METROPOLITAN TRANSPORTATION COMMISSION

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ABAG ASSOCIATION OF BAY AREA GOVERNMENTS

Regional Airport Planning Committee

June 11, 2010

TO: Regional Airport Planning Committee

FROM: Staff of the Regional Airport Planning Committee

SUBJECT: Mid-Point Screening Analysis and Recommendations

Background

As part of the analysis for the mid-point screening, RAPC has defined a set of goals for the region's airport system, specified desired outcomes for these goals, defined a set of six strategies ("Scenarios") for serving the region's long-range aviation demand, and evaluated each scenario against the study goals. The results of this analysis were presented to RAPC in March and discussed at three public workshops in May (South San Francisco on May 10, Fairfield on May 11, and Oakland on May 12).

During the remainder of the study, staff and the consultants will be evaluating a smaller set of scenarios for addressing the region's long-range aviation needs, based on the results of the work to date and input from the public and study Task Force. Each Scenario was initially defined to be as robust as possible in order to gauge its effectiveness better in comparison to the study goals and the other scenarios.

Consistent with the adopted work scope for the study, the mid-point screening step was used to either eliminate some scenarios or combine them in ways that will achieve better results and redefine them from being as robust as possible to defining a scenario that is more likely to happen.

This analysis was used to develop the Vision and Implementation Plan that will identify specific strategies for achieving the Bay Area's long-term aviation goals, listed below:

- Healthy Economy-*Can the region serve future aviation demand and support a healthy economy?*
- Reliable Runways-*Can we reduce flight delays and passenger inconvenience?*

- Good Passenger Service-*Can we provide better service to the region's major air travel markets?*
- Convenient Airports-*Can we maintain or improve ground access travel times and reduce travel distance to airports?*
- Climate Protection-*Can we reduce Greenhouse Gases from aircraft and air passengers traveling to airports?*
- Clean Air-*Can we reduce pollution from aircraft and air passengers traveling to airports?*
- Livable Communities-*Can we avoid increasing the regional population exposed to aircraft noise?*

Recommendations for New Scenarios

The Baseline Scenario (based on unconstrained demand) performs poorly in meeting the study goals. Therefore, the scenarios to be analyzed beyond the mid-point screening are designed to achieve better results than the Baseline and better results than any one individual scenario. The original scenarios are listed below:

- Traffic Redistribution-*Accommodate more regional air passengers at OAK and SJC.*
- Internal Airports-*Use other Bay Area airports like Charles M. Schulz in Sonoma County, Travis Air Force Base in Solano County , and Buchanan Field in Contra Costa County to serve some demand.*
- Use of Out of Region Airports-*Expand service at Sacramento, Stockton and Monterey Airports.*
- High Speed Rail-*Divert air passengers to a new California High Speed Rail system.*
- New Air Traffic Control Technology-*Use new technologies to increase airport and airspace capacity, particularly in bad weather.*
- Demand Management-*Implement programs to limit demand to available airport capacity.*

Staff has identified three potential scenarios (labeled A,B, and C) to pursue duriing the remainder of the study. These scenarios are different both in terms of the strategies for serving future demand as well as the implementation actions required. Scenarios A and B would be evaluated using the 2035 Base Case forecasts. Scenario C is an illustrative Scenario that demonstrates how the High Forecast--if demand grows faster than the Base Case-- could be served, but would not undergo a detailed analysis due to budget constraints. The two new scenarios will be analyzed using the same goals and methodologies as were used to evaluate the original set of scenarios and will be compared to the two reference scenarios below.

Reference Scenario 1-2035 Base Case

-SFO: 64.3 Million Annual Air Passengers (MAP)
-OAK: 20.7 MAP
-SJC: 16.3 MAP
Total: 101.3 MAP

***Reference Scenario 2*-2035 Base Case with High Speed Rail**

-SFO: 61.9 MAP
-OAK: 18.9 MAP
-SJC: 14.4 MAP
-HSR: 6.1 MAP
Total: 101.3 MAP

Comments: The diversion of air passengers to High Speed Rail was evaluated in the original set of scenarios, as shown above. This information is sufficient to understand the potential impact of HSR on the airport system. The scenarios below focus on strategies that could accommodate demand if HSR is not operational within the 2035 timeframe, due to funding or other unforeseen difficulties. If HSR was included in scenarios A and B, the effect would be improve the performance of these scenarios in relation to the study goals. However, the budget is not sufficient to analyze each of the new scenarios with and without HSR, and the most new information would be gained by analyzing the scenarios without the inclusion of High Speed Rail.

New Scenario A*: Modest Traffic Redistribution with Demand Management and Modest Air Traffic Control Technology*

This Scenario would combine and redefine three of the scenarios studied so far:

- Traffic Redistribution: This scenario assumes OAK and SJC serve a larger share of Bay Area domestic traffic as per the Traffic Redistribution Scenario; this shift in domestic traffic would occur due to a combination of factors—weather related delays at SFO, a return of airlines that once served these airports, or service by new airline entrants that are seeking a foothold in the Bay Area air travel market.
  -SFO: 60 MAP
  -OAK: 23.1 MAP
  -SJC: 18.2 MAP
- New ATC Technology Scenario. This would assume only modest ATC improvements at SFO and OAK due to the uncertainty about when the key elements of NexGen will be deployed and the ultimate capabilities of the various individual technologies that comprise NexGen.
  -SFO: Improved SOIA, ceiling down to 1,600 ft. with full airline participation.
  -OAK: Relocated Glide Slope antenna for Runway 11 (reduces delays in poor weather).
  -OAK: RNAV and RNP for improved departure capacity in the mornings.
- Demand Management- The demand management scenario that is designed to complement the SOIA improvements above by reducing aircraft operations in the 8 a.m. to 2 p.m. timeframe that is susceptible to morning fog delays.
- Alternative Internal Airports. Airline service at Charles M. Schulz Airport in Sonoma County would be similar to today in terms of markets served (no additional diversion of traffic assumed).

Comments: Based on the results of the original scenario analysis, this combination of strategies could bring SFO's delays into the acceptable range (12-15 minutes). Airline operations at OAK and SJC would remain well within their runway and terminal capacities.

SFO would implement a demand management program, but not necessarily the one defined by our work; however, we have assumed the same reduction in aircraft operations provided by our Demand Management Scenario in this Scenario. At 60 MAP, the residential population around SFO exposed to noise above 65 CNEL would be significantly higher than today.

Implementation Issues: The key assumption with the original Traffic Redistribution Scenario was that airlines will be motivated by high delays and operating costs at SFO to shift some flights to OAK and SJC. However, these delays will also be mitigated to some extent by the ATC improvements and demand management strategies included in this new scenario. If this is the case, there could be a need for a more robust demand management approach at SFO that would create the environment for airport shifts, or alternatively more price incentives offered at OAK and SJC to encourage air carriers and air passengers to shift over to these airports. While the residential population exposed to noise above 65 CNEL would improve over the Baseline, there would still be significant increases compared to today requiring new noise mitigation efforts, such as expanding the sound insulation program or controls on late night aircraft operations.

New Scenario B*: Major Traffic Redistribution with Demand Management and Modest Air Traffic Control Technology*

This Scenario would be similar to Scenario A in many aspects but would increase the share of domestic traffic shifted to OAK and SJC.

- Greater redistribution of air passengers than assumed in Scenario A, possibly in conjunction with a regional demand management approach.
  - -SFO: 54.3 MAP
  - -OAK: 25.0 MAP
  - -SJC: 21.3 MAP
- Expanded airline service at Charles M. Schulz Airport in Sonoma County as described in the Internal Airports Scenario previously analzyed.
  - -0.7 MAP
- New ATC Technology similar to Scenario A
- Demand Management strategies that will encourage airlines to make greater use of OAK and SJC (see below).

Comments: Two significant new aspects of Scenario B are: a greater redistribution of traffic than has been tested so far, and a more equitable distribution of regional population noise impacts. This scenario reduces SFO's traffic levels closer to what the airport staff believes is the airport's practical runway capacity. Airline operations at OAK and SJC would remain well within their runway and terminal capacities.

Key Implementation Issues: For competitive reasons, airlines may see the cost of delays at SFO as a necessary cost of doing business at the Bay Area's major airport. This scenario would potentially require new demand management mechanisms that have the effect of not only reducing airline operations in critical hours of the day to mitigate weather related delays at SFO, but have a secondary effect of encouraging airlines to make greater use of OAK and SJC (such measures could include more aggressive pricing measures than current FAA

airport rates and charges policies allow, new forms of slot controls implemented by the FAA, or major cost incentives to use OAK and SJC). Regional transportation investments would need to ensure that OAK and SJC are accessible from a larger portion of the region, as air passengers may need to travel longer ground distances to obtain the domestic flights they need (assumes SFO continues to handle most all international flights).

New Scenario C*: *High Growth Scenario (Combines all Scenarios)
Scenario C would be used in discussions with RAPC and the public to illustrate how the High Forecast of demand could be served by combining all the scenarios that have been evaluated so far. This level of demand would occur if growth in aviation demand turns out to be higher than projected under the Base Case forecast, or it could occur sometime after 2035 if traffic continues to grow at the same rate as assumed in the Base Case. The High Forecast assumes the region's airport system would serve 128.8 MAP with higher growth in air cargo as well.

- All three Bay Area airports operate at or near their maximum capacities:
  -SFO: 65 MAP (slightly higher than the Base Case forecast of 64 MAP)
  -OAK: 28 MAP (consistent with the airport's evaluation of their runway capacity)
  -SJC: 24 MAP (limited by the number of terminal gates)
- Sonoma County Airport at its policy limit of activity.
  - 0.9 MAP (equivalent to about 21 daily departures)
- High Speed Rail: 8 MAP
- External Airports: 2 MAP (handled by service improvements at Sacramento, Monterey, Stockton airports).
- Full NexGen capability (as in the new ATC technology scenario; assumes full airline equipage).
- Demand Management –similar to the Demand Management Scenario (would also assume upguaging of aircraft size beyond what has been assumed for SFO-see below)

- Other options that may be needed if one or more of the above assumptions are not realized.
  -More Gates at SJC.
  -Develop other airports (Travis AFB, Concord, Byron, for air passengers and/or air cargo).
  -New runways at OAK or SFO.

Comments: This scenario anticipates growth in demand beyond the 2035 Base Case forecasts and combines elements from all the scenarios evaluated to date to serve this level of demand. The volume of aircraft activity associated with the High Forecast means that all three primary airports would be operating at their capacity and they would all "fill up" due to normal market forces. SFO would need the benefits of all the NexGen technologies that were evaluated in the New ATC Scenarios to accommodate 65 MAP. At this level of demand, airports around the country would also be experiencing high growth and congestion; therefore, the average aircraft size (seats) could be higher than in the Base Case forecasts. The "Other Options" listed would be potential substitute strategies if one or more of the elements of this scenario do not come to fruition, such as the High Speed Rail system or full NexGen capability.

Implementation Issues: With a future HSR system, there could be additional efforts needed to better coordinate this system with airline and airport operations. With NexGen development lagging due to funding, policy, engineering, and stakeholder issues, RAPC and other agencies may need to lobby for greater funding and effort to deliver the benefits of these technologies. Greater coordination would be needed with external airports to help these airports develop new airline markets and better serve their local passengers who would otherwise use the already crowded Bay Area airports. To address noise impacts at SFO, funding for additional residential sound insulation may be needed along with new controls on late night operations, and additional upgauging of aircraft size to reduce daily operations. Regional ground access improvements beyond what is currently in regional and local plans may also be required to accommodate air passengers and air cargo trips.

Recommendation

Staff recommends that RAPC approve the definition of the three new scenarios described above for further analysis and discussion for the remainder of the study.