo.	$108,611/mo.	$61,270/mo.	$26,642/mo.

Developer Fee – Methodology

- The DFs could be charged on a differential rate by season (i.e., summer / winter)
- Note: Differential rates are not necessarily skewed to one season. E.g., Without international DB costs are greater in summer season than winter.
- Annual South Flow #s and seasonality:
  - Percentage of time in SE flow operation: 8.7% summer (S); 17.5% winter (W); 13% annual
  - Seasonal percentage impacted DBs: 7.16% summer (S); 9.5% winter (W); 8.33% annual

- The Developer Fee should be charged at the time of building permit processing
  - It is essential that the DF can be estimated prior to a project commencing. Changes due to overlapping construction periods or individual disruptions for flights would not provide the developers the foresight to properly budget for the Developer Fee.
  - A flat fee would be charged at this time covering the period of time within the construction period when the developer would be using cranes above the building height restriction
- The DB cost recovery is estimated at $2.8MM annually, at $1.7MM without PEK, and at $1.1MM without international.

Developer Fee – Administration

- Rates would be adjusted annually and applied to new project building permits
- There would be a reconciliation/true-up at season end or at project close out
  - Developers would not be allowed to close out permits until all fees have been paid and reconciled
- The airlines would need to make a request for reimbursement. It would not be the obligation of the Airport to seek out airline DB information
  - An airline reporting form will be established to document the DBs of a particular flight to which that airline seeks reimbursement
- Conclusion:
  - The DF structured in this manner could provide consistency and predictability to the developers and funding to the airlines via an airport program for airline DB costs

Questions/Feedback?

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