

Downtown Airspace and Development Capacity Study Community and Economic Development Committee January 28, 2019

The Challenge

- Downtown and Airport are two of San Jose's economic priorities
- FAA protects airspace invisible "surfaces" known as Part 77 and FAA/TERPS
- Part 77 and FAA/TERPs do not consider specific airline emergency procedures known as one-engine inoperative (OEI)
- OEI study last conducted in 2007, established Straight-out and West Corridor OEI protection

What is One Engine Inoperative?



Study Evaluation Area



Project Steering Committee

Community Representatives

Teresa Alvarado – SPUR

Scott Knies – San Jose Downtown Association

Matt Mahood – Silicon Valley Organization

David Bini – Santa Clara & San Benito Counties Building & Construction Trades Council

Josue Garcia – Santa Clara County Residents for Responsible Development

Matt Quevedo – Silicon Valley Leadership Group

Julie Matsushima – Airport Commissioner and Downtown Resident

City Staff

John Aitken and Judy Ross – Airport Department Kim Walesh and Blage Zelalich – City Manager's Office/Office of Economic Development Rosalynn Hughey – Planning, Building and Code Enforcement David Hai Tran & Christina Ramos– District 3 Office Kelly Kline – Mayor's Office

Consultants

Landrum and Brown and Jones, Lang, and LaSalle

Collaborative Process



Today

South Flow Departures

2003 - 2017 Average

13.0%	87.0%					
Southeast Flow	Northwest Flow					
arly Proportions						
2003 12.9%	87.1%					
2004 13.2%	86.8%					
2005 15.2%	84.8%					
2006 18.0%	82.0%					
2007 9.1%	90.9%					
2008 8.7%	91.3%					
2009 13.1%	86.9%					
2010 17.1%	82.9%					
2011 12.8%	87.2%					
2012 14.6%	85.4%					
2013 6.8%	93.2%					
2014 15.8%	84.2%					
2015 9.1%	90.9%					
2016 15.9%	84.1%					
2017 12.9%	87.1%					
0% 10% 2	30% 40% 50% 60% 70% 80% 90% 100%					
	Percent of Operations Source: AN					



"What If" Scenario Assessment

Airspace Protection Scenarios

Four Airspace Scenarios

- Scenario 4: No OEI protection, FAA/TERPS only
- Scenario 7: Straight-out OEI protection only
- Scenario 10: Straight-out OEI with West OEI Corridor alternatives
- Scenario 9: No OEI, increased FAA/TERPS Height Only

Selected Aircrafts

- Boeing 737-800
- Airbus 321-NEO (Original was Airbus 320-200)
- Boeing 787-9
- Boeing 777-300ER

Airline Response to Obstacles

- Request another runway (wind, weather, air traffic permitting)
- Off-load passengers and/or cargo (weight penalty)
- Make a refueling stop
- Cancel current day's flight
- Change aircraft
- Change OEI procedure
- Cancel air service if payload loss affects financial viability

SCENARIO 4 – NO OEI – FAA/TERPS ONLY



Transcontinental Weight Penalty Assessment

	New York - JFK		A320-200 (150 seats/2,384 lbs. cargo)		B737-800 (175 seats/1,604 lbs. cargo)	
	Winter (63° F)		Cargo Penalty (lbs.)	PAX Penalty	Cargo Penalty (lbs.)	
Scenario 1	Existing airspace protection			-	-	
Scenario 4	TERPS Only	-	1,067	-	-	
Scenario 7	Straight-Out ICAO OEI surface protection without West OEI Corridor	-	-	-	-	
	Existing Conditions: 85' - 166' AGL	-	-	-	-	
	Opt 10A: 100' - 195' AGL	-	-	-	-	
Scenario 10	Opt 10B: 115' - 224' AGL	-	-	-	-	
	Opt 10C: 129' - 240' AGL	-	-	-	-	
	Opt 10D: 146' - 260' AGL	-	106	-	-	
Scenario 9	TERPS only with increased TERPS departure climb gradients and approach procedure minima	8	2,384	-	583	
	New York - JFK	A320-200 (150 sea	ts/2,384 lbs. cargo)	B737-800 (175 sea	ts/1,138 lbs. cargo)	
S	New York - JFK Summer (81.3° F)	A320-200 (150 sea PAX Penalty	ts/2,384 lbs. cargo) Cargo Penalty (lbs.)	B737-800 (175 sea PAX Penalty	ts/1,138 lbs. cargo) Cargo Penalty (lbs.)	
Scenario 1	New York - JFK Summer (81.3° F) Existing airspace protection	A320-200 (150 sea PAX Penalty -	ts/2,384 lbs. cargo) Cargo Penalty (lbs.) -	B737-800 (175 sea PAX Penalty -	ts/1,138 lbs. cargo) Cargo Penalty (lbs.) -	
Scenario 1 Scenario 4	New York - JFK Summer (81.3° F) Existing airspace protection TERPS Only	A320-200 (150 sea PAX Penalty - 3	ts/2,384 lbs. cargo) Cargo Penalty (lbs.) - 2,384	B737-800 (175 sea PAX Penalty - -	ts/1,138 lbs. cargo) Cargo Penalty (lbs.) - -	
Scenario 1 Scenario 4 Scenario 7	New York - JFK Summer (81.3° F) Existing airspace protection TERPS Only Straight-Out ICAO OEI surface protection without West OEI Corridor	A320-200 (150 sea PAX Penalty - 3 -	ts/2,384 lbs. cargo) Cargo Penalty (lbs.) - 2,384 -	B737-800 (175 sea PAX Penalty - - -	ts/1,138 lbs. cargo) Cargo Penalty (lbs.) - - - -	
Scenario 1 Scenario 4 Scenario 7	New York - JFK Summer (81.3° F) Existing airspace protection TERPS Only Straight-Out ICAO OEI surface protection without West OEI Corridor Existing Conditions: 85' - 166' AGL	A320-200 (150 sea PAX Penalty - 3 - -	ts/2,384 lbs. cargo) Cargo Penalty (lbs.) - 2,384 - -	B737-800 (175 sea PAX Penalty - - - -	ts/1,138 lbs. cargo) Cargo Penalty (lbs.) - - - -	
Scenario 1 Scenario 4 Scenario 7	New York - JFK Summer (81.3° F) Existing airspace protection TERPS Only Straight-Out ICAO OEI surface protection without West OEI Corridor Existing Conditions: 85' - 166' AGL Opt 10A: 100' - 195' AGL	A320-200 (150 sea PAX Penalty - - 3 - - -	ts/2,384 lbs. cargo) Cargo Penalty (lbs.) - 2,384 - - - -	B737-800 (175 sea PAX Penalty - - - - - -	ts/1,138 lbs. cargo) Cargo Penalty (lbs.) - - - - - - - -	
Scenario 1 Scenario 4 Scenario 7 Scenario 10	New York - JFK Summer (81.3° F) Existing airspace protection TERPS Only Straight-Out ICAO OEI surface protection without West OEI Corridor Existing Conditions: 85' - 166' AGL Opt 10A: 100' - 195' AGL Opt 10B: 115' - 224' AGL	A320-200 (150 sea PAX Penalty - - - - - - - - -	ts/2,384 lbs. cargo) Cargo Penalty (lbs.) - 2,384 - - - - - -	B737-800 (175 sea PAX Penalty - - - - - - - -	ts/1,138 lbs. cargo) Cargo Penalty (lbs.) - - - - - - - - -	
Scenario 1 Scenario 4 Scenario 7 Scenario 10	New York - JFK Summer (81.3° F) Existing airspace protection TERPS Only Straight-Out ICAO OEI surface protection without West OEI Corridor Existing Conditions: 85' - 166' AGL Opt 10A: 100' - 195' AGL Opt 10B: 115' - 224' AGL Opt 10C: 129' - 240' AGL	A320-200 (150 sea PAX Penalty	ts/2,384 lbs. cargo) Cargo Penalty (lbs.) - 2,384 - - - - - - - - -	B737-800 (175 sea PAX Penalty - - - - - - - - - - - - -	ts/1,138 lbs. cargo) Cargo Penalty (lbs.) - - - - - - - - - - - - -	
Scenario 1 Scenario 4 Scenario 7 Scenario 10	New York - JFK Summer (81.3° F) Existing airspace protection TERPS Only Straight-Out ICAO OEI surface protection without West OEI Corridor Existing Conditions: 85' - 166' AGL Opt 10A: 100' - 195' AGL Opt 10B: 115' - 224' AGL Opt 10C: 129' - 240' AGL Opt 10D: 146' - 260' AGL	A320-200 (150 sea PAX Penalty - - - - - - - - - - - - -	ts/2,384 lbs. cargo) Cargo Penalty (lbs.) - 2,384 - - - - - - 1,378	B737-800 (175 sea PAX Penalty - - - - - - - - - - - - - - - -	ts/1,138 lbs. cargo) Cargo Penalty (lbs.) - - - - - - - - - - - - - - - - - - -	

Hawaii Weight Penalty Assessment.



	Hawaii - HNL	A321 NEO (189	seats/18,481 lbs.)	B737-800 (173 seats ¹ /No Cargo		
	Winter (63° F)	PAX Penalty Cargo Penalty (lbs.)		PAX Penalty Cargo Penalty (I		
Scenario 1	Existing airspace protection	-	-	-	-	
Scenario 4	TERPS Only	-	-	-	-	
Scenario 7	Straight-Out ICAO OEI surface protection without West OEI Corridor	-	-	-	-	
	Existing Conditions: 85' - 166' AGL	-	-	-	-	
	Opt 10A: 100' - 195' AGL	-	-	-	-	
Scenario 10	Opt 10B: 115' - 224' AGL	-	-	-	-	
	Opt 10C: 129' - 240' AGL	-	-	-	-	
	Opt 10D: 146' - 260' AGL	-	-	-	-	
	TERPS only with increased TERPS					
Scenario 9	departure climb gradients and approach	-	2,537	3	-	
	procedure minima					
	Hawaii - HNL	A321 NEO (189	seats/21,658 lbs.)	B737-800 (175 seats/1,599 lbs. cargo)		
9	Summer (81.3° F)	PAX Penalty	Cargo Penalty (lbs.)	PAX Penalty	Cargo Penalty (lbs.)	
Scenario 1	Existing airspace protection	-	-	-	-	
Scenario 4	TERPS Only	-	593	-	-	
Seemerie 7	Straight-Out ICAO OEI surface protection			-		
Scenario 7	without West OEI Corridor	-	-		-	
	Existing Conditions: 85' - 166' AGL	-	-	-	-	
	Opt 10A: 100' - 195' AGL	-	-	-	-	
Scenario 10	Opt 10B: 115' - 224' AGL	-	-	-	-	
	Opt 10C: 129' - 240' AGL	-	-	-	-	
	Opt 10D: 146' - 260' AGL	-	-	-	-	
	TERPS only with increased TERPS					

es:

HNL is fuel capacity limited in Feb to 173 PAX and no cargo (i.e., not a takeoff weight limitation) for the B737-800.

Europe Weight Penalty Assessment



	Frankfurt - FRA		/26,198 lbs. cargo)	B777-300ER (370 sea	ats/62,240 lbs. cargo)	
	Winter (68° F)	PAX Penalty	Cargo Penalty (lbs.)	PAX Penalty	Cargo Penalty (lbs.)	
Scenario 1	Existing airspace protection	-	-	-	-	
Scenario 4	TERPS Only	-	21,580	-	4,400	
Scenario 7	Scenario 7 Straight-Out ICAO OEI surface protection without West OEI Corridor		15,338	-	-	
	Existing Conditions: 85' - 166' AGL	-	10,000	-	-	
	Opt 10A: 100' - 195' AGL	-	-	-	-	
Scenario 10	Opt 10B: 115' - 224' AGL	-	9,349	-	-	
	Opt 10C: 129' - 240' AGL	-	14,096	-	-	
	Opt 10D: 146' - 260' AGL	-	19,282	-	2,027	
	TERPS only with increased TERPS		26,198	-		
Scenario 9	departure climb gradients and approach	29			11,735	
	procedure minima					
	Frankfurt - FRA		/23,514 lbs. cargo)	B777-300ER (370 seats/62,240 lbs. cargo)		
	Summer (81.3° F)	PAX Penalty	Cargo Penalty (lbs.)	PAX Penalty	Cargo Penalty (lbs.)	
Scenario 1	Existing airspace protection	-	-	-	-	
Scenario 4	TERPS Only	2	22,911	-	7,811	
Scenario 7	Scenario 7 Straight-Out ICAO OEI surface protection without West OEI Corridor		16,407	-	-	
	Existing Conditions: 85' - 166' AGL	-	-	-	-	
	Opt 10A: 100' - 195' AGL	-	4,217	-	-	
Scenario 10	Opt 10B: 115' - 224' AGL	-	9,353	-	-	
	Opt 10C: 129' - 240' AGL	-	14,270	-	-	
	Opt 10D: 146' - 260' AGL	-	19,612	-	3,876	
Scenario 9	Opt 10D: 146' - 260' AGL TERPS only with increased TERPS Scenario 9 departure climb gradients and approach procedure minima		23,514	-	15,397	

Asia Weight Penalty Assessment

	Beijing - PEK	B787-9 (290 seats	/10,853 lbs. cargo)	B777-300ER (370 seats/56,089 lbs. cargo)	
	Winter (68° F)	PAX Penalty	Cargo Penalty (lbs.)	PAX Penalty	Cargo Penalty (lbs.)
Scenario 1	Existing airspace protection	-	-	-	-
Scenario 4	TERPS Only	51	10,853	-	19,278
Scenario 7	cenario 7 Straight-Out ICAO OEI surface protection without West OEI Corridor		10,853	-	11,801
	Existing Conditions: 85' - 166' AGL	-	-	-	-
	Opt 10A: 100' - 195' AGL	-	4,534	-	5,479
Scenario 10	Opt 10B: 115' - 224' AGL	-	9,408	-	6,673
	Opt 10C: 129' - 240' AGL	13	10,853	-	10,537
	Opt 10D: 146' - 260' AGL	34	10,853	-	16,929
Scenario 9	TERPS only with increased TERPS departure climb gradients and approach procedure minima	93	10,853	-	26,672
				D777 2005D (270	
	Beijing - PEK	B787-9 (290 seats/9,542 lbs. cargo)		B777-300ER (370 seats/55,588 lbs. cargo)	
9	Summer (81.3° F)	PAX Penalty	Cargo Penalty (lbs.)	PAX Penalty	Cargo Penalty (lbs.)
Scenario 1	Existing airspace protection	-	-	-	-
Scenario 4	TERPS Only	56	9,542	-	20,597
Scenario 7	Straight-Out ICAO OEI surface protection without West OEI Corridor	30	9,542	-	13,268
	Existing Conditions: 85' - 166' AGL	-	-	-	-
	Opt 10A: 100' - 195' AGL	-	3,933	-	5,293
Scenario 10	Opt 10B: 115' - 224' AGL	-	8,725	-	10,223
	Opt 10C: 129' - 240' AGL	15	9,542	-	11,020
	Opt 10D: 146' - 260' AGL	36	9,542	-	17,545
Scenario 9	TERPS only with increased TERPS departure climb gradients and approach	95	9,542	-	28,076

Weight Penalty Assessment Additional Domestic Markets

	Anchorage - ANC	A320 (150 seats)	/1,379 lbs. cargo)	B737-800 (175 sea	B737-800 (175 seats/7,100 lbs. cargo)	
9	Summer (81.3° F)	PAX Penalty Cargo Penalty (lbs.)		PAX Penalty	Cargo Penalty (lbs.)	
Scenario 1	Existing airspace protection	-	-	-	-	
Scenario 4	TERPS Only	-	-	-	-	
					•	
		1				
	Boston - BOS		A320 (150 seats/0 lbs. cargo)		B737-800 (175 seats/0 lbs. cargo)	
	Summer (81.3° F)		Cargo Penalty (lbs.)	PAX Penalty	Cargo Penalty (lbs.)	
Scenario 1	Existing airspace protection	7	-	1	-	
Scenario 4	Scenario 4 TERPS Only			1	-	
	Miami - MIA		A320 (150 seats/0 lbs. cargo)		B737-800 (175 seats/0 lbs. cargo)	
	Summer (81.3° F)		Cargo Penalty (lbs.)	PAX Penalty	Cargo Penalty (lbs.)	
Scenario 1	Existing airspace protection	1	-	3	-	
Scenario 4	TERPS Only	17		3	-	

Note - 1 and 3 Pax penalties as being due to Max Structural Takeoff Weight limits (and not related to the obstacles or runway length.)

Assessment of Existing Straight-Out OEI vs TERPS only for Additional Mar

Aircraft Evaluated: A330-200 A350-900 B777-300 B787-9

1 iles			al in		
AN TO					
	U				Frankfurt
Delhi Hong Kong		the second	San Jose		Dubai
M (IN 1990)			Distance	No.	
N. Sela	Route	Destination	(Statute Miles)	-11-	
	SJC - FRA	Frankfurt	5,702		
	SJC - PEK	Beijing	5,943		
and the second	SJC - TPE	Taipei	6,499	Rio De Janeiro	
	SJC - GIG	Rio De Janeiro	6,575		
	SJC - HKG	Hong Kong	6,957		
	SJC - DEL	Delhi	7,731		
	SJC - DXB	Dubai	8,120	Source	e: www.greatcirclemap.com, Landrum &
				Brown	

WEIGHT PENALTY ASSESSMENT GIG, TPE, HKG, DEL & DXB



Summer (81.3° F) (284 seats/39,344 lbs cargo) (325 seats/37,963 lbs cargo) (370 seats/48,211 lbs cargo) (290 seats/7,144 lbs cargo) 6,575 miles PAX Penalty Cargo Penalty (lbs) PAX Penalty Penalty (lbs) Penalty (lbs) PAX Penalty Cargo Penalty (lbs) PAX Penalty Penalty (lbs) Penalty (lbs) PAX Penalty Cargo Penalty (lbs) PAX Penalty Cargo Penalty (lbs) PAX Penalty Pargo Penalty (lbs) PAX Penalty Cargo Penalty (lbs) Cargo Penalty (lbs) Cargo P	Rio de Janeiro - GIG	(20)	A330-200	(225	A350-900	B777-300	ER	B787	-9
6,575 miles PAX Penalty Cargo Penalty (lbs) PAX Penalty Cargo Penalty (lbs) PAX Penalty Cargo Penalty (lbs) Existing Straight Out OEI* Image: Cargo Penalty Image: PAX Penalty Image	Summer (81.3° F)	(284 se	eats/39,344 lbs cargo)	(325 se	ats/37,963 lbs cargo)	(370 seats/48,211	lbs cargo)	(290 seats/7,14	4 lbs cargo)
Existing Straight Out OEI* Image: Constraint of the second s	6,575 miles	PAX Penalty	Cargo Penalty (lbs)	PAX Penalty	Cargo Penalty (lbs)	PAX Penalty	(lbs)	PAX Penalt	Penalty (lbs)
Existing Straight Out OEI* 51 West OEI Corridor 60 TERPS Only 20,072 23,528 18,975 Faipei - TPE A330-200 A350-900 B777-300ER B787-9							(188)		
West OEI Corridor Corridor <td>Existing Straight Out OEI*</td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td>51</td> <td></td>	Existing Straight Out OEI*							51	
TERPS Only 20,072 23,528 18,975 60 7,144 Taipei - TPE A330-200 A350-900 B777-300ER B787-9	West OEI Corridor								
Taipei - TPE A330-200 A350-900 B777-300ER B787-9	TERPS Only		20,072		23,528		18,975	60	7,144
Taipei - TPE A330-200 A350-900 B777-300ER B787-9									
	Taipei - TPE		A330-200		A350-900	B777-300	ER	B787	-9
Summer (81.3° F) (284 seats/28,577 lbs cargo) (325 seats/27,582 lbs cargo) (370 seats/35,569 lbs cargo) (290 seats/0 lbs cargo) (290 seats/0 lbs cargo)	Summer (81.3° F)	(284 se	ats/28,577 lbs cargo)	(325 se	ats/27,582 lbs cargo)	(370 seats/35,569	lbs cargo)	(290 sea s/0 l	lbs (argo)
6,499 miles PAX Penalty Cargo Penalty (lbs) PAX Penalty Cargo Penalty (lbs) PAX Penalty Cargo Penalty PAX Penalty PA	6,499 miles	PAX Penalty	Cargo Penalty (Ibs)	PAX Penalty	Cargo Penalty (Ibs)	PAX Penalty	Cargo Penalty	PAX Penalty	Cargo
(lbs) Penalty (lbs)							(lbs)		Penalty (Ibs)
Existing Straight Out OEI* 89	Existing Straight Out OEI*							89	
West OEI Corridor 12	West OEI Corridor							12 📕	
TERPS Only 1,976 23,195 18,742 96	TERPS Only		1,976		23,195		18,742	96	
Hong Kong - HKG A330-200 A350-900 B777-300ER B787-9	Hong Kong - HKG		A330-200		A350-900	B777-300	ER	B787	-9
Summer (81.3° F) (284 seats/18,283 lbs cargo) (25 seats/17,182 lbs cargo) (370 seats/20,785 lbs cargo) (290 sets/0 lbs/argo)	Summer (81.3° F)	(284 se	eats/18,283 lbs cargo)	(<mark>12</mark> 5 se	ats 7,182 lbs cargo)	(370 seats/20,785	lbs cargo)	(290 setts/0	lbs argo)
6.957 miles PAX Penalty Cargo Penalty (lbs) PAX Penalty Cargo Penalty (lbs) PAX Penalty Cargo Penalty PAX Penalty Cargo Penalty Cargo Penalty PAX Penalty Cargo Penalty PAX Penalty Cargo Penalty PAX Penalty Cargo Penalty PAX Penalty PA	6.957 miles	PAX Penalty	Cargo Penalty (lbs)	PAX Penal y	Largo Penalty (Ibs)	PAX Penalty	Cargo Penalty	PAX Penalty	Cargo
(lbs) Penalty (lbs)	-,						(lbs)		Penalty (lbs)
Existing Straight Out OEI* 15 128	Existing Straight Out OEI*			15				128	
West OEI Corridor 51	West OEI Corridor							51	
TERPS Only 5 18,283 23 17,182 17,980 134	TERPS Only	5	18,283	23	17,182		17,980	134	
Delhi - DEL A330-200 A350-900 B777-300ER B787-9	Delhi - DEL		A330-200		A350-900	B777-300	ER	B787	-9
Summer (81.3° F) (34 seats 5,014 lbs cargo) (25 seats 5,132 lbs cargo) (370 seats/06 lbs cargo) (290 seats/0 lbs cargo)	Summer (81.3° F)	8 4 s	eats 5,014 lbs cargo)	25 se	eatr 3,132 lbs cargo)	(370 seats/106 lb	s ca go)	(290 set ts/0 l	lbs (argo)
7,731 miles PAX Penalty argo Penalty (lbs) PAX Penalty cargo Penalty (lbs) PAX Penalty Cargo Penalty Cargo Penalty Cargo Penalty Cargo Penalty PAX Penalty Cargo Penalty PAX Penalty Cargo Penalty PAX Penalty Cargo Penalty PAX Penalty P	7.731 miles	PAX Penalty	argo Penalty (lbs)	PAX Penal y	Largo Penalty (Ibs)	PAX Penalty	Largo Penalty	PAX Penalty	Cargo
Penalty (lbs) Penalty (lbs)							(lbs)		Penalty (Ibs)
Existing Straight Out OEI* 48 69 62 178	Existing Straight Out OEI*	48		69		62		178	
West OEI Corridor 103	West OEI Corridor							103	
TERPS Only 55 5,014 77 3,132 72 106 184	TERPS Only	55	5,014	77	3,132	72	106	184	
Dubai - DXB A330-200 A350-900 B777-300ER B787-9	Dubai - DXB		A330-200		A350-900	B777-300	ER	B787	-9
Summer (81.3° F) 184 seats/3,537 lbs cargo) 25 seats/2,688 lbs cargo) (370 seats/1,228 lbs cargo) (290 seats/0 lbs cargo)	Summer (81.3° F)	84 s	eats 3,537 lbs cargo)	25 se	eats 2,688 lbs cargo)	(370 seats/1,228	bs c (rgo)	(290 seats/0 l	lbs cargo)
8,120 miles PAX Penalty (lbs)	8,120 miles	PAX Penalt,	argo Penalty (Ibs)	PAX Penalty	cargo Penalty (Ibs)	PAX Penalty	Largo Penalty (lbs)	PAX Penalt,	Largo Penalty (Ibs)
Existing Straight Out OEI* 57 71 62 184	Existing Straight Out OEI*	57		71		62		184	,,,,,
West OEI Corridor 107	West OEI Corridor							107	
TERPS Only 65 3,537 79 2,688 72 1,828 191	TERPS Only	65	3,537	79	2,688	72	1,828	191	

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*Existing Straight Out OEI calculations use different cargo capacity numbers than West OEI and TERPS Only.

Airline Responses

The following airlines participated in the aircraft performance assessment for the various airspace scenarios presented.

Responded	No Response
AeroMexico	Air Canada/Jazz
Air China	California Pacific
Alaska	Frontier
American	Lufthansa
ANA	UPS
British Airways	Jet Blue
Delta	
FedEx	
Hainan Airways	
Hawaiian	
Southwest	
United	
Volaris	

Airline Aircraft Performance Analysis Results

- ANA
 - Evaluated B787-8 (max 169 PAX configuration)
 - No PAX penalty impacts in Scenarios 1, 4, 7 and 10, however cargo impact.
 - Scenario 9 results in PAX penalties between 30-37 PAX in summer temperatures (92º F), including additional cargo penalties.
- British Airways
 - Scenarios 4 and 7 have no impact to current operations.
 - Scenario 9 results in greatest impact when operating on Runways 12L/12R.
 - Scenario 10 has no impact on 12L when departing straight-out, however a payload and engine impact for 12R when making a right course correction.
- Hainan Airways
 - For B787-8/9, Scenario 4 obstacles result in significant reduction in cargo and PAX payload (50+ PAX for a maximum capacity B787-9) due to loss of the West Corridor.

Airline Aircraft Performance Analysis Results

- Alaska, American, Aeromexico, Delta, Southwest, and Volaris
 - No penalties for operations below 92º F.
- Hawaiian (Aircraft A321 NEO)
 - HNL, OGG, or KOA has no passenger penalties, some cargo penalties.
 - LIH has minimal passenger penalties and some cargo penalties.
- Federal Express
 - Cargo penalties in most scenarios; however, will cube out before weight out.
- United
 - Significant PAX and cargo penalties for B737-900ER operation in Scenarios 1, 4, 7 and 9.
 - Minor PAX and cargo penalties in Scenario 4 for B737-800, moderate PAX and cargo penalties in Scenario 9 for B737-800.

Annual Direct Airline Impacts During Southflow Operations

- Scenario 4 results in a potential airline loss of \$802,000 the first year buildings are constructed to FAA/TERPS.
- Impact is primarily to Asian markets.
- Potential loss could grow to approximately \$1.2 M in 2032 and \$1.5 M in 2038 as market, costs, and load factors grow over time.
- Community Air Service Support Fund mechanism to offset these potential Airline economic losses.

Development Impact

Downtown Core

- Significant density already available.
- Any increase in height restrictions due to adjustments in air space protection scenarios will not have an aggregate impact until far into the future.
- Specific development sites may achieve some additional height – 5'-35'.

Diridon Station Area

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- Increase in height restrictions could result in 8.6M net new square footage of development.
- Analysis focused on underutilized and vacant APNs larger than .2 acres.
- Upon complete buildout, \$4.4B in construction value and \$5.5M in annual property tax to CSJ.

Recommendations

- 1. Accept a completed Downtown Airspace and Development Capacity Study, with selection of Scenario 4.
- 2. Direct the Administration to explore the feasibility of establishing a community-funded Air Service Support Fund.
- 3. Direct the Administration to consider potential refinements to the development review process.
- 4. Direct the Administration to initiate amendments, as determined applicable, to the General Plan and other key policy documents to incorporate the above recommendations.



Downtown Airspace and Development Capacity Study

QUESTIONS & DISCUSSION