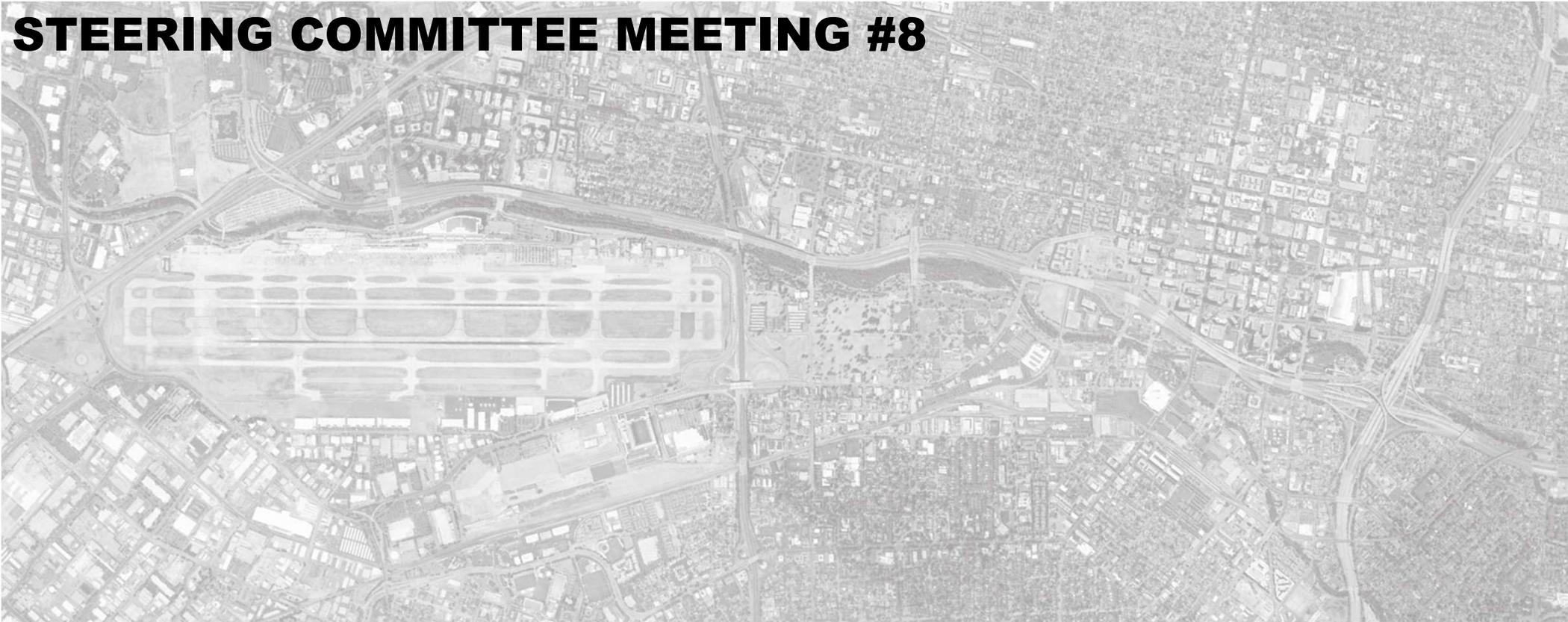


# DOWNTOWN SAN JOSÉ AIRSPACE & DEVELOPMENT CAPACITY STUDY (PROJECT CAKE)

## **STEERING COMMITTEE MEETING #8**



December 13, 2018

# Draft

# AGENDA

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- Introduction
- Real Estate Economic Impact Assessment Update
- International Aircraft Performance Assessment
- Airline Aircraft Performance Assessment
- Aviation Direct Economic Impacts Update
- Induced Economic Impacts Assessment
- Strategy Recommendation Discussion
- Next Steps



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REAL ESTATE  
ECONOMIC IMPACT ASSESSMENT UPDATE

(JLL)

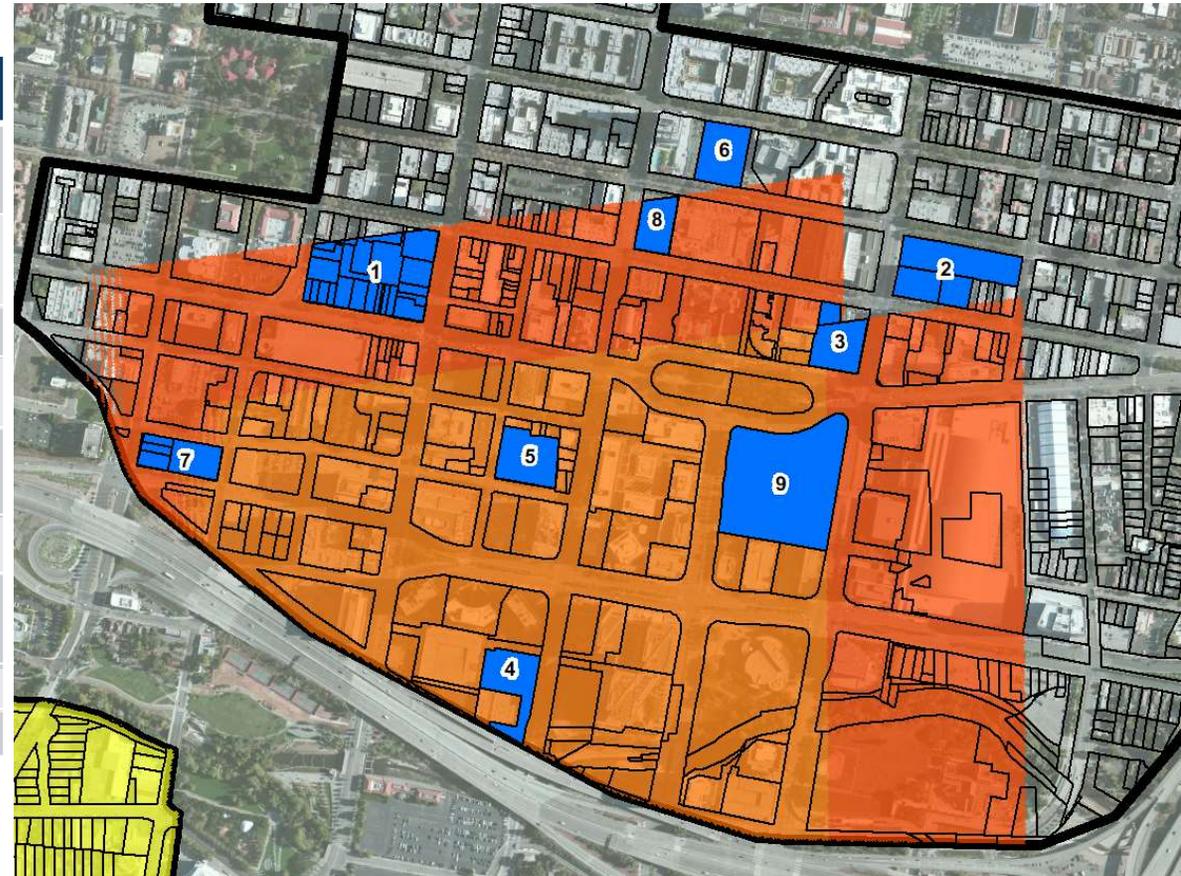


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# IMPACT ON INDIVIDUAL DOWNTOWN SITES

	APN(s)	ADDRESS	CURRENT	NOTES	AREA
1	25934007-14, 25934020-31	66 N Market St (Approximate)	Surface Parking + Low-Rise Commercial		170,017 sf
2	46746080-82	345 S 2nd Street, 300 S 1st Street	Surface Parking + Low-Rise Commercial		123,173 sf
3	25942080	282 S Market St	Surface Parking		65,781 sf
4	25939116	333 W San Fernando St	Surface Parking	Planned site of Adobe Tower 4 (750,000sf)	62,242 sf
5	25940012	60 S Almaden Ave	Former Greyhound Terminal	Planned site of 708 residential units and 20,000 SF retail	61,874 sf
6	46722160	174 S 2nd St	Surface Parking	Site of planned Sobrato parking structure	58,456 sf
7	25931072, 25931077-80	115 Terraine St	One-Story industrial, Surface Parking		55,200 sf
8	46722142	8 E San Fernando St	Surface parking		43,513 sf
9	25942023	201 Market Street	Museum	Museum Place Development	107,815 sf



Note: Graphic depicts the area of increased height differentials for Scenario 4 in relation to the nine test sites depicted in blue. Please note that portions of test sites 1, 2, 3 and 8 are outside of the area of increased heights. Test site 6 is completely outside the area of increased heights.

## UPDATES TO PREVIOUS ASSESSMENT

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- Per the discussion at the November 13 meeting, JLL reviewed development test sites #3 and #8.
- There is a slight (though not significant compared to other sites) increase in density for these two future development sites.
- JLL adjusted the model and findings to reflect this, including all outputs.
- Development site #6 is outside of the area where additional height can be gained under Scenario 4. This area is governed by TERPS in both Scenarios 1 and 4 so no additional height would be gained over this parcel.

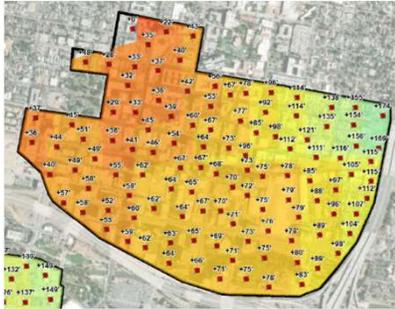
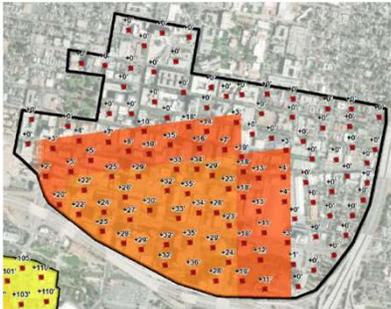


# EXISTING DENSITY AND INCREASES FOR DOWNTOWN SITES

Address	Parcel Area	Existing Potential Density (SF)	Scenario 4		Scenario 9	
			Net New SF	% Increase	Net New SF	% Increase
66 N Market St (Approximate)	170,017	2,441,000	0*	0%	300,000	12%
345 S 2nd Street & 300 S 1st Street†	123,173	2,232,000	Not Impacted	Not Impacted	782,000	35%
282 S Market St	65,781	1,090,000	52,000	5%	363,000	33%
333 W San Fernando St	62,242	910,000	101,000	11%	202,000	22%
60 S Almaden Ave	61,874	966,000	107,000	11%	215,000	22%
174 S 2nd St	58,456	981,000	Not Impacted	Not Impacted	187,000	19%
115 Terraine St	55,200	653,000	44,000	7%	174,000	27%
8 E San Fernando St	43,513	754,000	36,000	5%	144,000	19%
Museum Place	107,815	988,203 (planned)	100,000	10%	250,000	25%

\* An increase of zero square feet means either 1) the height limits imposed by the San Jose General Plan are below either the existing or the altered airspace protection scenarios or 2) an average of at least 14 feet must be achieved for each new floor, and the height increase afforded by a scenario does not meet this minimum.

† Some parcels included in this test case site do fall under Scenario 4; however the majority do not, and therefore the development site as configured/tested assumes no height gain realized from Scenario 4.

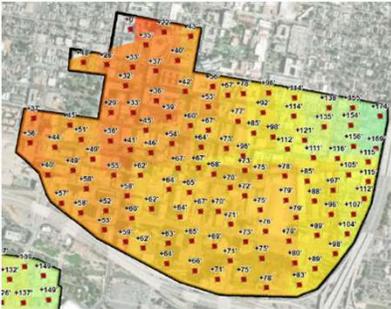


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# CONSTR. VALUE AND TAXES FOR DOWNTOWN SITES

Address	Scenario 4		Scenario 9	
	Net New Construction Value	Net New Annual Tax Revenue	Net New Construction Value	Net New Annual Tax Revenue
66 N Market St (Approximate)	Not Impacted	Not Impacted	\$91,100,000	\$115,000
345 S 2nd Street & 300 S 1st Street	Not Impacted	Not Impacted	\$237,400,000	\$301,000
282 S Market St	\$15,800,000	\$100,000	\$110,300,000	\$140,000
333 W San Fernando St	\$30,700,000	\$39,000	\$61,300,000	\$78,000
60 S Almaden Ave	\$32,600,000	\$41,000	\$65,100,000	\$82,000
174 S 2nd St	Not Impacted	Not Impacted	\$56,700,000	\$72,000
115 Terraine St	\$13,200,000	\$17,000	\$52,900,000	\$67,000
8 E San Fernando St	\$10,900,000	\$41,000	\$43,600,000	\$55,000
Museum Place	\$30,300,000	\$38,000	\$75,800,000	\$96,000

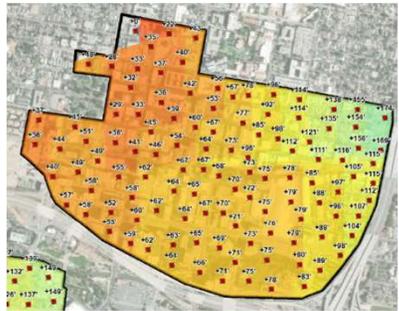
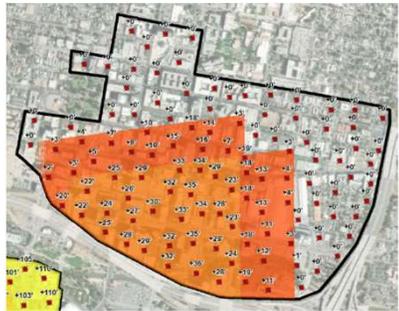
Note: Values represent both office development, are aggregate, and represent the total potential increase without regard to a specific timeframe.



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# EMPLOYMENT IN DOWNTOWN SITES

Address	Scenario 4	Scenario 9
	Net New Employees	Net New Employees
66 N Market St (Approximate)	Not Impacted	1,400
345 S 2nd Street & 300 S 1st Street	Not Impacted	3,700
282 S Market St	200	1,700
333 W San Fernando St	500	900
60 S Almaden Ave	500	1,000
174 S 2nd St	Not Impacted	900
115 Terraine St	200	800
8 E San Fernando St	200	700
Musem Place	500	1,200



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INTERNATIONAL AIRCRAFT  
PERFORMANCE ASSESSMENT

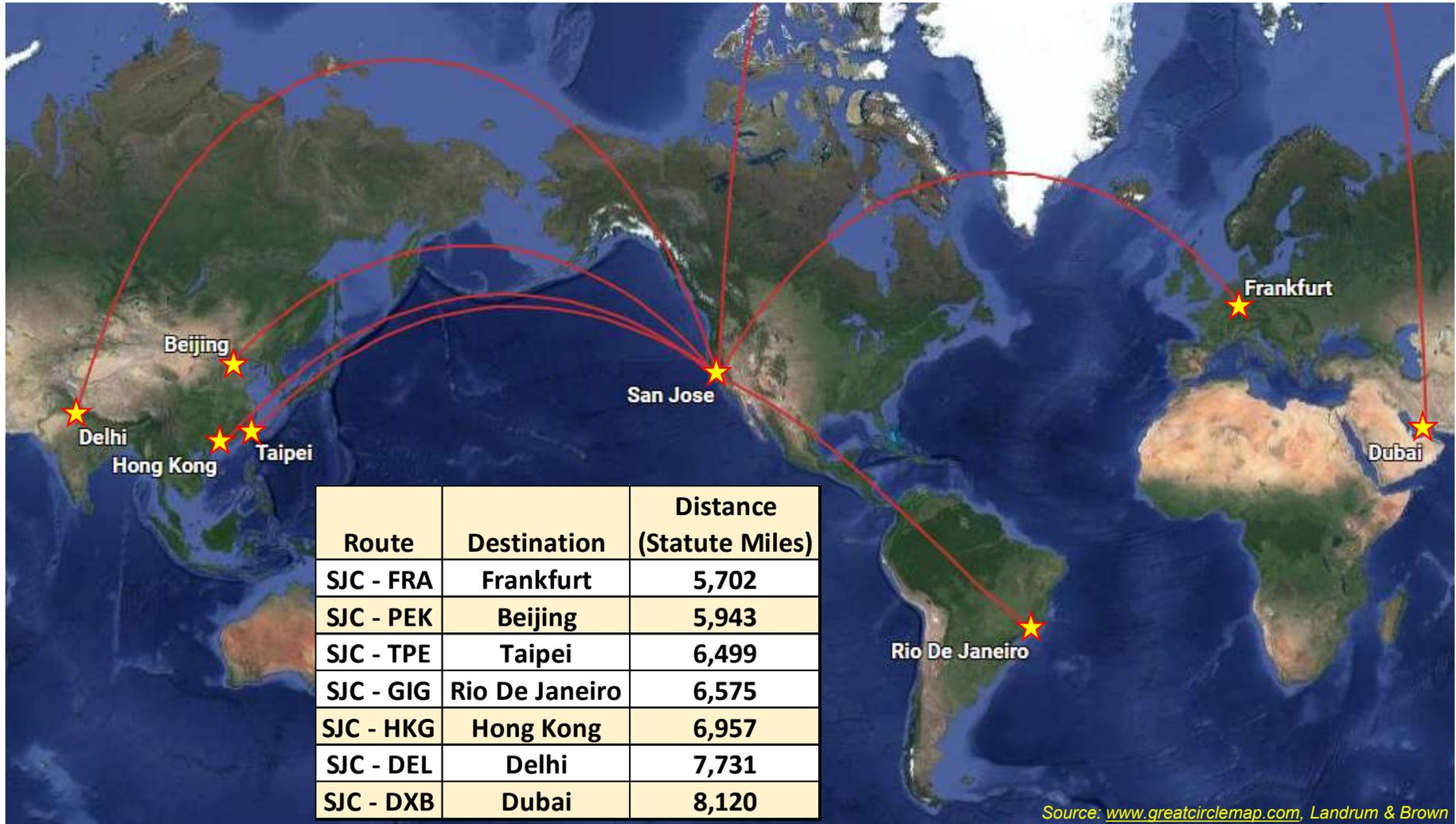


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# ASSESSMENT OF EXISTING STRAIGHT-OUT OEI VS TERPS ONLY FOR ADDITIONAL MARKETS

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



Source: [www.greatcirclemap.com](http://www.greatcirclemap.com), Landrum & Brown

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

Rio de Janeiro - GIG Summer (81.3° F)	A330-200 (284 seats/21,199 lbs. cargo)		A350-900 (325 seats/16,520 lbs. cargo)		B777-300ER (370 seats/32,012 lbs. cargo)		B787-9 (290 seats/0 lbs. cargo)	
	PAX Penalty	Cargo Penalty (lbs.)	PAX Penalty	Cargo Penalty (lbs.)	PAX Penalty	Cargo Penalty (lbs.)	PAX Penalty	Cargo Penalty (lbs.)
Existing Straight Out OEI	-	-	-	-	-	-	51	-
TERPS Only	-	1,927	-	2,085	-	2,776	60	-
Taipei - TPE Summer (81.3° F)	A330-200 (284 seats/10,635 lbs. cargo)		A350-900 (325 seats/6,439 lbs. cargo)		B777-300ER (370 seats/19,465 lbs. cargo)		B787-9 (290 seats/0 lbs. cargo)	
	PAX Penalty	Cargo Penalty (lbs.)	PAX Penalty	Cargo Penalty (lbs.)	PAX Penalty	Cargo Penalty (lbs.)	PAX Penalty	Cargo Penalty (lbs.)
Existing Straight Out OEI	-	-	-	-	-	-	89	-
TERPS Only	-	1,976	-	2,052	-	2,638	96	-
Hong Kong - HKG Summer (81.3° F)	A330-200 (284 seats/743 lbs. cargo)		A350-900 (325 seats/0 lbs. cargo)		B777-300ER (370 seats/5,348 lbs. cargo)		B787-9 (290 seats/0 lbs. cargo)	
	PAX Penalty	Cargo Penalty (lbs.)	PAX Penalty	Cargo Penalty (lbs.)	PAX Penalty	Cargo Penalty (lbs.)	PAX Penalty	Cargo Penalty (lbs.)
Existing Straight Out OEI	-	-	15	-	-	-	128	-
TERPS Only	5	743	23	-	-	2,543	134	-
Delhi - DEL Summer (81.3° F)	A330-200 (284 seats/0 lbs. cargo)		A350-900 (325 seats/0 lbs. cargo)		B777-300ER (370 seats/0 lbs. cargo)		B787-9 (290 seats/0 lbs. cargo)	
	PAX Penalty	Cargo Penalty (lbs.)	PAX Penalty	Cargo Penalty (lbs.)	PAX Penalty	Cargo Penalty (lbs.)	PAX Penalty	Cargo Penalty (lbs.)
Existing Straight Out OEI	48	-	69	-	62	-	178	-
TERPS Only	55	-	77	-	72	-	184	-
Dubai - DXB Summer (81.3° F)	A330-200 (284 seats/0 lbs. cargo)		A350-900 (325 seats/0 lbs. cargo)		B777-300ER (370 seats/0 lbs. cargo)		B787-9 (290 seats/0 lbs. cargo)	
	PAX Penalty	Cargo Penalty (lbs.)	PAX Penalty	Cargo Penalty (lbs.)	PAX Penalty	Cargo Penalty (lbs.)	PAX Penalty	Cargo Penalty (lbs.)
Existing Straight Out OEI	57	-	71	-	62	-	184	-
TERPS Only	65	-	79	-	72	-	191	-



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# AIRLINE AIRCRAFT PERFORMANCE ASSESSMENT



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# Draft

# AIRLINES RESPONSES

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

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



# AIRLINE AIRCRAFT PERFORMANCE ANALYSIS RESULTS (1 OF 3)

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- 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 (92° F), including additional cargo penalties
- Hainan Airways
  - For B787-8/9, Scenario 4 obstacles results in significant reduction in cargo and PAX payload (50+ PAX for B787-9) due to loss of the West Corridor

## AIRLINE AIRCRAFT PERFORMANCE ANALYSIS RESULTS (2 OF 3)

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- British Airways
  - Scenarios 4 and 7 have no impact at all 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
- Alaska, American, Aeromexico, Delta, and Southwest, Volaris
  - No penalties for operations below 92° F.
- 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



## AIRLINE AIRCRAFT PERFORMANCE ANALYSIS RESULTS (3 OF 3)

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- 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.



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AVIATION DIRECT ECONOMIC  
IMPACT ASSESSMENT UPDATE



**Draft**

# REVISED LOAD FACTORS

- Account for airline load factors (average occupied seats)
- Europe and Asia load factors update to reflect anticipated load factors in 2024

Airline Load Factor by Market		
Region	Winter	Summer
Hawaii – SJC	89.7%	90.5%
Transcontinental – SJC	84.9%	82.2%
Europe – Bay Average	77.0%	86.0%
Asia – Bay Average	81.0%	85.0%

- Aviation/airline impacts assumed to begin in 2024 with either new high-rise development or associated construction cranes

Notes:

- Historic load factor data including winter and summer data from BTS T100 = Bureau of Transportation Statistics Air Carrier Statistics Database, U.S. Department of Transportation, 2015 - 2017
- International general load factor data from “International Arriving Passengers 2018-2028 Estimate,” the City of San Jose - SJC International Airport



# SUMMARY OF 2024 ANNUAL DIRECT IMPACTS BY SCENARIO HISTORICAL LOAD FACTORS

Summary of Loses		Airline Revenue	PFC Revenue	Terminal Concession Spending (Airport Share)	Terminal Concession Spending (Concession Share)	Local Visitor Spending	Total
<b>Scenario 1</b>	Existing airspace protection	\$0	\$0	\$0	\$0	\$0	\$0
<b>Scenario 4</b>	TERPS Only	\$802,000	\$10,000	\$5,000	\$31,000	\$669,000	\$1,517,000
<b>Scenario 7</b>	Straight-Out ICAO OEI surface protection without West OEI Corridor	\$0	\$0	\$0	\$0	\$0	\$0
<b>Scenario 10</b>	Existing Conditions: 85' - 166' AGL	\$0	\$0	\$0	\$0	\$0	\$0
	Opt 10A: 100' - 195' AGL	\$0	\$0	\$0	\$0	\$0	\$0
	Opt 10B: 115' - 224' AGL	\$0	\$0	\$0	\$0	\$0	\$0
	Opt 10C: 129' - 240' AGL	\$0	\$0	\$0	\$0	\$0	\$0
	Opt 10D: 146' - 260' AGL	\$0	\$0	\$0	\$0	\$0	\$0
<b>Scenario 9</b>	TERPS only with increased TERPS departure climb gradients and approach procedure minima	\$5,566,000	\$57,000	\$32,000	\$191,000	\$3,966,000	\$9,812,000



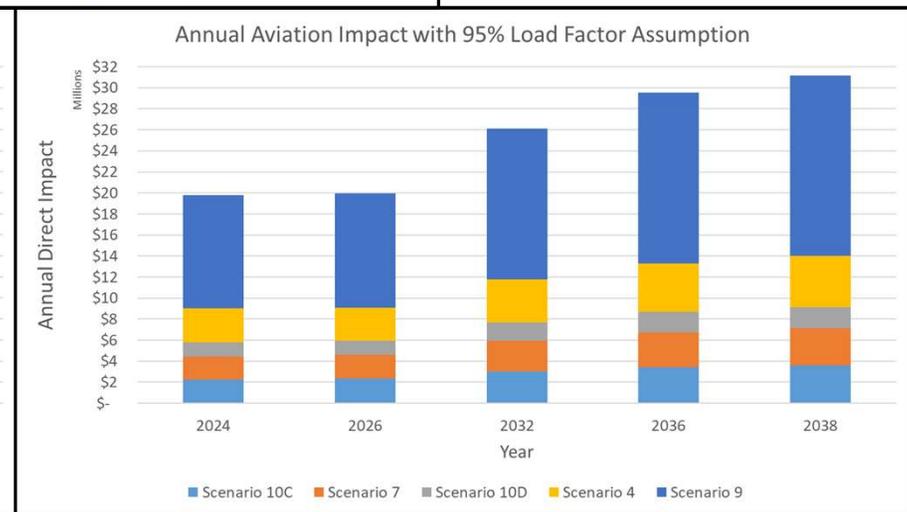
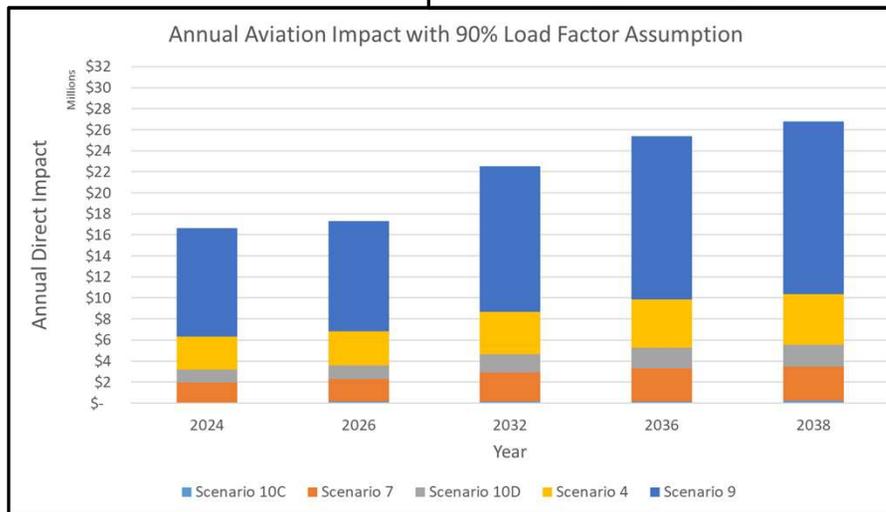
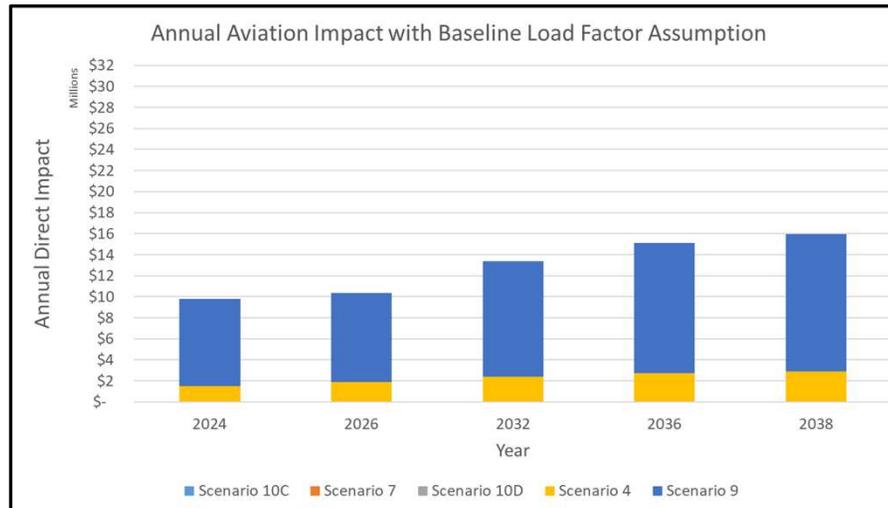
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# SUMMARY OF 2024 ANNUAL DIRECT IMPACTS LOAD FACTOR SENSITIVITY TEST

Summary of Losses		Baseline Load Factor	90% Load Factor	95% Load Factor
Scenario 1	Existing airspace protection	\$0	\$0	\$0
Scenario 4	TERPS Only	\$1,517,000	\$2,716,000	\$4,306,000
Scenario 7	Straight-Out ICAO OEI surface protection without West OEI Corridor	\$0	\$79,000	\$1,439,000
Scenario 10	Existing Conditions: 85' - 166' AGL	\$0	\$0	\$0
	Opt 10A: 100' - 195' AGL	\$0	\$0	\$0
	Opt 10B: 115' - 224' AGL	\$0	\$0	\$0
	Opt 10C: 129' - 240' AGL	\$0	\$0	\$67,000
	Opt 10D: 146' - 260' AGL	\$0	\$663,000	\$2,308,000
Scenario 9	TERPS only with increased TERPS departure climb gradients and approach procedure minima	\$9,812,000	\$7,510,000	\$10,164,000



# SUMMARY OF 20-YEAR DIRECT IMPACTS WITH LOAD FACTOR SENSITIVITY TEST



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## INDUCED ECONOMIC IMPACT ASSESSMENT



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# INDUCED ECONOMIC IMPACT ASSESSMENT ASSUMPTIONS

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- Assume Asia and Europe service remains and airlines accept weight penalties for passengers and cargo
- JLL's assessment for Diridon Station Area used as basis for real estate impacts
- Used IMPLAN to assess indirect and induced economic impact
  - Aviation impact: weight penalty related losses, airline revenue, lost airport passenger and visitor expenditures
  - Real estate impact: net new construction expenditures, engineering, office jobs
- Potential losses of airport service markets are not modeled

# INDUCED ECONOMIC IMPACT ASSESSMENT SUMMARY

**Total Economic Impact Summary (2038)**

Airspace Scenario	Aviation Impact		Real Estate Impact	
	Employment	GDP Gain/Loss	Employment	GDP Gain/Loss
10A	-	-	1,000	\$184,000,000
10B	-	-	2,400	\$438,000,000
10C	-	-	4,300	\$700,000,000
4, 7, 10D	-27	-\$2,000,000	4,900	\$747,000,000

**Estimated City of San Jose Local Sales Tax**

Airspace Scenario	2024		2026		2032		2036		2038	
	Airline/Airport	Real Estate								
4	-\$2,100	-	-\$2,600	-	-\$3,200	\$110,000	-\$3,500	\$206,800	-\$3,700	\$253,400
7	-	-	-	-	-	\$110,000	-	\$206,800	-	\$253,400
9	-\$13,700	-	-\$14,200	-	-\$17,800	\$110,000	-\$19,600	\$206,800	-\$20,500	\$253,400
10A	-	-	-	-	-	\$110,000	-	\$57,700	-	\$57,700
10B	-	-	-	-	-	\$110,000	-	\$141,100	-	\$137,400
10C	-	-	-	-	-	\$110,000	-	\$206,800	-	\$226,800
10D	-	-	-	-	-	\$110,000	-	\$206,800	-	\$253,400



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## STRATEGY RECOMMENDATION DISCUSSION



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## NEXT STEPS

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- December 2018: Develop internal strategy recommendation
- Week of January 14, 2019: Stakeholder update meeting
- January 28, 2019: Present strategy recommendation to CEDC
- February 2019: Strategy recommendation to City Council