NORMAN Y. MINETA

SAN JOSÉ INTERNATIONAL AIRPORT

MASTER PLAN UPDATE PROJECT

SAN JOSÉ, CA

NINTH

ADDENDUM TO THE

ENVIRONMENTAL IMPACT REPORT

City of San José Public Project File No. PP11-001

CITY OF SAN JOSÉ

JANUARY 7, 2011

TABLE OF CONTENTS

Tables

Figures

SECTION 1. INTRODUCTION

This document is an Addendum to an Environmental Impact Report (EIR) on the Master Plan Update (the "Airport Master Plan") for the Norman Y. Mineta San José International Airport (SJC), which EIR was certified in June 1997, and updated with a Supplemental EIR that was certified in January 2003.

The purpose of this Addendum is to disclose the environmental impacts of the Airport Master Plan related to the issue of global climate change. Global climate change was not addressed in the 1997 EIR or 2003 Supplemental EIR as that issue was not considered an environmental impact under CEQA at the time. Global climate change and greenhouse gas emissions were not included in the CEQA Guidelines until March of 2010.

Under Section 15164 of the California Environmental Quality Act (CEQA) Guidelines, an Addendum to a previously-certified EIR may be prepared by the Lead Agency when subsequent analysis concludes that there will not be a new significant effect or a significant effect being substantially more severe than shown in the previous EIR. [Note: If an analysis were to show a new significant effect or that a significant effect would be substantially more severe than shown in the previous EIR, then a Subsequent or Supplemental EIR would be required (i.e., an Addendum would not comply with CEQA).]

This is the ninth in a series of addenda that have been prepared to address various modifications to the Airport Master Plan and/or changes in environmental setting/impacts. Section 2.2 of this Addendum summarizes the prior modifications to the Airport Master Plan that have been approved by the San Jose City Council.

SECTION 2. OVERVIEW OF THE SAN JOSÉ INTERNATIONAL AIRPORT MASTER PLAN

2.1 DEVELOPMENT AND APPROVAL OF THE MASTER PLAN

SJC is one of the three primary airports that serve the San Francisco Bay Area. The Airport, which is owned and operated by the City of San José, is located on a site of approximately 1,050 acres in Santa Clara County at the southerly end of San Francisco Bay. The Airport is generally bounded by U.S. 101 on the north, the Guadalupe River and State Route 87 on the east, Interstate 880 on the south, and Coleman Avenue and De la Cruz Boulevard on the west.

In 1988, the City initiated a planning process to update its 1980 Airport Master Plan for SJC. The City's aviation consultants prepared demand forecasts for SJC and evaluated a series of alternative development scenarios which would adequately accommodate some or all of the projected growth in passenger and air cargo traffic at the Airport through a year 2010 planning horizon. Between 1988 and 1995, numerous meetings, workshops, and hearings occurred for the purpose of determining the range and scope of alternatives to be formally evaluated in an EIR. The City began the formal preparation of the Draft EIR for the Master Plan Update in 1995. The Draft EIR, which evaluated four alternatives (including the CEQA-mandated No Project Alternative), was published and circulated in October of 1996. The Final EIR was certified in June of 1997. The SJC Master Plan Update was approved by the San José City Council on June 10, 1997. A Supplemental EIR, which updated the noise analysis and addressed the effects of an Automated People Mover (APM), was certified in 2003. A number of EIR Addenda have also been prepared, as listed in Table 2, to address various amendments to the Airport Master Plan that have been approved since 1997 and/or changes in the environmental setting.

The approved Airport Master Plan consists of a comprehensive and integrated package of improvements to airside and landside facilities at SJC, such improved facilities having the design capacity to fully accommodate the 2027 forecast demand for air passenger, air cargo, and general aviation services in a comfortable and efficient manner. Table 1 summarizes the primary improvements contained in the approved Airport Master Plan.

2.2 IMPLEMENTATION OF THE AIRPORT MASTER PLAN: 1997 - 2010

Subsequent to the approval of the Master Plan Update in 1997, construction of various capital improvement projects has been completed or is currently underway. Most of the airfield improvement projects have been completed, including the reconstruction/lengthening of Runway 12L/30R to 11,000 feet and the reconstruction/lengthening of Runway 12R/30L to 11,000 feet. Other projects that have been completed include numerous improvements to the on-Airport roadway system, a new Federal Inspection Services (FIS) building for international flights, a new passenger terminal with adjacent parking garage, and a new jet fuel storage and distribution facility. Current construction activities include a new surface parking lot adjacent to the south end of Terminal B and improvements to several taxiways.

TABLE 1

SUMMARY OF KEY PROJECTS IN THE APPROVED SJC MASTER PLAN [a]

Project Type	Description of Project
Airfield Improvements	- Reconstruct/lengthen Runway 12L/30R to 11,000 feet - Reconstruct/lengthen Runway 12R/30L to 11,000 feet
Passenger Terminals	- Modify existing terminals to create centralized passenger terminal with 49 air carrier gates and 1,700,000 square feet [b]
Public Parking Facilities	- Construct parking garages with 16,200 spaces [c]
Rental Car Facilities	- Construct consolidated parking garage with 6,000 spaces, including 2,000 ready/return spaces
Air Cargo Facilities	- Construct new all-cargo facilities totaling 1,165,100 square feet - Construct new belly-freight facilities totaling 92,400 square feet
Aviation Support Facilities	- Construct new fuel storage facility with capacity of 4,000,000 gallons
General Aviation Facilities	- Provide general aviation facilities on a total of 100 acres on the west side of the Airport
Transportation and Access	- Construct on-Airport APM - Upgrade/widen Terminal Drive - Construct grade separations on Airport Boulevard at Skyport Drive and Airport Boulevard - Construct APM between Airport and Metro/Airport LRT Station

[a] Section 2.3.1 (beginning on page 2-5) of the Final EIR contains a listing and description of all SJC Master Plan projects.
[b] Number of air carrier gates limited to 40 by Section 25.04.300(B)(1) of the San José Municipal Code.
[c] Number of public parking spaces limited to 12,700 by Section 25.04.300(B)(3) of the San José Municipal Code.

Source: SJC Master Plan, as amended through June 8, 2010.

TABLE 2

APPROVED AMENDMENTS TO THE 1997 SJC MASTER PLAN [a]

Num-ber	Description of Amendment	Type	Approval Date	CEQA Clearance
1	Interim off-Airport Office Space and Reuse of Vacated On-Airport Space for Air Carrier-related Uses	Minor	June 1998	Master Plan EIR Reuse
2	Expanded Fixed Base Operator (FBO) Leasehold for ACM Aviation	Minor	June 1999	Master Plan EIR Reuse
3	Interim Relocation of Federal Inspection Services (FIS) Facility	Minor	June 1999	Master Plan EIR Reuse
4	Interim Rental Car Ready/Return Facility Consolidation	Minor	April 2000	Master Plan EIR Reuse
5	Terminal Area Development Program Modifications (including terminal, parking garage, and roadway project revisions, as well as associated interim facility changes)	Minor	November 2001	Master Plan EIR Addendum #1
6	94th Aero Squadron Early Lease Termination/Removal and Interim Reuse for Runway Project Cement Plant	Minor	December 2001	Master Plan EIR Reuse
7	Relocation of Remote Transmitter/Receiver Facility to North Side of Control Tower & Reuse of Site for General Aviation	Minor	February 2002	Master Plan EIR Reuse
8	Automated People Mover (APM) between Airport and Metro/Airport LRT Station	Minor	March 2003	Master Plan Supplemental EIR
9	Additional General Aviation Facilities on west side of Airport & Designate Employee Parking as ultimate use in Terminal A Parking Garage	Major	April 2003	Master Plan EIR Addendum #2
10	Off-Airport Construction Staging & Change in Designated Location of Future Airline Maintenance/Equipment Storage Facilities	Minor	June 2003	Master Plan EIR Reuse
11	Lease of 52-acre off-Airport Site for the Temporary Relocation of Rental Cars & Employee Parking	Minor	November 2004	Master Plan EIR Addendum #4
12	Square Footage of Centralized Passenger Terminal increased to 1,700,000 square feet	Minor	March 2005	Master Plan EIR Addendum #4
13	Shifted the Master Plan Horizon Year from 2010 to 2017; Modified designs of Terminal Area Facilities; Modified range of interim uses on former-FMC Site	Major	June 2006	Master Plan EIR Addendum #6
14	Change in Eastside Non-Terminal Development Projects to provide flexibility in location, function, & development sequencing	Minor	May 2007	Master Plan EIR Reuse
15	Shifted the Master Plan Horizon Year from 2017 to 2027; Decrease size of air cargo/belly-freight facilities; Increase acreage for general aviation facilities; Modify Taxiways H and K	Major	June 2010	Master Plan EIR Addendum #8

[a] Per Section 25.02.300 of the San José Municipal Code, amendments to the Master Plan Update are classified as "minor" or "major". The criteria for defining minor and major amendments are set forth in that same section of the Municipal Code.

Notes: EIR Addendum #3 addressed a modification to the Airport Noise Control Program that was approved on October 21, 2003. EIR Addendum #5 addressed the Airport's Gate Management Plan that was approved on November 15, 2005. EIR Addendum #7 addressed the impacts of the Master Plan with regard to its potential to increase terrorist attacks. No Master Plan Amendment was involved with any of these EIR Addenda.

SECTION 3. SCOPE OF THIS ADDENDUM

The City is preparing this EIR Addendum to address the subject of global climate change. Global climate change was not addressed in the 1997 EIR or 2003 Supplemental EIR as that issue was not considered an environmental impact under CEQA at the time. Global climate change and greenhouse gas emissions were not included in the CEQA Guidelines until March of 2010.

When the revised CEQA Guidelines became effective in March 2010, the analysis of global climate change and GHGs formally became part of the list of topics to be evaluated under CEQA. This constitutes a substantial change with respect to the circumstances under which the Airport Master Plan is being implemented. Therefore, in preparing this Addendum, the City is updating the previous environmental analyses to include this topic. In that manner, the decision-makers will be able to take impacts related to global climate change into account when deciding whether to approve the construction of the remaining Airport Master Plan projects.

As described in Section 4, many of the projects identified in the 1997 Airport Master Plan have been constructed in the intervening 13 years. Such projects are now part of the existing environmental setting and consideration of their associated GHG emissions are not relevant to any future decision by the City to approve the construction of the remaining Master Plan projects.

SECTION 4. GLOBAL CLIMATE CHANGE IMPACTS OF THE AIRPORT MASTER PLAN

4.1 INTRODUCTION AND BACKGROUND

This section provides a general overview of global climate change and focuses on greenhouse gas emissions from human activities that alter the chemical composition of the atmosphere. The discussion is based upon the California Global Warming Solutions Act of 2006 (Assembly Bill 32), the 2006 and 2009 Climate Action Team (CAT) reports to Governor Schwarzenegger and the Legislature, and research, information and analysis completed by the International Panel on Climate Change (IPCC), the United States Environmental Protection Agency (EPA), and the California Air Resources Board (CARB).

4.1.1 Definition and Effects

Global climate change refers to changes in long-term weather patterns including temperatures, precipitation, and wind patterns. Global temperatures are affected by the accumulation of naturally occurring and anthropogenic (i.e., generated by human activities) atmospheric gases such as carbon dioxide, water, and methane. These gases allow sunlight into the Earth's atmosphere but prevent heat from radiating back into outer space, thus altering the Earth's energy balance. This phenomenon is commonly referred to as the "greenhouse effect" and/or “global warming”.

Many scientific studies have concluded that global warming is occurring and that the rate of global warming is being accelerated by the release of gases associated with human activities. The long-term consequences of global warming are likely to include a rise in temperatures and sea level, as well as an increase in the frequency and severity of events such as heat waves, floods, droughts, hurricanes, and wildfires. All of these events will directly affect numerous aspects related to the quality of life for humans (e.g., health, energy use, land use, agriculture, forestry, water, and weather) and for plant and animal life (e.g., changes to habitats and food sources that could affect their range and/or viability).

4.1.2 Causes

As noted above, gases that contribute to global climate change are emitted from both natural and human activities. Some of the more notable gases, which are commonly referred to as greenhouse gases (GHGs), are as follows:

- **Carbon Dioxide (CO_2)** enters the atmosphere through the burning of fossil fuels (oil, natural gas, and coal), solid waste, trees and wood products, respiration, and as a result of other chemical reactions (e.g., manufacturing of cement). Conversely, carbon dioxide is removed from the atmosphere when it is absorbed by plants as part of the biological carbon cycle.

- **Methane (CH_4)** is emitted during the production and transport of coal, natural gas, and oil. Methane emissions also result from livestock and other agricultural practices and by the decay of organic waste in municipal solid waste landfills.
- **Nitrous Oxide (N_2O)** is emitted during agricultural and industrial activities, as well as during combustion of fossil fuels and solid waste.
- **Fluorinated Gases** are synthetic, strong GHGs that are emitted from a variety of industrial processes. Fluorinated gases are sometimes used as substitutes for ozone-depleting substances. These gases are typically emitted in smaller quantities, but because they are potent GHGs, they are sometimes referred to as High Global Warming Potential (GWP) gases. High GWP gases are emitted from a variety of industrial processes including aluminum production, semiconductor manufacturing, electric power transmission, and magnesium production and processing, and the production of HCFC-22, a hydrochlorofluorocarbon used as a refrigerant and in air conditioners.

Human activities have exerted a growing influence on some of the key factors that govern climate by changing the composition of the atmosphere and by modifying vegetation. The concentration of carbon dioxide in the atmosphere has increased from the burning of coal, oil, and natural gas for energy production and transportation, as well as from the removal of forests and woodlands around the world to provide space for agriculture and other human activities. Emissions of other GHGs, such as methane and nitrous oxide, have also increased due to human activities. Carbon dioxide accounts for approximately 85 percent of total emissions, and methane and nitrous oxide account for almost 14 percent. Each of these gases, however, contributes to global warming at a different relative rate. For example, methane has a global warming potential 23 times that of carbon dioxide, while nitrous oxide's potential is 296 times that of carbon dioxide. To account for these differences, estimates of GHG emissions are often described in terms of "carbon dioxide equivalents".

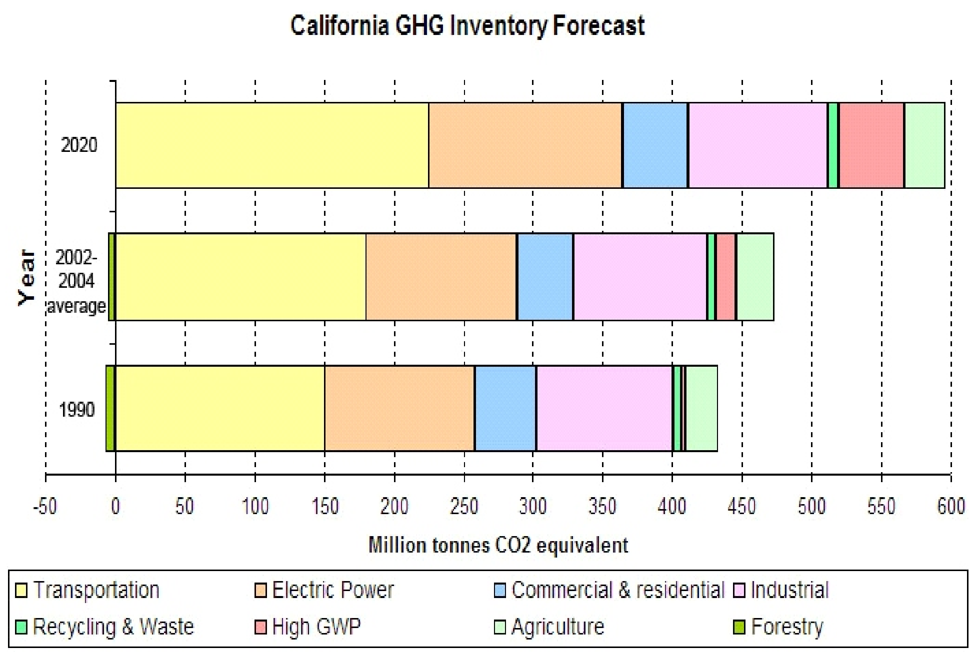
In 2008, CARB released an updated version of the GHG inventory for California. The inventory (see Table 3) shows total GHG emissions for 1990, the 2002-2004 average, and 2020 if no action is taken. As shown in Table 3, the combustion of fossil fuels for energy use is a major source of anthropogenic greenhouse gas emissions. Transportation is the largest end-use source of carbon dioxide, which is the most prevalent GHG.

4.1.3 Regulatory Setting

Within the last decade, as more studies have concluded that the effects of global warming are likely to be substantial, legislation and regulations have been adopted in an effort to reduce GHG emissions associated with human activities. Due to the relative newness of this topic, the regulatory environment is rapidly changing as rules, thresholds, and methodologies are developed and phased-in. The following is a brief overview of the primary legislation and regulations that pertain to global warming, focusing on any CEQA-related aspects.

T A B L E   3

CALIFORNIA GREENHOUSE GAS INVENTORY



4.1.3.1 *Federal*

In 2007, the U.S. Supreme Court ruled that carbon dioxide is an air pollutant, as defined under the Clean Air Act, and that EPA has the authority to regulate emissions of GHGs. Subsequent to this ruling, the EPA Administrator made two distinct findings: 1) that the current and projected concentrations of six key GHGs in the atmosphere threaten the public health and welfare of current and future generations, and 2) that the combined emissions of these GHGs from new motor vehicles and new motor vehicle engines contribute to the GHG pollution, which threatens public health and welfare. These findings do not themselves impose any requirements on industry or other entities. However, this action is a prerequisite to finalizing the EPA's proposed GHG emission standards for light-duty vehicles, which EPA proposed in a joint proposal including the Department of Transportation's proposed Corporate Average Fuel Economy (CAFE) standards on September 15, 2009.

Regulation of emissions from stationary-sources under the CAA comes in three forms, air quality standards, technology standards, and permits for new and modified sources. As of late 2010, CAA regulatory programs for stationary sources were not as far along as emission standards for mobile sources.

4.1.3.2 *State*

AB 32 requires achievement of a statewide GHG emissions limit equivalent to 1990 emissions by 2020, and the adoption of rules and regulations to achieve the maximum technologically feasible and cost-effective GHG emissions reductions. CARB and other state agencies are currently working on regulations and other initiatives to implement a Climate Change Scoping Plan, which was adopted in December 2008 for the purpose of achieving the goals of AB 32. The Scoping Plan has a range of GHG reduction actions, which include direct regulations, alternative compliance mechanisms, monetary and non-monetary incentives, voluntary actions, and market-based mechanisms such as a cap-and-trade system. Many of the measures identified in the Scoping Plan will be implemented by state government or at a statewide-level. Under the plan, local and regional government will need to implement changes to local land use patterns and improved transportation systems to further reduce total statewide GHG emissions by 2020.

Senate Bill 375 (SB 375), signed into law in September 2008, builds on AB 32 by requiring CARB to develop regional GHG reduction targets to be achieved from the automobile and light truck sectors for 2020 and 2035.

As required under state law (Public Resources Code §21083.05), the California Natural Resources Agency amended the State CEQA Guidelines to include this section on GHG emissions (effective March 18, 2010). Under the new guidelines, a Lead Agency may describe, calculate, or estimate GHG emissions resulting from a project and use a model, qualitative analysis, and/or performance-based standards to assess impacts.

4.1.3.3 Regional

In June 2010, the Bay Area Air Quality Management District (BAAQMD) adopted new CEQA guidelines for assessing the air quality impacts for projects located in the San Francisco Bay Area. The guidelines include thresholds of significance for assessing projects at a plan level (e.g., general plans and regional plans) and at a project level (e.g., residential subdivision, shopping center, industrial park). The new guidelines include recommendations for the effects of GHG emissions.

BAAQMD has also prepared an inventory of GHG emissions for the Bay Area. The latest version of the inventory, which was updated in 2010, provides information on calendar year 2007 emissions. In 2007, there were an estimated 95.8 million metric tons of GHG emission associated with the nine Bay Area counties. Like the statewide inventory, transportation is one of the largest sources of GHG emissions, at 36.4 percent. Industrial and commercial uses emitted a similar amount of GHG (36.4 percent), followed by electricity generation (15.9 percent), and residential uses (7.1 percent). Within the transportation sector, 7.5% of the GHG emissions are from aircraft operations.

4.1.3.4 *Local*

The City of San Jose's *Green Vision* is a comprehensive 15-year plan to create jobs, preserve the environment, and improve quality of life in the community. Key goals in the *Green Vision*, which if implemented in whole or in part that could substantially reduce GHG emissions, include reducing per capita energy use by 50 percent, increasing the amount of electric power received from clean renewable sources to 100%, building or retrofitting buildings with green features, diverting 100% of the waste from our landfill, converting waste to energy, recycling or beneficially reusing 100% of wastewater (100 million gallons per day), ensuring that 100% of public fleet vehicles run on alternative fuels, planting 100,000 new trees, replacing 100% of City streetlights with smart, zero emission lighting, and creating 100 miles of interconnected trails that will allow residents to travel more easily by bicycle or on foot.

4.2 ASSESSMENT OF GHG IMPACTS

4.2.1 Thresholds of Significance

The continued implementation of the approved Airport Master Plan would result in an environmental impact related to greenhouse gas emissions if it would:

a) generate greenhouse gas emissions, either directly or indirectly, that may have a significant impact on the environment; or

b) conflict with an applicable plan, policy, or regulation adopted for the purpose of reducing the emissions of greenhouse gases.

4.2.2 Methodology

As discussed in Section 2, the Airport Master Plan was approved in 1997 and the majority of the improvement projects identified in the Plan have since been constructed. Table 4 summarizes the construction status of the key Airport Master Plan projects.

Therefore, unlike the typical CEQA process wherein the environmental impacts of an entire project are analyzed prior to its approval and construction, in this case the analysis is limited to the impact of GHG emissions associated with construction of the remaining Airport Master Plan projects. The GHG-related emissions of all of the projects that have already been constructed are not relevant as those facilities are now part of the existing environmental setting. Those projects that were constructed over the 13 years following the 1997 approval of the Airport Master Plan were fully analyzed under the provisions of CEQA, as such provisions existed at the time of the approvals of those projects.

TABLE 4

CONSTRUCTION STATUS OF THE KEY AIRPORT MASTER PLAN PROJECTS

	Completed Projects	Future Projects
Airfield Projects	The two main projects, the reconstruction & lengthening of Runway 12R/30L to 11,000 feet and the reconstruction/lengthening of Runway 12L/30R to 11,000 feet, have been completed. In addition, of the 34 taxiway improvement projects identified in the Master Plan, 27 have been completed.	Upgrades and extensions to portions of Taxiways G, H, J, K, V, and W to facilitate aircraft movement between parking areas and the runways are planned.
Passenger Terminals Projects	The majority of the identified passenger terminal improvements have been completed, including the expansion and remodeling of Terminal A, the construction of Terminal B (except for the future south concourse), and the demolition of Terminal C.	The south concourse of Terminal B (up to approximately 700,000 square feet and 12 air carrier gates) will be constructed when warranted by demand.
Rental Car Projects	Construction of the new consolidated rental car garage, including 2,000 ready/return spaces, has been completed.	None.
Public Parking Projects	Approximately 6,600 public parking spaces have been constructed, or are in the process of being constructed. This represents 52% of the planned parking supply under the approved Airport Master Plan.	Up to approximately 6,100 additional public parking spaces will be constructed when warranted by demand.
Roadway Projects	All of the major improvements have been completed, including upgrades to on-Airport roadways (i.e., Terminal Drive and Airport Boulevard) and new grade separations at Airport Parkway and Skyport Drive.	None.
Air Cargo Projects	None.	New all-cargo facilities totaling up to 1,165,100 square feet and new belly-freight facilities totaling up to 92,400 square feet will be constructed.

TABLE 4 [continued]		
	Completed Projects	**Future Projects**
General Aviation Projects	Removal of older facilities from the east side and south end of the Airport, and addition of new facilities on the west side of the Airport have been completed.	Additional general aviation facilities (e.g., hangars, service areas, ramp and parking) will be constructed on the west side of the Airport.
Aviation Support Projects	A new aviation fuel storage facility with a capacity of two million gallons has been constructed, as has a new pipeline and fuel dispensing facility.	As demand warrants, the capacity of the fuel storage facility will be increased by up to two million gallons, for a total of up to four million gallons. Existing airport maintenance facilities, flight kitchen facilities, airline maintenance/storage facilities, and airport rescue/fire facilities will be upgraded (in some cases, structures will be demolished and rebuilt).
Source: City of San Jose, 2010.		

In other words, the City's only remaining discretionary actions[1] are related to the approvals of funding, designs, and/or construction contracts for the remaining yet-to-be-constructed Airport Master Plan projects.

Thus, the methodology undertaken by the City focused on answering the following two questions:

- Will the construction of the remaining Airport Master Plan projects generate GHG emissions, either directly or indirectly, that may have a significant impact on the environment?

- Will the construction of the remaining Airport Master Plan projects conflict with an applicable plan, policy, or regulation adopted for the purpose of reducing the emissions of GHGs?

[1]Under CEQA, a "project" is defined as activity that requires a discretionary action from a public agency. Discretionary actions require the exercise of judgment or deliberation (e.g., approval of a plan or zoning). In contrast, ministerial actions involve little or no personal judgment; such actions involve only the use of fixed standards or objectives (e.g., issuance of marriage licenses or certain building permits). CEQA applies only to discretionary actions.

4.2.3 GHG Emissions With and Without Construction of Remaining Airport Master Plan Projects

GHG emissions associated with SJC, like emissions of other air pollutants such as carbon monoxide, hydrocarbons, nitrogen oxides, and sulfur oxides, are directly related to Airport activity levels. At SJC, as the number of air passengers, volume of air cargo, and/or demand for general aviation vary, so too do activity levels and, in turn, emissions of GHG gases. Categories of activity levels that emit GHGs include the number of aircraft operations (i.e., takeoffs and landings), the volume of ground traffic (private vehicles, taxis, shuttle vans, trucks, rental cars, shuttle buses, etc.), the usage of ground service equipment (fuel trucks, power units, baggage carts, cargo loaders, aircraft tugs, maintenance vehicles, catering trucks, etc.), and utility usage are all activities that directly or indirectly produce GHGs.

The methodology, therefore, in determining whether construction of the remaining Airport Master Plan projects will result in an increase in GHG emissions is to compare projected activity levels at SJC with and without the construction of the remaining projects. Once the respective "with project" and "without project" activity levels are determined, effects on GHG emissions can be assessed. As summarized in Table 5, there are three potential outcomes to this analysis.

T A B L E 5

POTENTIAL OUTCOMES OF ANALYSIS TO DETERMINE EFFECT OF REMAINING AIRPORT MASTER PLAN PROJECTS ON GHG EMISSIONS

OUTCOME #1: Constructing the remaining Master Plan projects will result in ***higher*** activity levels, as compared to not constructing the remaining projects.
OUTCOME #2: Constructing the remaining Master Plan projects will result in ***lower*** activity levels, as compared to not constructing the remaining projects.
OUTCOME #3: Constructing the remaining Master Plan projects will result in ***no change*** to activity levels, as compared to not constructing the remaining projects.

4.2.3.1 *Projected Airport Activity Levels*

The original Airport Master Plan horizon year of 2010 was based on aviation demand forecasts that were prepared in 1994. The forecasts quantified the expected demand for air transportation services at SJC in 2010, based upon an analysis of economic, employment, and demographic data. Based on those forecasts, a list of airport facility improvement projects to accommodate the projected demand at a reasonable level of service was developed. These projects became the Airport Master Plan, which as noted on page 2, was approved by the San José City Council in 1997.

At the time the original demand forecasts were undertaken, SJC was experiencing substantial annual growth in the number of air passengers using the airport. That substantial growth, which is summarized in Figure 1, was projected to continue through the year 2010. However, several unforeseen events subsequently transpired, which resulted in a major effect on the aviation industry and on activity levels at SJC: 1) terrorist attacks on September 11, 2001; 2) bursting of the high-tech "dot com" bubble in Silicon Valley; and 3) substantial increases in the price of aviation fuel. As a result of these events, SJC's activity levels began to drop beginning in 2002.

Further, as part of a 2005 financial feasibility analysis, the level of air passenger activity at SJC that was originally projected to be reached by year 2010, was projected not to be reached until year 2017. This updated forecast formed the basis for a decision in 2006 by the City to shift the horizon year for the Airport Master Plan from 2010 to 2017.

In 2008, the global economy entered into a widespread economic recession, the effects of which are still being experienced. To account for these changed conditions, the City completed another update to the aviation demand forecasts for SJC in 2009. Based on this 2009 updated forecast, the level of air passenger activity at SJC that was originally projected to be reached by year 2010, and subsequently projected to be reached by 2017, is now projected not to be reached until year 2027, as shown in Figure 1. In addition, the 2009 updated forecast indicates that future demand for general aviation and air cargo will be substantially different from that which was originally projected. The 2009 updated forecast formed the basis for a decision in June 2010 by the City to shift the horizon year for the Airport Master Plan from 2017 to 2027.

Table 6 provides a comparison for the original and updated forecasts for SJC. Figure 2 presents an overview of historic and projected aircraft operations.

To summarize, the existing Airport Master Plan, as amended through June 2010, consists of a comprehensive and integrated package of improvements to facilities at SJC, such improved facilities having the design capacity to fully accommodate the 2027 forecast demand for air passenger, air cargo, and general aviation services in a comfortable and efficient manner. Stated another way, if all of the projects identified in the Airport Master Plan are constructed, and the assumptions upon which the demand forecasts are based are accurate, there is certainty that 2027 activity levels at SJC will be as shown in Table 6, because by definition the projects are designed to be able to accommodate the demand in a comfortable and efficient manner.

The next step in the analysis is to determine if ***not*** constructing the remaining Airport Master Plan projects will affect 2027 activity levels. Once this has been determined, then GHG emissions with and without the construction of the remaining projects can be quantified and compared. The following text presents this next step in the analysis.

Figure 1:
Comparison of Annual Air Passenger Activity Levels at SJC

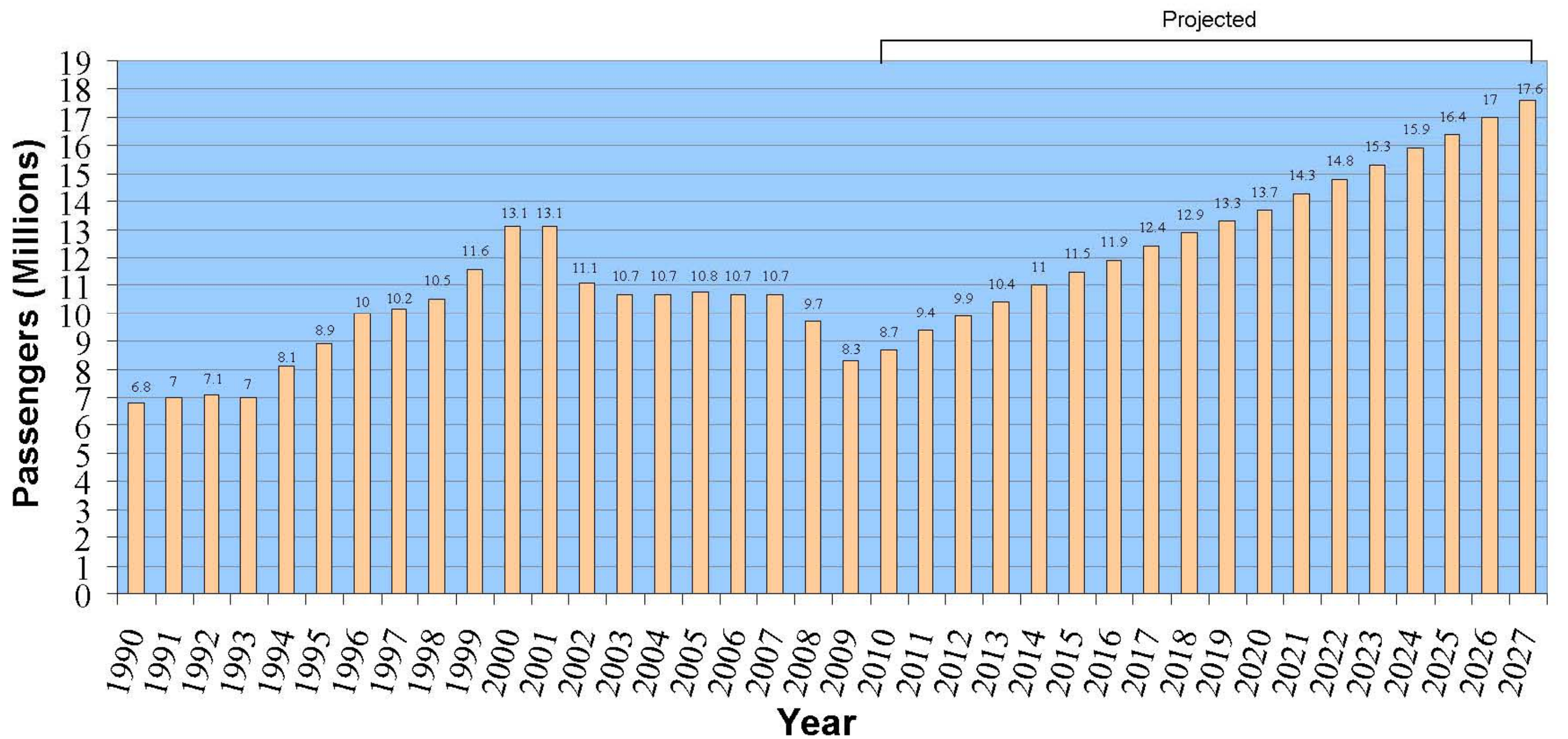


Figure 2:
Comparison of Annual Aircraft Operations at SJC

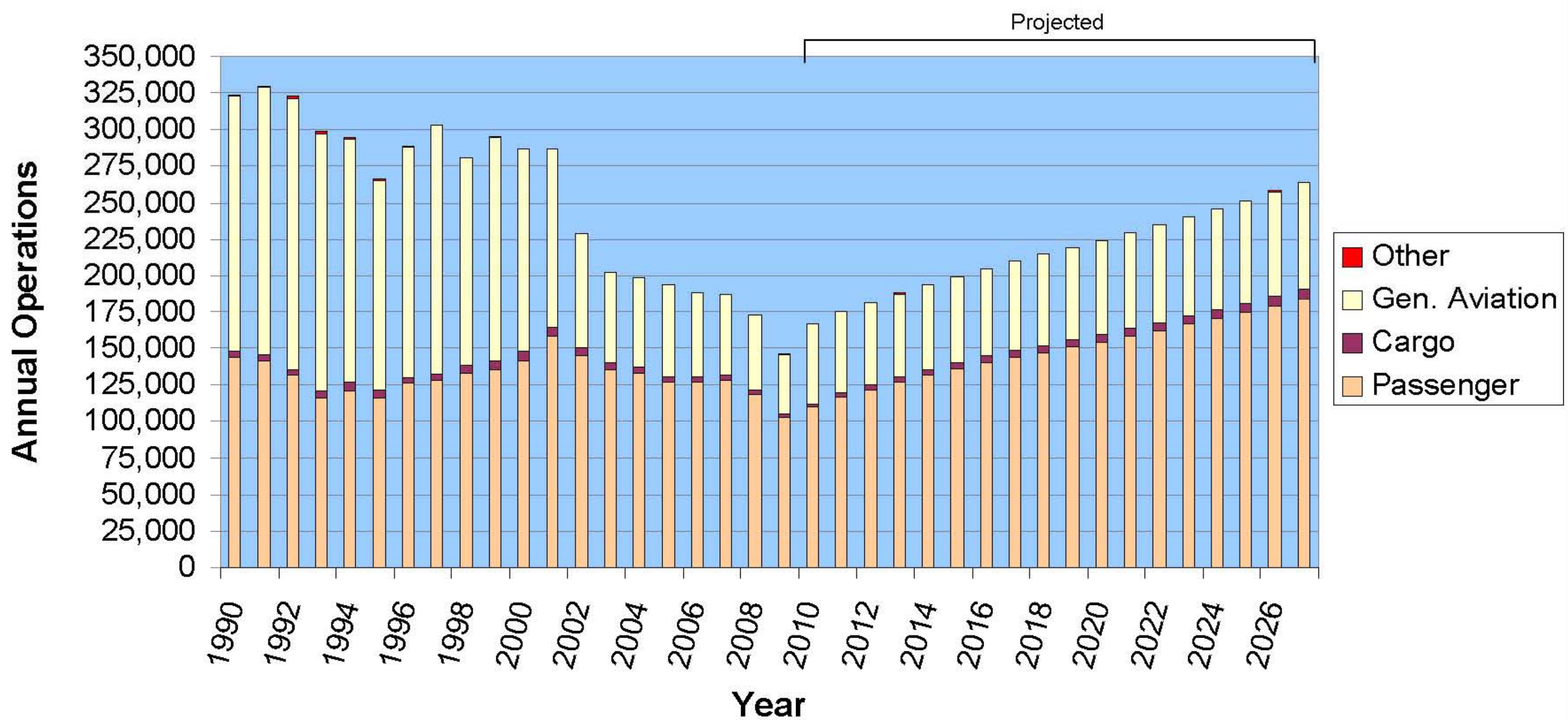


TABLE 6

COMPARISON OF AIRPORT MASTER PLAN DEMAND FORECASTS

	Actual	Demand Forecasts		
	2009	**Forecast for 2010 Horizon Year**	**Forecast for 2017 Horizon Year**	**Forecast for 2027 Horizon Year**
Air Passengers (millions)	8.3	17.6	17.6	17.6
Air Cargo (tons)	59,471	315,300	315,300	189,700
General Aviation (# of Based Aircraft)	149	360*	360*	209

*Projected demand was for 630 aircraft, of which 360 could be accommodated at the Airport.

Sources: Ricondo & Associates, City of San Jose.

4.2.3.2 *Effect of Not Constructing the Remaining Airfield Improvement Projects on Projected Airport Activity Levels*

In 1999, the Federal Aviation Administration (FAA) undertook an assessment of the capacity of the airfield at SJC to accommodate forecasted demand, which at that time was projected to be 372,500 annual aircraft operations (i.e., takeoffs and landings) by the year 2010. This analysis was undertaken ***prior to*** construction of all of the major airfield improvements that have since been constructed. The FAA concluded that there would be aircraft congestion and delay on the airfield during peak hours if all of the demand materialized, but that such delay is commonly tolerated by airports throughout the United States and, therefore, would not prevent the forecasted demand from materializing. In fact, the FAA concluded that if 100% of the projected demand were to occur on the then-existing airfield facilities, such delays at SJC would still be only 10% to 20% as large as delays already occurring at many commercial airports throughout the country.[2]

Subsequent to the completion of the FAA's assessment, the Airport Master Plan's two major runway improvement projects, as well as 27 of the 34 taxiway improvement projects, were constructed. The Master Plan's forecast demand levels have also since been updated and are substantially lower than the levels analyzed by the FAA (263,790 versus 372,500 annual operations).

[2]Source: Final EIS for SJC Master Plan Update; Appendix N, pages 15-16, FAA, 1999.

In consideration of all of these facts, it is concluded that not completing the seven remaining taxiway improvement projects would not result in lower projected airport activity levels.

4.2.3.3 *Effect of Not Constructing the Remaining Terminal Improvement Projects on Projected Passenger Levels*

In 1999, the FAA undertook an assessment of the capacity of the passenger terminals at SJC to accommodate forecasted demand, which at that time was projected to be 17.6 million annual passengers by the year 2010. This analysis was undertaken ***prior to*** construction of all of the major terminal improvements that have since been constructed. The FAA concluded that there would be substantial crowding and congestion in the terminals during peak hours if all of the demand materialized, but that such overcrowding is common at airports throughout the United States and, therefore, would not prevent the forecasted demand from materializing. In fact, the FAA concluded the following:

> "...there is no discernible relationship between the size of passenger terminals and the volume of demand accommodated by those terminals. Historical data indicate that passengers will tolerate severe overcrowding. In 1989, Orange County's John Wayne Airport accommodated 4.3 million passengers through its old, ground-level boarding (with only two "secure" passenger hold rooms), 29,000-square-foot terminal, a facility designed to accommodate only 400,000 annual passengers. Orange County's new 14-gate, 337,900-square-foot terminal accommodated 7.3 million passengers in 1996, which is equivalent to almost 522,000 passengers per gate per year, and it is intended to serve 8.4 million annual passengers, or approximately 600,000 passengers per year per gate.[3]

Similarly, at SJC, Southwest Airlines accommodated 4.67 million passengers through its seven gates in Terminal A in the 12-month period ending June 30, 2008, which is equivalent to almost 667,000 passengers per year per gate.[4] This volume is significantly higher than the Master Plan's design assumption of 350,000 passengers per gate per year, which further corroborates the FAA's conclusions that "real world" volumes are unconstrained by theoretical design parameters. In practical terms, experience at SJC and many other airports demonstrate that airlines and passengers tolerate the inconveniences associated with congested passenger terminals.

Subsequent to the completion of the FAA's assessment, the majority of the passenger terminal improvements identified in the Airport Master Plan have been completed, including the expansion and remodeling of Terminal A, the construction of Terminal B in 2010 (except for a future south concourse), and the demolition of Terminal C. In 1999, the combined size of Terminals A and C was 408,000 square feet with 31 gates, as compared to the existing combined size of Terminals A and B, which is approximately one million square feet with 28 gates.

[3]Source: Final EIS for SJC Master Plan Update; Appendix N, pages 18-20, FAA, 1999.

[4]Source: SJC Comprehensive 2009 Annual Financial Report, City of San Jose.

As passenger levels rise in future, the Airport plans to construct the south concourse of Terminal B, which would bring the total square footage in Terminals A and B to up to 1.7 million square feet and the total number of gates to a maximum of 40. If the south concourse is not constructed, passenger levels would still rise, but conditions would become more crowded.

In consideration of these facts, it is concluded that not completing the remaining passenger terminal project (i.e., the south concourse of Terminal B) would not result in lower projected airport passenger levels.

4.2.3.4 *Effect of Not Constructing the Remaining Public Parking Projects on Projected Passenger Levels*

As stated previously, SJC currently has approximately 6,600 on-Airport public parking spaces, which is 52% of the planned total of 12,700 spaces. If the remaining 6,100 spaces were not constructed, the demand would be accommodated at private off-Airport parking facilities and passengers would be bused from the remote lots to the terminals. Alternatively, passengers could choose an alternative to driving to the Airport such as using taxis, shuttle/van services, public transportation, or having someone drive them to/from SJC.

A good example of an airport's inadequate parking facilities not constraining the accommodation of demand is San Diego's Lindbergh Field. San Diego is primarily an "origin & destination" airport similar to SJC. San Diego has only 4,085 on-airport parking spaces and yet, in 2004, that airport served 16.5 million passengers.[5] As a result, there are numerous off-airport private parking facilities near Lindbergh Field which serve San Diego passengers. In the Bay Area, there are numerous off-airport private parking facilities near San Francisco International Airport which supplement that airport's shortage of on-Airport parking.[6] At SJC, there are several private lots in the vicinity of the Airport that market to air passengers. Similarly, at least five hotels near SJC provide airport parking.

These off-Airport, privately-owned parking facilities are common around many airports. Although these facilities must shuttle passengers between the lots and the terminals, they are attractive to many people because they are typically cheaper than on-Airport facilities.

In consideration of these facts, it is concluded that not completing the remaining on-Airport parking spaces would not result in lower projected airport passenger levels.

---

[5]Source: Final EIR for the San Diego International Airport Master Plan, page 3-12, 2008.

[6]Source: www.aboutairportparking.com.

4.2.3.5 *Effect of Not Constructing the Remaining Air Cargo Projects on Projected Air Cargo Activity Levels*

The existing cargo facilities at SJC are located on the east side of the Airport and consist of approximately 300,000 square feet of area devoted to the all-cargo carriers (e.g., Federal Express, UPS, and ATI) and approximately 85,000 square feet of area for processing of belly-freight (i.e., cargo carried in the belly of passenger aircraft). No expansion of these air cargo facilities has yet occurred as part of the implementation of the Airport Master Plan.

In 1999, the FAA undertook an assessment of the capacity of the existing air cargo facilities at SJC to accommodate forecasted demand, which at that time was projected to be 315,300 tons per year (combined all-cargo and belly freight) by the year 2010. Operations by all-cargo carriers were projected to be 13,300 by year 2010. The FAA acknowledged that the existing facilities were operating above their design capacity, but concluded that the forecasted demand could still be met. The FAA's conclusions are as follows:

> "...if no expansion of facilities occurs, demand could still be accommodated at SJC, although in an inefficient manner as currently exists. Because the cargo carriers operate during non-peak hours, the airport has designated sections of taxiway as parking positions for cargo carriers during those times. Consequently, aircraft are loaded and unloaded at these locations without causing any delay to other operations. Given the level of cargo operations and the fleet mix expected to serve SJC, unconstrained air cargo demand could be accommodated through the year 2010 using similar techniques."[7]

In 2009, revised air cargo forecasts were completed. The revised forecasts project a much lower demand for air cargo services than had originally been projected in the mid-1990s. The revised forecasts project an air cargo demand for 189,700 tons per year by the year 2027, which is 40% lower than the original projections. Projected annual operations by all-cargo carriers are 6,830 by year 2027. As a result of these revised forecasts, the City amended the Airport Master Plan in June 2010 to decrease the size of future all-cargo facilities from 1.9 million square feet to 1.2 million square feet, as well as to reduce the size of future belly-freight facilities from 219,000 square feet to 93,000 square feet.

In consideration of these facts, it is concluded that not completing the air cargo projects identified in the Master Plan would not result in lower air cargo activity levels.

4.2.3.6 *Effect of Not Constructing the Remaining General Aviation Projects on Projected General Aviation Activity Levels*

When the Airport Master Plan was approved in 1997, 56 acres on the Airport were designated for general aviation, with a capacity to accommodate approximately 360 based aircraft. This was, however, based on an assumption that most of the general aviation fleet would consist of small, single-engine,

[7] Source: Final EIS for SJC Master Plan Update; Appendix N, page 21, FAA, 1999.

aircraft. The general aviation environment has recently changed and it is now forecast that the majority of the general aviation fleet will be comprised of large corporate jet aircraft. Thus, while the forecast number of based aircraft is lower (209 versus 360), the amount of room needed on a per-aircraft-basis is much larger. In response to these changed circumstances, the City amended the Airport Master Plan in June 2010 to increase the area designated for general aviation by approximately 44 acres, for a total of approximately 100 acres.

Currently, there are 151 general aviation aircraft based at SJC. The updated aviation forecasts prepared in 2009 project a demand for 209 based aircraft at SJC by the year 2027, of which 140 are projected to be jets. There is room within the existing facilities for 7 - 15 additional based aircraft, with the exact number dependant on the size of the aircraft. Therefore, of the projected year 2027 demand for 209 based aircraft, there would not be room within the existing facilities to accommodate up to 51 of those aircraft at SJC.

If additional facilities are not constructed to fully accommodate the demand for 209 based aircraft, the relevant question is whether the overall number of operations (i.e., takeoffs and landings) by general aviation aircraft would be higher or lower, as compared to the number that would occur if the additional facilities are constructed. To answer this question, an analysis was completed by Mead & Hunt, Inc., an aviation consulting firm, in October 2010. The Mead & Hunt analysis, which is attached as Appendix A, is summarized in the following paragraphs.

Mead & Hunt interviewed personnel at the general aviation businesses[8] located at SJC and confirmed that aircraft owners chose to base their aircraft at SJC because (a) the Airport had facilities appropriate for their aircraft, (b) the cost was acceptable, and (c) the Airport was located a reasonable driving distance from their business or residence. In the future, the additional aircraft owners seeking to base their aircraft at SJC will do so because it is the airport most conveniently located to their business or residence that has the appropriate facilities at a reasonable cost. If space for their aircraft at SJC does not exist, the aircraft owner has two basic choices:

- Base the aircraft at another airport and drive passengers to/from that airport, or
- Base the aircraft at another airport and ferry the aircraft to SJC to pick up/drop off passengers

Base the Aircraft at Another Airport and Drive Passengers to/from that Airport

Mead & Hunt determined that this strategy is potentially available to all classes of aircraft. Because the point of origin for passengers would be within a reasonable drive of SJC, it is assumed that the alternative airport would be within the San Francisco Bay Area. Within the Bay Area more alternative airports exist for smaller aircraft than large ones. All airports in the Bay Area have some capacity for additional based aircraft. Palo Alto and San Francisco have the least available capacity. Smaller,

[8]These businesses are known as FBOs or Fixed Base Operators.

piston-powered aircraft have several potential choices: Reid-Hillview, South County, Hayward, Oakland, and Palo Alto Airports. Small jets and turboprops could use Hayward or, at a greater distance, Livermore or Oakland Airports. The largest jets would be limited to Oakland, San Francisco, or possibly Livermore Airports. These three airports have precision instrument approaches and runways at least 5,000 feet long.

By definition, the same number of operations by these aircraft would still occur, but the operations would not occur at SJC.

Base the Aircraft at another Airport and Ferry the Aircraft to SJC to Pick-up/Drop off Passengers

For this scenario, the alternative airport could be in the Bay Area or some distance away. This strategy could be used by all sizes of aircraft, if the aircraft is based in the Bay Area. If the aircraft is based outside of the Bay Area, it will most likely be flown by professional pilots, rather than the owner. The farther the aircraft is based from SJC, the more likely it will be a jet because of flight times for the ferry operation.

There are economic reasons that aircraft flown by professional crews would be based farther from SJC. Aircraft-related costs (e.g., fuel and hangar rents) can be significantly lower outside of the Bay Area. Additionally, the cost of living for pilots can be significantly lower in other areas. This makes hiring and retaining pilots easier and may reduce salary costs. However, there are the additional costs of shuttling the aircraft to SJC: fuel; additional hours on the engines and airframe; as well as additional cycles on the jet engines.

For the most expensive aircraft (e.g, large jets such as the Gulfstream G550), there is an additional economic incentive to base the aircraft in Oregon. Oregon does not have a personal property tax on aircraft. California levies a 1% tax on aircraft annually, Nevada a lesser amount. A new Gulfstream G550 costs about $50 million. This equates to an annual tax bill of $500,000, if the aircraft is based in California. Avoiding an expense of this magnitude offers a large offset to the costs of shuttling a jet from Oregon. There would be less incentive to base in Oregon for less valuable aircraft.

The number of operations at SJC by aircraft following this strategy would double. The aircraft would be repositioned from the home airport to SJC to pick up the passengers. The passengers would depart and be returned to SJC. The aircraft would then be returned to its home airport. Instead of two operations at SJC there would be four for each trip.

Conclusion of Mead & Hunt Study

In terms of total general aviation aircraft operations, Mead & Hunt determined that the lack of capacity at SJC to accommodate the demand to base aircraft at SJC will not result in a lower number of operations than projected. Instead, the effect of inadequate capacity at SJC on the number of operations will range from zero to a substantial increase, with the actual number dependent on which alternate airports are chosen.

At one extreme, if all aircraft that would otherwise be based at SJC were based at other airports in the San Francisco Bay Area, it can be concluded that there would be no overall increase in aircraft operations, although operations at SJC would be lower. At the other extreme, if all aircraft that would otherwise be based at SJC were based at airports located substantial distances from the San Francisco Bay Area, it is possible that aircraft operations could double as aircraft are ferried to/from SJC. In reality, given the factors cited above, as well as the large range of general aviation aircraft types (i.e., small single-engine piston aircraft to large corporate jets), the net effect on operations due to insufficient capacity at SJC will fall somewhere between these two extremes, leading to the conclusion that not completing the remaining Master Plan general aviation projects is not likely to result in a lower number of operations than projected.

4.2.3.7 *Effect of Not Constructing the Remaining Aviation Support Projects on Projected Airport Activity Levels*

As described previously, the capacity of the existing jet fuel storage facility will be increased by up to two million gallons, for a total of up to four million gallons. In addition, existing airport maintenance facilities, flight kitchen facilities, airline maintenance/storage facilities, and airport rescue/fire facilities will be upgraded (in some cases, structures will be demolished and rebuilt).

Future Expansion of Jet Fuel Storage Facility

An industry planning standard of a 5-day fuel storage reserve was utilized to estimate future needs for SJC, which equates to approximately four million gallons for the 2027 demand. The existing facility has a capacity of two million gallons.

If the facility were not expanded, the only effect would be to increase the number of tanker truck deliveries of jet fuel to the storage facility each day to keep pace with demand and to maintain an adequate reserve. As a point of reference, prior to the current two million gallon facility being completed in 2009, the Airport was served by its old 208,000-gallon fuel storage facility, which was significantly undersized to meet historic demand. This resulted in the need for 30 to 40 daily tanker truck deliveries.

Future Upgrades/Expansion of Support Facilities

The Airport Master Plan includes projects to modernize and expand various facilities at the Airport that are used for support services such as maintenance, storage, food preparation, and emergency services. If these projects are not constructed, these functions would continue to occur within the existing facilities, although under crowded conditions and/or in outdated structures. In other words, failure to construct these projects will not affect the numbers of air passengers, tonnage of air cargo, and/or level of general aviation.

4.2.3.8 *Conclusion for GHG Emissions*

In the above sections, the effect of not constructing the remaining Airport Master Plan projects on airport activity levels, as compared to airport activity levels with construction of those remaining projects, was assessed. For all categories except for general aviation, the construction of the remaining Airport Master Plan projects will have no effect on the level of activity that will otherwise occur at SJC. In other words, projected non-general aviation demand will not be constrained by the lack of adequate facilities at SJC. The lack of facilities will, however, result in increased congestion.

GHG emissions are directly related to activity levels and to the conditions under which the activity occurs. Activity that occurs under congested conditions results in higher GHG emissions than if that same activity occurs under non-congested conditions. The basis for this statement is that there are increased emissions associated with congested conditions due to delay and idling. This fact is one reason that plans and policies whose purpose is lowering emissions include goals and measures aimed at reducing congestion and increasing efficiency in the transportation sector.[9]

Therefore, to the extent that a project relieves congestion by providing adequate facilities to accommodate demand, GHG emissions are reduced. At SJC, providing adequate airfield facilities reduces emissions associated with aircraft idling and delay. Providing adequate terminal and parking facilities decreases ground transportation congestion and reduces the need to shuttle passengers to/from off-Airport locations, which in turn will reduce emissions.

GHG Emissions related to General Aviation

GHGs are emitted from the combustion of fuel in the engines of all general aviation aircraft. Therefore, a change in the amount of time that an aircraft is operated will result in a corresponding change in GHG emissions. In the scenarios described above in Section 4.2.3.6, lack of facilities to base a general aviation aircraft at SJC will not result in fewer or shorter flights by the aircraft.

- ❑ If the aircraft is based at an airport within reasonable driving distance of the San Jose area, the number of aircraft flights would be the same as if the aircraft were based at SJC. It can also be assumed that flight durations would be approximately the same as if the aircraft were based at SJC since the alternate airport would not be far from SJC. There would, however, be increased automobile emissions associated with the greater driving distances between the San Jose area and the alternate airport. Thus, under this scenario, while GHG emissions at SJC itself would be lower, overall GHG emissions would be higher.

- ❑ If the aircraft is based at an airport beyond a reasonable driving distance from the San Jose area, aircraft operations would double and aircraft emissions of GHGs would increase accordingly.

[9] Examples include the *Climate Change Scoping Plan* (California Air Resources Board, 2008) and *Model Policies for Greenhouse Gases in General Plans* (California Air Pollution Control Officers Association, 2009).

Therefore, for general aviation, the best case scenario in terms of minimizing GHG emissions would be to accommodate the local demand at the closest local airport, namely SJC. This conclusion is consistent with many aspects of land use planning whereby it is preferable from energy conservation and emissions reduction perspectives to locate services in proximity to those land uses that generate the demand for such services. As an example, it is desirable to locate supermarkets and other retail stores in proximity to residential areas in order to achieve reductions in emissions, energy use, and travel times associated with driving between these land uses.

Conclusions

- Based on forecasted demand, activity levels at SJC will increase over existing levels, resulting in an increase in GHG emissions roughly proportionate to the higher activity. Except for general aviation, all of the forecasted demand will occur at SJC without the construction of the remaining Airport Master Plan projects and, therefore, GHG emissions resulting from that increased activity are not attributable to those projects.

- For general aviation, if the remaining general aviation improvement projects are not constructed, and therefore the forecasted demand cannot be accommodated at SJC, the result will be higher GHG emissions.

- When compared to not constructing the remaining Airport Master Plan Projects, construction of those projects will not result in an increase in GHG emissions. In fact, GHG emissions are likely to be lower if the remaining projects are constructed because of a combination of less congestion and accommodating demand locally.

4.2.4 Consistency with Plans, Policies, or Regulations Adopted for the Purpose of Reducing the Emissions of Greenhouse Gases

As described previously in Section 4.1.3, there are a number of policies, plans, and regulations that have been adopted on the federal, state, regional, and local levels whose purposes are achieving a reduction in GHG emissions. The City of San Jose, as the owner and operator of SJC, can approve projects, as well as adopt regulations and policies, that can directly or indirectly lead to a reduction in the emissions of air pollutants - including GHG emissions - at the Airport. There are, however, several notable limitations on the ability of the City, or any other airport operator, to regulate emissions:

- ✈ Emissions standards for commercial jet aircraft engines are set by the U.S. EPA and are enforced by the FAA through its aircraft engine certification program.

- ✈ Emission standards for mobile sources such as on-road motor vehicles are set by the USEPA and CARB and are imposed on vehicle manufacturers. These regulations also include specifications for gasoline and diesel fuel, which are imposed on fuel refineries and retailers.

Although airport operators cannot directly regulate GHG or other emissions from aircraft or motor vehicles, there are a variety of steps that operators can take (and have taken) that have the effect of reducing emissions from these sources.

Table 7 summarizes the air quality improvement/GHG reduction measures for SJC for both mobile and stationary sources that have already been implemented, are in the process of being implemented, or are programmed for future implementation. Many of the listed measures reduce GHG emissions that result from aircraft, ground transportation, and ground service equipment through a combination of using alternative (and cleaner burning) power sources, and reducing trips, as well as reducing congestion, idling, and delay. Other measures reduce the emissions associated with heating, cooling, and irrigation though a combination of improved efficiency (e.g., LEED certification) and on-site photovoltaic electric production.

In view of all of the recent, ongoing, and future measures being implemented at SJC that reduce GHG emissions, it is concluded that the Airport Master Plan is consistent with applicable plans, policies, and regulations adopted for the purpose of reducing GHG emissions.

T A B L E 7

SJC AIR POLLUTANT & GHG EMISSIONS REDUCTION MEASURES

Description of Measure	Benefits	Status
Free Shuttle Bus connecting SJC with VTA LRT Station and Santa Clara Caltrain Station	Buses running every 10-15 minutes from 5:30 a.m. to midnight daily	Commenced in 1998 and ongoing
Free Bus/Rail Passes: allows unlimited use of VTA bus & light rail transit (LRT) systems	Encourages transit use by all 3,500+ employees at SJC, including City, airline, rental car company, terminal concessionaire, and other Airport tenant employees	Commenced in 1998 and ongoing
Reduced/Single-Engine Taxiing by Aircraft	All airlines encouraged to perform single or reduced engine taxiing to the extent determined safe and efficient	Commenced in 1998 and is ongoing
Airport Operations & Maintenance Vehicle Fleet: purchase only alternate-fuel vehicles	The Airport's current service fleet includes 10 CNG-powered and 15 electric-powered vehicles	Commenced in 2000 and is ongoing
Second Air Carrier Runway: extend Runway 12L/30R from 4,400' to 11,000'	Reduces delays, idling, queuing	Completed in 2001
Electric Vehicle Public Charging Stations	Provided in Terminal A Garage.	Completed in 2001
On-Airport CNG Fueling Station	Services CNG shuttle buses, commercial vehicles, and is open for public use.	Completed in 2003
Alternative Fuels Program: Requires at least 25% of all taxi/van trips to/from SJC to be by low- or zero-emission vehicles; program facilitated by SJC and VTA grants.	Currently, out of 300 taxis permitted at SJC, 119 are CNG-powered and 3 are hybrids.	Commenced in 2005 and is ongoing

T A B L E 7 (continued)

SJC AIR POLLUTANT & GHG EMISSIONS REDUCTION MEASURES

Description of Measure	Benefits	Status
Cell Phone Waiting Lot	Designated free parking area to discourage drivers picking up passengers from circling around the Airport	Completed in 2007
Replace all Airport Diesel Shuttle Buses with 34 New CNG Buses	Substantially reduces the Airport's total diesel and other pollutant emissions.[10]	Completed in 2008
New Fuel Storage & Fuel Dispensing Facilities	Reduces emissions associated with fuel storage & handling equipment, as well as fuel truck movement on Airport roadways	Completed in 2009
Relocation/Consolidation of Rental Car Operations in new facility constructed adjacent to Terminal B.	Significantly reduces rental car vehicle movements and shuttle bus service to/from existing facility	Completed in 2010
Photovoltaic System	1.12 megawatt photovoltaic solar electric system on roof of rental car garage.[11]	Completed in 2010
Upgrade on-Airport Roadways and Access: includes new 880/Coleman interchange, new 87/Skyport interchange, Airport Blvd. improvements at Coleman, Skyport, & Airport Pkwy entrances, and elimination of traffic signals	Substantially improve access, roadway capacity, and intersection levels of service	Completed in 2010

[10]According to the U.S. Department of Energy's Energy Efficiency & Renewable Energy website, CNG-powered buses produce significant less CO_2 emissions than diesel-powered buses. See www.afdc.energy.gov.

[11]According to the project's fact sheet, the annual production of the system is projected to be 1.7 million kilowatt hours of electricity, which will avoid 1,284 tons of CO_2 annually.

TABLE 7 (continued)

SJC AIR POLLUTANT EMISSIONS REDUCTION MEASURES

Description of Measure	Benefits	Status
Ground Power, Battery Recharge Facilities, and Preconditioned Air at all Terminal Gates	Promotes airline conversion of GSE to electric power & phaseout of diesel APUs/GPUs	Completed in 2010
Construct New and Upgraded Terminal Buildings to achieve Leadership in Energy and Environmental Design (LEED) standards	Reduces emissions from building heating & cooling, hot water heating, etc.; lower electricity use will reduce offsite emissions	Completed in 2010 for Terminal B
Recycled Water System	South Bay Water Recycling system extended to passenger terminal area with dual plumbing in new terminal.[12]	Underway
Commercial Vehicle Trip Fee: a fee is charged for each trip to the Airport	Reduces unnecessary vehicle trips	Ongoing
Taxi Dispatch System: requires taxis to park in designated areas until dispatched	Reduces engine idling	Ongoing
Public Transit Information: provided on Airport website and in Airport terminals	Encourages transit use	Ongoing
Construction Project Pollutant Emissions Abatement Program	Requires measures be included in all construction plans/specs to minimize emissions from construction vehicles and equipment	Ongoing
Lighting Replacement	Replace indoor & outdoor lights with energy-efficient bulbs & fixtures	Ongoing

[12] Avoids emissions associated with the generation of electricity that would otherwise be used for the pumping and treatment of imported water or groundwater to potable standards.

T A B L E 7 (continued)

SJC AIR POLLUTANT EMISSIONS REDUCTION MEASURES

Description of Measure	Benefits	Status
Automated People Mover: will connect SJC to nearby LRT, Caltrain, & future BART Systems	Would encourage additional transit use	Future. Project design and funding tbd.

CNG = compressed natural gas

GSE = ground service equipment

APU = auxiliary power unit

GPU = ground power unit

tbd = to be determined

Source: City of San Jose, 2010.

SECTION 5. CONCLUSION

Based upon the factual information contained in the above analyses, the City has reached the following conclusion:

When compared to existing conditions, the continued implementation of the Airport Master Plan would not result in a significant environmental effect related to global climate change. Therefore, no subsequent or supplemental EIR is warranted or required.

SECTION 6. REFERENCES

Bay Area Air Quality Management District, **CEQA Air Quality Guidelines**, June 2010.

Bay Area Air Quality Management District, **Bay Area GHG Emissions Inventory**, February 2010.

Federal Aviation Administration, **Final Environmental Impact Statement for SJC Master Plan Update**, October 1999.

Ricondo & Associates, **Summary of Aviation Demand Forecasts for SJC**, July 2009.

San Jose, City of, **SJC Master Plan - July 2010 Update**.

San José, City of, **Final EIR for the San José International Airport Master Plan Update**, 1997.

San José, City of, **Final Supplemental EIR for the San José International Airport Master Plan Update**, January 2003.

San José, City of, **Revised First Addendum to the EIR for the San José International Airport Master Plan Update**, September 2001.

San José, City of, **Second Addendum to the EIR for the San José International Airport Master Plan Update**, April 2003.

San José, City of, **Third Addendum to the EIR for the San José International Airport Master Plan Update**, October 2003.

San José, City of, **Fourth Addendum to the EIR for the San José International Airport Master Plan Update**, November 2004.

San José, City of, **Fifth Addendum to the EIR for the San José International Airport Master Plan Update**, April 2005.

San José, City of, **Sixth Addendum to the EIR for the San José International Airport Master Plan Update**, April 2006.

San José, City of, **Seventh Addendum to the EIR for the San José International Airport Master Plan Update**, October 2006.

San José, City of, **Eighth Addendum to the EIR for the San José International Airport Master Plan Update**, February 2010.

SECTION 7. REPORT PREPARERS

A D D E N D U M   A U T H O R

City of San José, Department of Planning, Building & Code Enforcement

Joseph Horwedel, Director
Darryl Boyd, Principal Planner
Janis Moore, Planner II

City of San José, Airport Department

William Sherry, Director
David Maas, Deputy Director
Cary Greene, Airport Planner

C O N S U L T A N T

David J. Powers & Associates, Inc.
Environmental Consultants & Planners
San José, California

John Hesler, Senior Environmental Specialist

Mead & Hunt, Inc.
Consultants in Aviation
Santa Rosa, California

Dave Dietz, Principal Consultant

Appendix

A

General Aviation

Operations

Analysis

Supplemental Analysis of General Aviation Operations Forecasts
for
Norman Y. Mineta San Jose International Airport

October 26, 2010

TASK

This paper analyzes the effect that not constructing additional aircraft storage hangars at Norman Y. Mineta San Jose International Airport (SJC) would have on general aviation aircraft operations.

BACKGROUND

Currently, there are 151 general aviation aircraft based at SJC. Aviation forecasts prepared in 2009 project a demand for 209 based aircraft at SJC by the year 2027, of which 140 are projected to be jets. To accommodate this demand, the City of San Jose (City), the owner and operator of SJC, is proposing to construct additional general aviation facilities at the Airport. If additional facilities are not constructed, a question has been raised as to whether the overall number of operations (i.e., takeoffs and landings) by general aviation aircraft would be higher or lower, as compared to the number that would occur if the additional facilities are constructed. The answer to this question is relevant to the assessment of potential environmental effects associated with aircraft operations.

METHODOLOGY

The general methodology is to use interviews with fixed base operators (FBOs) located at SJC to identify the reasons that aircraft owners chose to base their aircraft at SJC. This information was then used to define likely responses by aircraft owners in the future, if storage facilities were not available. This information was used in combination with the experiences of other airports and available published data to anticipate the effects on general aviation aircraft operations. The specific methods of developing the data in this analysis are listed in the table below.

Factor	Method of developing data
• Reason for wishing to base at SJC	• Interviews with fixed base operators (FBOs). • Knowledge of reasons given by hangar tenants at other airports.
• Alternative airports capable of accommodating the aircraft	• Knowledge of operational requirements of range of aircraft types. • Published information on potential alternative airports. • Knowledge of the availability of aircraft tiedowns and storage hangars at alternative airports. • Knowledge of airports historically used as alternates to Bay Area airports, supplemented with interviews with FBOs.
• Factors affecting alternative location choice	• Knowledge of values of a range of aircraft types. • Knowledge of California, Oregon and Nevada possessory interest taxes on aircraft. • Interviews with FBOs.

REASONS FOR BASING AT SJC

As might be anticipated, the interviews with the FBOs confirmed that aircraft owners chose to base their aircraft at SJC because (a) the airport had facilities appropriate for their aircraft, (b) the cost was acceptable, and (c) the airport was located a reasonable driving distance from their business or residence. The airport characteristics that make SJC appropriate include: runway length, pavement strength, precision instrument approach procedures, and customs facilities. The implication is that if hangars (or tiedowns) are not available at SJC, the aircraft owners' first choice would be to seek an alternative airport within the San Francisco Bay Area. However, as is described in subsequent paragraphs, there are economic factors that will affect the choices made by aircraft owners, if the preferred airport is not available as a place to base their aircraft.

The two FBOs that rent hangar space at SJC indicate that they currently have the capacity to accommodate 7 – 15 additional aircraft, depending upon the size of the aircraft. No aircraft have been added to their facilities during the current recession.

AIRCRAFT OWNER OPTIONS

In the future, the additional aircraft owners seeking to base their aircraft at SJC will do so because it is the airport most conveniently located to their business or residence that has the appropriate facilities at a reasonable cost. If space for their aircraft at SJC does not exist, the aircraft owner has two basic choices:

- Base elsewhere and drive passengers to/from that airport, or
- Base elsewhere and ferry the aircraft to SJC to pick up/drop off passengers

The paragraphs that follow summarize the factors that will shape aircraft owners' decision on which strategy to employ. The implications for each strategy on aircraft operations at SJC are also noted.

Strategy: Base the aircraft at another airport and drive passengers to/from that airport.

- **Aircraft likely to use this strategy** — This strategy is potentially available to all classes of aircraft. Because the point of origin for passengers would be within a reasonable drive of SJC, it is assumed that the alternative airport would be within the San Francisco Bay Area. Within the Bay Area more alternative airports exist for smaller aircraft than large ones. All airports in the Bay Area have some capacity for additional based aircraft. Palo Alto and San Francisco have the least available capacity. Smaller, piston-powered aircraft have several potential choices: Reid-Hillview, South County, Hayward, Oakland, and Palo Alto Airports. Small jets and turboprops could use Hayward or, at a greater distance, Livermore or Oakland. The largest jets would be limited to Oakland, San Francisco, or possibly Livermore Airports. These three airports have precision instrument approaches and runways at least 5,000 feet long.
- **Affect on operations at SJC** — By definition, operations by these aircraft would not occur at SJC.

Strategy: Base the aircraft at another airport and ferry the aircraft to SJC to pick up/drop off passengers.

- **Aircraft likely to use this strategy** — The alternative airport could be in the Bay Area or some distance away. This strategy could be used by all sizes of aircraft, if the aircraft is based in the Bay Area. If the aircraft is based outside of the Bay Area, it will most likely be flown by professional pilots, rather than the owner. The farther the aircraft is based from SJC, the more likely it will be a jet because of flight times for the ferry operation.

There are economic reasons that aircraft flown by professional crews would be based farther from SJC. Aircraft-related costs (e.g., fuel and hangar rents) can be significantly lower outside of the Bay Area. Additionally, the cost of living for pilots can be significantly lower in other areas. This makes hiring and retaining pilots easier and may reduce salary costs. However, there are the additional costs of shuttling the aircraft to SJC: fuel; additional hours on the engines and airframe; as well as additional cycles on the jet engines.

For the most expensive aircraft (e.g, large jets such as the Gulfstream G550), there is an additional economic incentive to base the aircraft in Oregon. Oregon does not have a personal property tax on aircraft. California levies a 1% tax on aircraft annually, Nevada a lesser amount. A new Gulfstream G550 costs about $50 million. This equates to an annual tax bill of $500,000, if the aircraft is based in California. Avoiding an expense of this magnitude offers a large offset to the costs of shuttling a jet from Oregon. There would be less incentive to base in Oregon for less valuable aircraft.

- **Affect on operations at SJC** — The number of operations at SJC by aircraft following this strategy would double. The aircraft would be repositioned from the home airport to SJC to pick up the passengers. The passengers would depart and be returned to SJC. The aircraft would then be returned to its home airport. Instead of two operations at SJC there would be four for each trip.

CONCLUSIONS

There is sufficient room at the existing facilities at SJC to accommodate an additional 7 – 15 based general aviation aircraft, with the number depending on the size of the aircraft. Once the existing facilities are full, aircraft owners desiring to base their aircraft at SJC will need to choose an alternate airport. For the reasons described above, the alternate airport could be located in the San Francisco Bay Area or it could be located at a significantly greater distance from SJC, including neighboring states.

In terms of total general aviation aircraft operations, lack of capacity at SJC to accommodate the demand to base aircraft at SJC will not reduce the number of operations. Instead, the effect of inadequate capacity at SJC on the number of operations will range from zero to a substantial increase, with the actual number dependent on which alternate airports are chosen.

At one extreme, if all aircraft that would otherwise be based at SJC were based at other airports in the San Francisco Bay Area, it can be concluded that there would be no increase in aircraft operations. At the other extreme, if all aircraft that would otherwise be based at SJC were based at airports located substantial distances from the San Francisco Bay Area, it is possible that aircraft operations could double as aircraft are ferried to/from SJC. In reality, given the factors cited above, as well as the large range of general aviation aircraft types (i.e., small single-engine piston aircraft to large corporate jets), the net effect on operations due to insufficient capacity at SJC will fall somewhere between these two extremes.

INTERVIEWS

The following individuals were interviewed as a part of this project:

- John Sweeney, Chief Pilot, Hewlett-Packard Company (September 29, 2010 via telephone)
- Tim Murray, General Manager, Atlantic Aviation Services (October 4, 2010 in person)
- Kelly Linn, General Manager, AvBase (October 7, 2010 via telephone).