

SILICON VALLEY'S AIRPORT



# Downtown Airspace and Development Capacity Study

February 26, 2019

# The Situation



- Downtown and Airport are two of San Jose's economic priorities
- One priority: increase the density of the Downtown Core and the Diridon Station Area
- Another priority: continue developing a world-class airport and build national and international connections by attracting new air service
- Need to balance these two priorities, since taller buildings can impact certain flights to certain markets

# Safety Is Top Priority and Not Changing



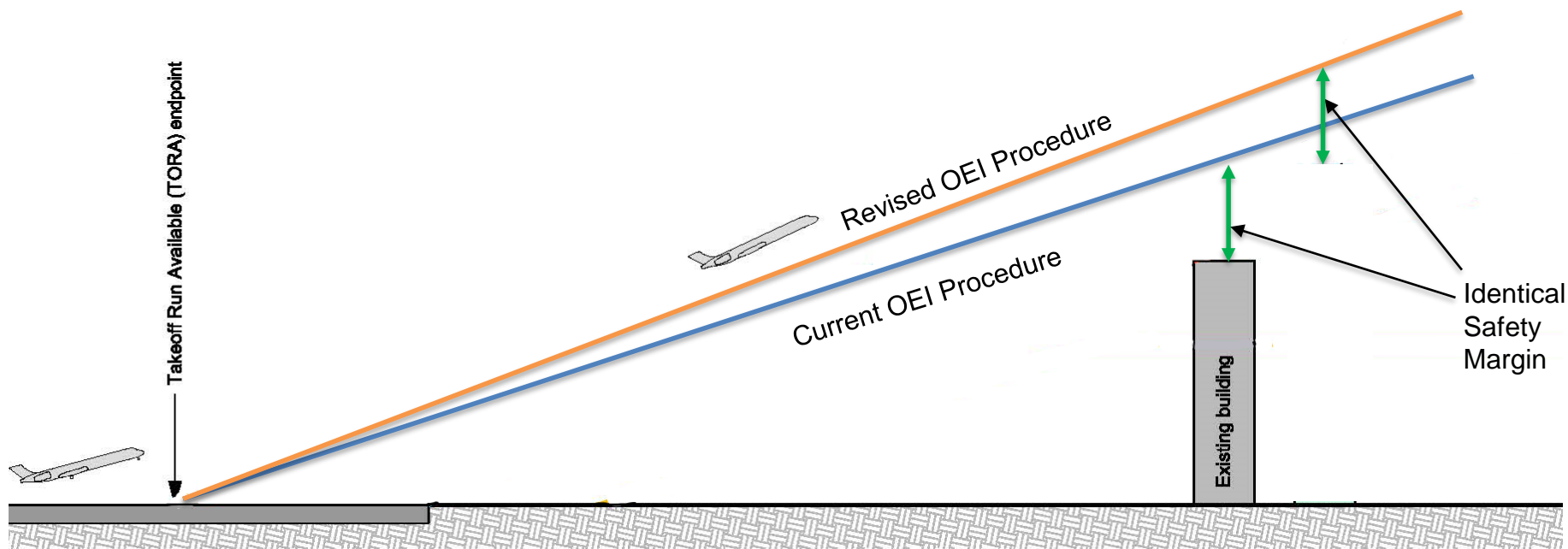
- FAA protects arriving and departing airspace around airport.
  - Invisible “surfaces” known as Part 77 and FAA/TERPS
  - Protect all aircraft types, all engines under normal operations
- Any proposed structure near this protected airspace requires FAA approval, which is incorporated into the City’s permitting requirements.
- Any potential changes to San Jose building heights do not affect FAA-mandated TERPS procedures or safety.

# One-Engine Inoperative (OEI)



- One-engine inoperative (OEI) is a procedure in case one engine on a two-engine commercial aircraft becomes inoperative upon take-off.
- The FAA requires airlines to develop their own OEI procedures based on their specific aircraft for each departure.
- FAA does not consider OEI procedures to be a factor in height limits because airlines have the option to offload passengers, cargo, and fuel to clear structures safely with OEI.
- A plane that cannot safely climb out of SJC and avoid structures on one engine would NOT be allowed to take-off ***in any scenario***.
- OEI is not a safety issue.

# Identical Safety Margin



*Note: for Illustrative Purposes Only*

# Considerations for South Flow Departures



- What is “South Flow”?
  - Aircraft depart to the south during strong winds from the south
  - More typical in winter than summer (associated with cooler temps)
- Weight of the Aircraft
  - Passengers (“Load Factors”), cargo & fuel
- Temperature
  - Aircraft can climb faster in cooler weather
- Aircraft and Configuration
  - Certain aircraft have more power to take-off
  - Seating configuration of the aircraft can mean fewer passengers on the plane

# 2007 Obstruction Study



In 2007, San José conducted an Obstruction Study that established:

- The Straight Out OEI procedure, based on existing buildings working with developers
- The West Corridor OEI procedure, based on height of SAP Center



# Study Evaluation Area





# Council Direction to Staff (June 2017)



- Re-evaluate the 2007 Obstruction Study, with a goal of determining if changes can be made to maximize potential development densities Downtown
- Remain consistent with FAA and airline safety requirements
- Develop a collaborative process

# Project Steering Committee



## Community Representatives

Teresa Alvarado – SPUR

Scott Knies – San Jose Downtown Association

Matt Mahood – Silicon Valley Organization

David Bini – 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

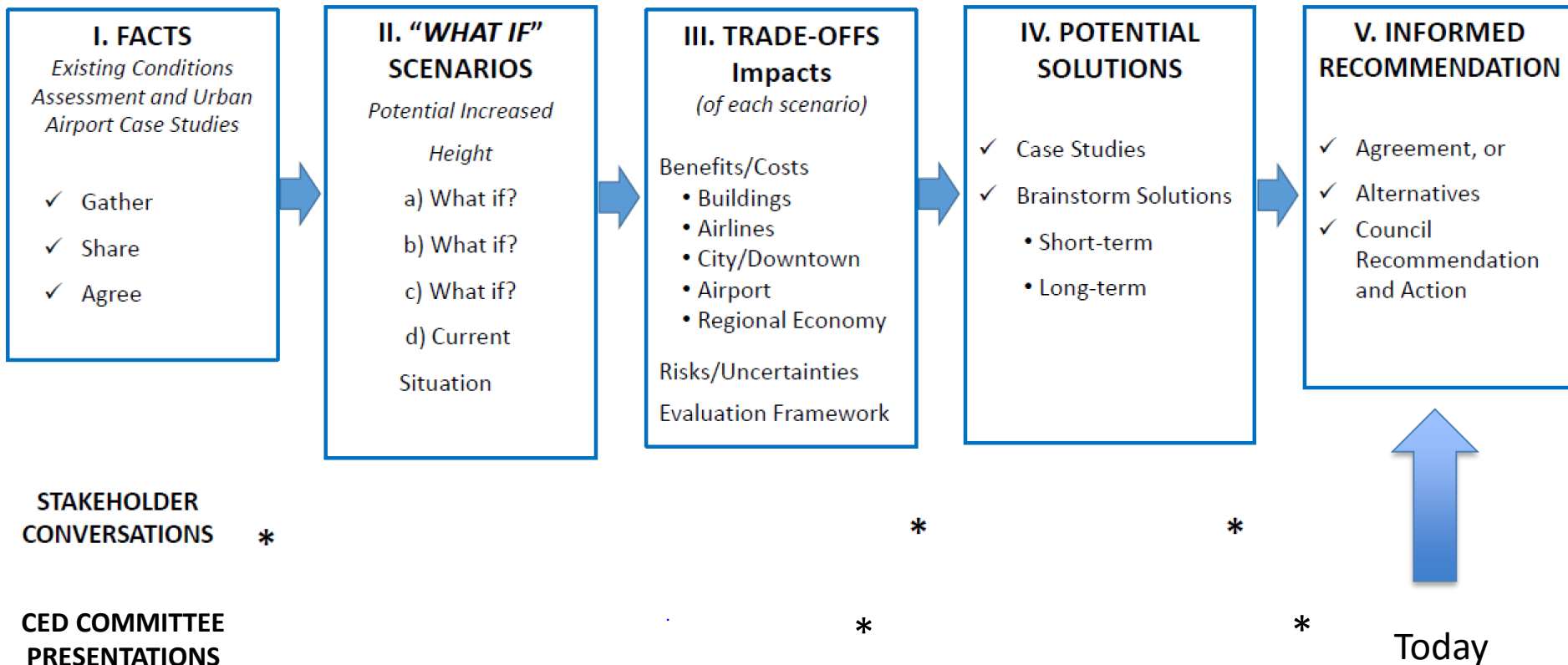
David Hai Tran & Christina Ramos – District 3 Office

Kelly Kline – Mayor's Office

## Consultants

Landrum and Brown & Jones, Lang, and LaSalle

# Collaborative Process



# Airspace Protection Scenarios



- Started by looking at existing conditions and 10 different scenarios
- Steering Committee narrowed the list down to 4 scenarios for more detailed analysis:
  - **Scenario 4:** FAA/TERPS Height
  - **Scenario 7:** Existing Straight-out OEI protection
  - **Scenario 10:** Existing Straight-out OEI protection with West Corridor OEI protection alternatives
  - **Scenario 9:** Increased FAA/TERPS Height



# Steering Committee Recommendation



## **Scenario 4 – FAA/TERPS Height**

Steering Committee concluded this option had the right balance of:

- Allowing building heights to increase
- Maintaining key nonstop routes for Mineta San José International Airport

# Development Impact of Scenario 4



## **Downtown Core**

- Specific development sites may achieve some additional height: 5'-35'

## **Diridon Station Area**

- Developable heights could increase by 70'-150'
- Up to 8.6M net new square feet of development
- \$4.4B in construction value and \$5.5M in annual property tax

# Performance Mitigations for OEI



Certain long-haul flights become subject to mitigation procedures to protect OEI when a structure is built to FAA/TERPS.

- Day-to-Day Mitigations
  - Off loading of cargo and/or passengers
  - Request another runway (wind, weather, air traffic permitting)
  - Make a refueling stop
- Long-Term Alternatives
  - Change aircraft type
  - Cancel air service if payload loss affects financial viability

# Airline Response to Scenario 4



13 airlines currently serving SJC responded for requests for a performance assessment of the various airspace scenarios.

Hainan indicated a potential concern with their existing service to Beijing.

Responded	No Response
Alaska	Air Canada
American	JetBlue
ANA	
British Airways	
Delta	
FedEx	
Frontier	
Hainan	
Hawaiian	
Southwest	
UPS	
United	
Volaris	



# Frequency of Asian South Flow Departures



SJC Operations									
	2015		2016		2017		2018		Average
% Airport Ops in South Flow	9.1		15.9		12.9		11.9*		12.6
	# South Flow Dep.	% of Airline's Dep.	# South Flow Dep.	% of Airline's Dep.	# South Flow Dep.	% of Airline's Dep.	# South Flow Dep.	% of Airline's Dep.	% of Airline's Dep.
ANA	30	8.24%	57	15.83%	40	11.11%	23	6.32%	10.38%
Hainan	5	4.10%	30	13.45%	27	11.20%	10	4.81%	8.39%

\* Preliminary

Asian south flow departures represent >0.06% of total SJC commercial departures.

# Nonstop Routes: South Flow Feasibility

Today (summer)



London	Frankfurt	Tokyo	Beijing	Shanghai
B787-9 B777-300ER	B787-9 B777-300ER	B787-9 B777-300ER	787-9 B777-300ER	B787-9 B777-300ER A330-200 A350-900

**Green – No Significant Weight Penalties**

**Orange – Some Weight Penalties**

**Red – Significant Weight Penalties**

Rio de Janeiro	Taipei	HK/Shenzhen	Delhi	Dubai
B787-9 B777-300ER A330-200 A350-900	<b>B787-9</b> B777-300ER A330-200 A350-900	<b>B787-9</b> B777-300ER A330-200 A350-900	<b>B787-9</b> B777-300ER A330-200 A350-900	<b>B787-9</b> B777-300ER A330-200 A350-900

# Nonstop Routes: South Flow Feasibility in Scenario 4 (summer)



London	Frankfurt	Tokyo	Beijing	Shanghai
<b>B787-9</b> <b>B777-300ER</b>	<b>B787-9</b> <b>B777-300ER</b>	<b>B787-9</b> <b>B777-300ER</b>	<b>787-9</b> <b>B777-300ER</b>	<b>B787-9</b> <b>B777-300ER</b> <b>A330-200</b> <b>A350-900</b>

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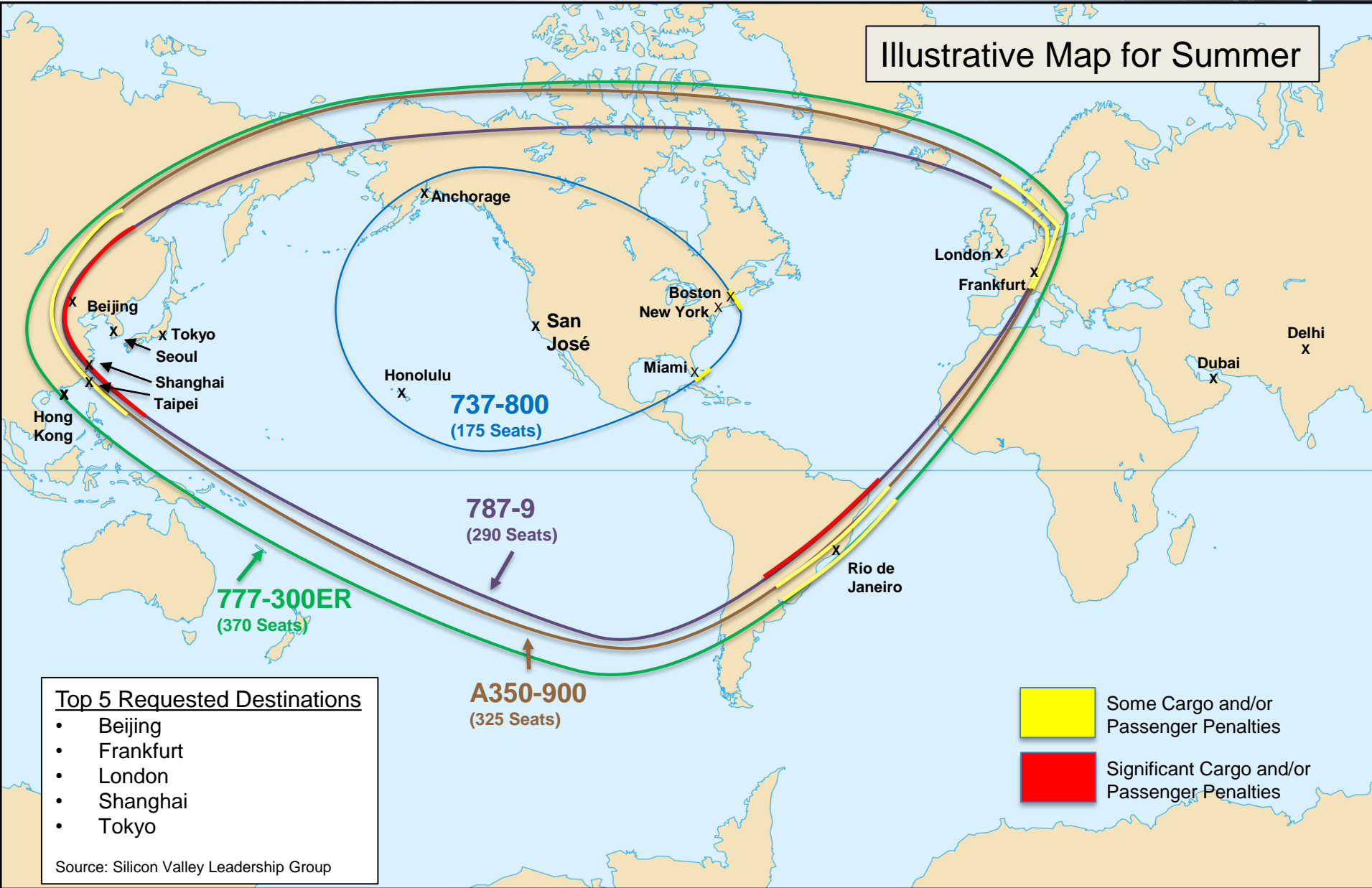
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# Scenario 4 by Plane Type

(Non-Stop Flights from SJC)



Illustrative Map for Summer



## Top 5 Requested Destinations

- Beijing
- Frankfurt
- London
- Shanghai
- Tokyo

Source: Silicon Valley Leadership Group

Some Cargo and/or  
Passenger Penalties

Significant Cargo and/or  
Passenger Penalties



# Mitigating the Uncertainty



## Create a Community Air Service Fund

- Fund could offset losses to airline for certain situations when they need to offload passengers due to OEI procedures
- Creative solution to address the uncertainty for current and future routes that may be impacted by OEI procedures
- Can support market growth for service by larger, more powerful aircraft that do not have weight penalties

# Growing Together



- San José is proud to offer nonstop service to Europe and Asia to meet the needs of the South Bay community.
- Majority of SJC traffic is, and will continue to be, within North America and Hawaii.
- Increased development in Downtown has increased opportunity to grow SJC passengers.
- Community Air Service Support Fund could offset the economic uncertainty for select routes.

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Questions?