METROPOLITAN TRANSPORTATION COMMISSION

bcdc SAN FRANCISCO BAY CONSERVATION AND DEVELOPMENT COMMISSION

ABAG ASSOCIATION OF BAY AREA GOVERNMENTS

Regional Airport Planning Committee

To: Regional Airport Planning Committee October 23, 2009
Fr: RAPC Staff
Re: Proposed Alternative and Reliever Airport Scenarios

Background
Two of the six Scenarios RAPC will be analyzing involve providing airline service at alternate airports and using reliever airports to serve more business jet users**. Alternate airports could play a potential role in supplementing regional capacity by providing air service to some of the major air travel markets, providing air cargo service, or serving corporate general aviation (business jets) that would otherwise use the airport runways at the major air carrier airports. Alternate airports essentially represent "upland" alternatives to adding runway capacity at the existing air carrier airports through new/reconstructed runways requiring Bay fill, and are of interest from BCDC's regulatory perspective. The study will evaluate potential use of alternate airports both inside the region as well as airports outside the region, such as Sacramento, Stockton, and Monterey that could add flights and serve passengers currently using Bay Area airports. This memo presents staff's preliminary recommendations for defining the alternative airport scenarios.

In the regional airport survey that was conducted in February 2009, 33% of resident voters said they would support adding commercial airline service at the smaller regional airports (compared to High Speed Rail at 56% and Expanding Runways at San Francisco and Oakland Airports at 41%); 20% opposed the strategy (the highest opposition of the four strategies tested). The greatest level of support for using the smaller airports was by residents in the North Bay. When voters opposed this strategy, the main reasons given were more people and congestion, noise, and air pollution.

**The four other scenarios are demand management, new air traffic control technology, High Speed Rail, and redistribution of traffic among SFO, SJC and OAK.

Approach to Identifying Potential Alternative Airports
A five step approach has been used to develop define these Scenarios:

1. Identify potential roles each airport might play in the future (RAPC staff)
   -see Attachment A and Figure
2. Identify evaluation measures for screening (RAPC staff/Task Force)
   -see Attachment B
3. Analyze potential air passenger demand (Consultant task)
4. Apply Screening Criteria

-see Attachment C/D

5. Review results with Task Force and RAPC

Clearly, the number of air passengers who might use an alternate airport in the future will be a key determining factor. Alternate airports might serve some of the most popular air travel markets with turboprops or regional jets, similar to the services offered at Sonoma and Monterey County airports today. Reliever airports (generally the most active general aviation airports with longer runways) could be developed to attract more business jet operations away from the air carrier airports. Depending on the need, alternate airports might also serve some air cargo demand that would otherwise be handled at OAK, SFO, and SJC.

In addition, staff will continue to formulate an approach that combines the technical analysis with a strategy for discussing alternative airports with local communities. Both the Task Force and RAPC have expressed concern about how RAPC frames the discussion of alternative airports with the communities in which the airports are located.

Proposed Alternate Airport Scenarios for Air Passenger Service

The evaluation criteria and Consultant's air passenger market analysis provide the framework for defining the alternate airport scenarios, as discussed below.

Internal Alternate Airports. This scenario would include limited airline service at Sonoma County, Travis, and Buchanan (Concord) airports.

- A few airports (Gnoss, South County, Half Moon Bay) could be eliminated using the evaluation criteria and low air passenger demand estimates.
- Sonoma County currently has air service (Los Angeles, Las Vegas, Seattle, and Portland) and will be evaluated for expanded service in 2035.
- While Napa County Airport and Travis AFB have similar sized passenger markets, Travis AFB would be preferred because of the facilities, better ground access, and the fact that commercial airline operations would probably not result in significant increases above today's level of military operations (assuming Joint Use). Should Travis AFB not be available in the future, the potential for air service at Napa could be re-examined.
- Buchanan Airport shows air passenger potential and is a logical choice given its location close to demand, prior history of air service, and the fact that the recent Master Plan has discussed the possibility of air service.
- Byron Airport is currently fairly remote, but could be considered if Buchanan is not used. Byron could serve the growing eastern part of Contra Costa County and could attract Livermore air passengers (via a short trip up Vasco Rd). There is support in the Contra Costa County for expanded use of Byron Airport, and the County has plans to improve the transportation infrastructure that would serve the airport.
- Livermore Airport demonstrated reasonable future passenger demand, but is probably too close to OAK for airlines to consider serving. Livermore's General Plan and the community do not support airline service.
- South County has physical limits for runway and facility expansion; in addition, SJC has excess runway capacity in our forecasts, and therefore the diversion of passengers would not be necessary from a capacity standpoint.

- Moffett Federal Airfield would not be needed for airline service, again because of SJC having adequate capacity, and because airline service is problematic given its close proximity to SJC and SFO.

External Airports (Sacramento, Stockton, Monterey). Our air passenger surveys show a significant number of out-of -region passengers using Bay Area airports. This is likely due to the airline services offered which do not exist at their local airports. The Consultant's analysis will determine how many of these passengers might switch to their local airport, based on the types of new services that airlines might consider providing at these airports in the future. The Consultants are still working on this analysis, and results may be available for the RAPC meeting.

Possible Alternate Airport Air Cargo Scenarios-None

At the beginning of this study, it was not assumed that air cargo would constitute a major planning focus for several reasons. First, air cargo aircraft operations are not a major factor in terms of runway capacity due to the comparatively small number of flights and the fact that cargo aircraft operate outside the peak schedule times for passenger aircraft flights. And secondly, use of remote airports is not consistent with the business models of today's major air cargo companies need to have close proximity to their customers for ground delivery. International air cargo generally moves in the belly of passenger aircraft, and SFO has and will continue to have most of the international flights. An alternate air cargo airport would not have these international flights. In addition,

- The updated air cargo forecasts are lower than previous regional forecasts, and the projected number of air cargo operations at the individual airports is not large compared to the total number of operations.
- Byron and Travis AFB are possible alternate cargo airports, but the need for these facilities is beyond RAPC's current planning horizon.
- Moffett Federal Airfield has been studied for air cargo in the past, and there has been some discussion of using Moffett to reduce air cargo operations at OAK (due to community noise issues) or to provide for growth at SJC (which is constrained by land for new facilities). However, neither role seems likely at the moment from a demand or industry perspective.
- As mentioned above, while a detailed analysis of alternate air cargo airports has not been performed, this topic was discussed with the Forecast Working Group of technical experts, and they concur with this assessment.

Proposed Reliever Airport Scenario

Business jets use the three air carrier airports to various extents. In 2007, there were approximately 28,000 business jet operations at SFO, 29,000 at SJC, and 19,000 at OAK (using both the North and South Fields).

Small aircraft (business jets and small piston general aviation aircraft) that fly into and out of the air carrier airports require additional distance separation by Air Traffic Control for safety reasons, resulting in a disproportionate impact on runway capacity compared to the number of passengers carried. At SFO and SJC business jets routinely use the same runways as the airlines.

In the case of OAK, business jets typically land on the North Field runways, and then takeoff on the South Field for noise abatement. The main considerations in defining this scenario are:

- General Aviation Reliever Airports* could attract business jet operations by improving their facilities and services, providing improved navigational aids for landing in poor weather, lengthening runways, etc. Some demand management approaches at the Primary airports could also encourage use of these airports.
- At the September RAPC meeting, several Committee members commented that it may not be feasible or practical to eliminate all business jet operations at the air carrier airports. For example, SFO's business jet operations are a small proportion (about 7%) of total flights and these aircraft are used by some of San Francisco's major businesses.
- With this in mind, RAPC staff is proposing that the reliever airport scenario be defined as allowing for current levels of business jet operations at all air carrier airports and having the Reliever Airports in the region absorb the projected growth in business jet operations between 2007 and 2035.
- The runway capacity analysis for SJC does not indicate a need to reduce the levels of business jet operations, so the focus would be on SFO and OAK. The projected growth in business operations for these two airports would be an additional 32 flights a day in 2035 at SFO and an additional 40 flights a day at OAK.
- The projected growth in GA business jet operations would then be distributed among the region's "reliever" airports depending on convenience and available facilities.
- The FAA has commented that, prior to this study, their national aviation forecasts included a large increase in a new type of aircraft called Very Light Jets. While the country's financial problems have delayed the introduction of this type of aircraft, it may be necessary to monitor this topic in the future as a large increase in business/air taxi operations using this new economical type of aircraft could have significant implications for both reliever and air carrier airports.

* FAA identified "Reliever" airports include Hayward, Livermore, Buchanan Field, Byron, Napa County, Sonoma County, Gnoss Field, San Carlos, Half Moon Bay, Palo Alto, Reid-Hillview, and South County.

Another Role for Moffett Federal Airfield to Explore?

- As noted above, Moffett Federal Airfield may not be needed as an air carrier, air cargo or GA reliever airport as the forecasts and runway capacity analyses indicate that SJC has more than adequate long-term runway capacity for both air carrier and GA business jet operations.
- At the last RAPC meeting, SJC's RAPC representative asked whether we will be looking at relocating smaller general aviation piston aircraft from the air carrier airports as this could have both capacity and safety benefits. This leads to another question about whether Moffett ought to be considered for smaller general aviation aircraft, since rising sea levels will threaten low-lying Palo Alto and San Carlos Airports, and it may be necessary to relocate these aircraft to another airport. Moffett could be a logical location since federal agencies will probably need to invest in better dikes to protect runways used by NASA, Lockheed, and for emergency earthquake response. Also, the long term availability of Reid-Hillview is not guaranteed, given past discussions about closing this airport. If this were to occur it would be necessary to find a alternate locations for these

displaced aircraft (some would go to South County, but others may desire a closer location).

- Staff seeks RAPC's advice as to whether this concept ought to be considered in future discussions about Moffett's role in the regional aviation system.

Attachment A
Potential Alternative Airport Roles

AP=potential air passenger service
AC=potential air cargo service
R=potential expanded reliever role for general aviation business jets

Alameda County

- Livermore Municipal (AP, R)
- Hayward Airport (R)

Contra Costa County

- Buchanan Field, Concord (AP, R)
- Byron (AP, AC, R)

Napa County

- Napa County Airport (AP,R)

Marin County

- Gnoss Field (AP, R)

San Mateo County

- Half Moon Bay (AP,R)

Santa Clara County

- Moffett Federal Airfield, if available for joint use (AP, AC, R); also potential relief role after a major Bay Area earthquake
- South County (AP, R)

Solano County

- Travis AFB, if available for joint use (AP, AC); also potential relief role after a major Bay Area earthquake

Sonoma County

- Sonoma County Airport (AP, R)

Out-of-Region Airports

- Sacramento (expand existing air passenger services to new destinations)
- Stockton (expand existing air passenger services to new destinations; also AC)
- Monterey (expand existing air passenger service to new destinations)

Attachment B
Alternate Airport Evaluation Measures

History of Air Service
-Has airport had air service in the past?

Prior Studies
-Has the airport been evaluated in prior studies for air passenger, air cargo, or expanded reliever service or included in current regional plans?

Size of Local Air Passenger Markets
-Size of local air passenger market; potential to reduce operations at Primary commercial airports

Proximity to Air Cargo Markets
-How centrally located relative to air cargo markets served by all cargo airlines; indication of potential interest by air cargo airlines

General Aviation Reliever Airports
-Is the airport close to business activity, such that it would provide a reasonable alternative to using OAK, SFO, or SJC for corporate general aviation aircraft?

Runways
-Does the airport currently have adequate runway length/strength for potential role?

Land
-Does the airport have sufficient land for new facilities to serve a new/expanded role (e.g., airfield and terminal facilities, runway safety areas, etc.)

Airspace
-Would expanded use create any airspace conflicts, or require new procedures that would make existing operations more difficult to manage?

Ground Access Infrastructure
-Does the airport have adequate ground access infrastructure (roads/transit) to support expanded use?

Noise/Air Quality Impacts
-How many people live within close proximity to the airport and would be affected by expanded use?

Physical Environment
-Are there major environmental constraints if airport facilities were to be expanded and/or aviation use increased (wetlands, biological, water quality, air quality, etc.)?

Land Use Compatibility

- Are existing and planned land uses around the airport compatible with a change in airport role (i.e., for safety and noise)?

Safety of Operations

-Are there any existing safety concerns with a change in airport role/increased operations (airspace obstructions, landfill/bird activity, etc)?

Sea Level Rise

-To what extent would projected sea level rise from global warming affect airport runways?

Policy or Other Governmental Limitations

-Are there any limits on airline activity expressed through General Plans, Board or Council Resolutions, past lease agreements, other?

Induced Growth

-Would the airport accommodate additional growth that is not anticipated in current plans?

Sprawl

-Would the airport contribute to increased population and job growth on the perimeter of the region?

Community Acceptance

-Is there public support for an expanded role, as indicated by comments on recent master plans, as part of other public planning processes, or public votes?

Impact on Alternative Energy Sources

-Would expanded aircraft operations at an airport adversely impact any planned alternative energy projects, such as development of new wind farms?

Attachment C
Alternative Airport Characteristics

Airport	**History of Air Service**	**Prior Study or Plan**	**Air Pass. Market**	**Air Cargo Market**	**Reliever Convenience**
Livermore AP	No	No	Medium		
Livermore R					Medium
Hayward R					High
Buchanan AP	Yes		High		
Buchanan R					High
Byron AP	No	No	**Low**		
Byron AC	No	Yes		**Low**	
Napa AP	**Yes**		Medium		
Napa R					**Medium**
Gnoss AP	No	No	Medium		
Gnoss R					Medium
HMB AP	**Yes**	No	Low		
HMB R					**Low**
Moffett AP	No	**Yes**	**Low**		
Moffett AC		**Yes**		**Low**	
Moffett R					**High**
South Co AP	No	No	**Low**		
South Co R					**Low**
Travis AP	Yes	Yes	Medium		
Travis AC		No		**Low**	
Sonoma AP	Yes	Yes	**High**		
Sonoma R					Low
Sactramento AP	Yes	Yes	? for new service		
Stockton AP	Yes	Yes	? for new service		
Stockton AC	Yes				
Monterey AP	Yes	Yes	? for new service		

Airport	**Runway Capability**	**Land for Facilities**	**Airspace Operations**	**Ground Access**	**Policy/ other Limits**
Livermore AP	Yes 5,253 ft	Yes	Good	Good	**Yes**
Livermore R					
Hayward R	Yes 5,694 ft		**Complex**	Good	
Buchanan AP	Yes 5,001 ft.	Yes	Good	Good	No
Buchanan R					
Byron AP	No 4,500 ft	Yes	Good	**Poor**	No
Byron AC	No	Yes	Good	**Poor**	
Napa AP	Yes 5,931 ft.	Yes	Good	**Poor**	**No**
Napa R	**Good**				
Gnoss AP	**No** 4,400 ft (Future Ext)	**No**	**Complex**	Good	
Gnoss R	**Good**				
HMB R	Yes 5,000 ft.			**Poor**	No
Moffett AP	Yes	Yes	**Complex**	Good	**?**
Moffett AC	Yes	Yes	**Complex**	Good	**?**
Moffett R	**Good**	Yes	**Complex**	Good	**?**
South Co AP	**Yes** 5,000 ft (Future Ext)	**No**	**Good**	Good	
South Co R	**Poor**		**Complex**		
Travis AP	Yes	Yes	Good	Good	**?**
Travis AC	Yes	Yes	Good	Good	**?**
Sonoma AP	**Yes** 6,000 ft (Future Ext)	Yes	Good	Good	**Yes**
Sonoma R	Good				
Sacramento AP	Yes	Yes	Good	Good	No
Stockton AP	Yes	Yes	Good	Good	No
Stockton AC	Yes	Yes	Good	Good	No
Monterey AP	Yes	Yes	Good	Good	No

Airport	**Noise/AQ Impacts**	**Physical Environ**	**Land Use Compatibility**.	**Safety of Operations**	**Sea Level Rise**
LivermoreAP	**Low/High**	Good	**Good**	Good	
Livermore R	**Low/High**				
Hayward R					None
Buchanan AP	**Low/ Medium**	Good	**Good**	**Medium**	
Buchanan R					
Byron AP	Low/Low	**Medium**	Good	Good	
Byron AC	Low/Low	**Medium**	Good	Good	
Napa AP	Low/Low	**Poor**	Good	Good	10 percent
Napa R					10 percent
Gnoss AP	Low	**Poor**	Good	Good	**Significant**
Gnoss R					**Significant**
HMB R	**Low/Medium**		Medium		None
Moffett AP	**Low/Medium**	**?**	Good	**Medium**	**30 percent**
Moffett AC	**Low/Medium**	**?**	Good	**Medium**	**30 percent**
Moffett R	**Low/Low**	**?**	Good		**30 percent**
South Co AP	Low/Low	Good	Good	Good	
South Co R					
Travis AP	Low/Low	Good	Good	Good	
Travis AC	Low/Low	Good	Good	Good	
Sonoma AP	Low/Medium	Good	Good	Good	
Sonoma R					
Sacramento AP	Good	Good	Good	Good	
Stockton AP	Medium	Good	Good	Good	
Stockton AC	Medium	Good	Good	Good	
Monterey AP	Medium	Good	Medium	Good	

Airport	Induced Growth	Sprawl	Community Acceptance	Alternate Energy	
Livermore AP	No	No	Low		
Livermore R	No	No	Low		
Hayward R	No	No	Low		
Buchanan AP	No	No	Medium		
Buchanan R	No	No	High		
Byron AP	Yes	Yes	High		
Byron AC	Maybe	Yes	High		
Napa AP	Yes	Yes	Low		
Napa R	No	No	High		
Gnoss AP	Maybe	Maybe	Low		
Gnoss R	No	No	Medium		
HMB R	No	No	Low		
Moffett AP	No	No	Low		
Moffett AC	No	No	Low		
Moffett R	No	No	Low		
South Co AP	Yes	Yes	Unknown		
South Co R	No	Yes	Medium		
Travis AP	No	No	Unknown	Wind farms	
Travis AC	No	No	High	Wind farms	
Sonoma AP	No	No	High		
Sonoma R	No	No	High		
Sacramento AP	No	No	High		
Stockton AP	No	No	Unknown		
Stockton AC	No	No	High		
Monterey AP	No	No	Medium		

Attachment D
Notes on Alternative Airport Characteristics

Livermore-AP

- *Policy Limit*-Yes: City General Plan states that "Livermore Municipal Airport is a general aviation airport. Scheduled passenger service flights shall be prohibited"
- *Noise/AQ*- Low/High: Although noise contours do not indicate a noise problem, there is a high sensitivity to aircraft noise in surrounding communities as evidenced by Master Plan process and input at community meetings (applies to expanded Reliever Airport role as well)
- *Land Use Compatibility*-Good: ALUC and County have been proactive in maintaining compatible land uses near airport

Buchanan-AP

- *Noise*-AQ Impacts-Low/Medium: Although noise contours do not indicate a noise problem, the area around the airport is heavily populated, and communities around airport have historically voiced noise concerns. This led airport to prepare a FAR Part 150 Noise Exposure and Land Use Compatibility Study as part of recent Master Plan process
- *Land Use Compatibility*-Medium: Mostly commercial development near most heavily used runways; also freeways, open space wetland off other runways.

Hayward –R

- *Airspace Operations*-Complex: Interactions with OAK during instrument weather conditions

Byron-AP

- *Air Passenger Market*-Low: Due to remote location
- *Ground Access*-Poor: Due to lack of roadway infrastructure
- *Physical Environment*-Medium: vernal pools surround airport

Byron-AC

- *Air Cargo Market*-Low: Due to remote location, lack of identifiable demand
- See above for other areas

Napa-AP

- *History of Air Service*-Yes: Had service for one year in 1952 (provided by Southwest Airlines)
- *Ground Access*-Poor: Lack of good road infrastructure (Routes 12 and 29)
- *Physical Environment*-Poor: Critical habitats identified by USFWS (vernal pools, fairy shrimp); nearby Napa River and wetlands
- *Policy Limits*-No: Although County has been very concerned about growth and Airport Master Plan does not include any improvements that would facilitate future air service.

Napa-Reliever

- *Convenience*-Medium: Medium rating combines remote location relative to main regional business centers, but good access to Napa Valley as a tourist destination
- *Runway Capability*-Good: airport pursuing upgraded navigational aids for improved all weather operations

Gnoss-AP

- *Runway Capability*-No: Would not have adequate runway length even with proposed extension from 3,300 ft. to 4,400 ft.
- *Land for Facilities*-No: Airport has no extra land for expansion
- *Airspace Operations*-Complex: Based on 2000 RASP; flights to/from LA would present challenges for FAA traffic control but may not be a significant problem at low volumes of operations
- *Sea Level Rise*-Yes: Would be significantly affected.

Gnoss-R

- *Runway Capability*-Good: Refers to runway with proposed extension and upgraded navigational aids

Half Moon Bay-AP

- *Prior Air Service*-Yes, was used many years ago as an alternate for airlines when SFO was fogged in
- *Passenger Market*-Low. Too remote from population

Half Moon Bay-R

- *Convenience*-Low: Distance from airport to main business centers
- *Noise/Air Quality*-Low/Medium-proximity of homes to runway

Moffett-AP

- *Prior Plans*-Yes: 2000 RASP policy and BCDC San Francisco Bay Plan designation
- *Air Passenger Market*-Low: Reflects position of airport between SJC and SFO market areas; possible market for limited charter type service
- *Airspace Operations*-Complex: Based on 2000 RASP; interactions with SJC, and to a more limited extent, OAK
- *Noise/AQ-Low/Medium*: Noise contours based on future passenger/cargo operations may not show significant impacts; however, large population near airport and lack of major aviation activity at present would likely result is significant noise sensitivity to new types of aviation activity
- *Safety of Operations*-Medium due to nearby bird populations on golf courses, migratory birds in area, and proximity to National Wildlife Reserve; for increased aviation activity FAA would require a Wildlife Hazard Mitigation plan
- *Physical environment*-?. Possible biological/wetland issue with increased aviation activity
- *Policy Limits*-?: Depends on receptivity of NASA to a civilian joint use arrangement
- *Sea Level Rise*-30 percent: Likely to require improved dikes to protect runways

Moffett-AC

- *Prior Study or Plan*-Yes: Study and environmental report completed by NASA (1996) when NASA was considering allowing commercial cargo operations as part of the Civil Reserve Air Fleet (CRAF) program
- *Air Cargo Market-Low*: Current air cargo forecasts do not indicate significant need
- See above for other areas.

Moffett-R

- *Convenience*-High: Close proximity to Silicon Valley and San Francisco business centers
- *Runway Capability*-Good: has navigational aids for poor weather operations
- See above for other areas

South County-AP

- *Runway Capability*-Good: Runway could be extended to 5,000 ft in future (further extension is limited by freeway interchanges on either end)
- *Land for Facilities*-Poor: Airport doesn't have expansion potential according to Airport Manager
- *Airspace Operations*-Good: Based on 2000 RASP; would not have any major interactions with SJC due to distance from this airport

Travis AFB-AP

- *Policy Limits*-?: Depends on receptivity of Air Force to a civilian joint use arrangement; Air Force and County had a joint use agreement in the past, which provided for feeder airline flights to SFO.

Travis AFB-AC

- *Air Cargo Market*-Low: Reflects remote location of Travis for integrated carriers (FedEx/UPS) and lack of identifiable local/regional markets for freight.

Sonoma County-AP

- *Air Passenger Market*-High: Based on existing service and projected growth in local air passenger demand
- *Runway Capability*-Yes: Proposed extension to 6,000 ft would better accommodate Regional Jet operations
- *Policy Limits*-Yes: Air Transportation Element of County General Plan states airport would be planned to handle no more than 21 average daily departures