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REGIONAL AVIATION FORECASTS

Prepared for:

Regional Airport Planning Committee

March 27, 2009

Passion. **Expertise. Results.**

Phase 2 Work Scope Objectives

1. **Identify and Analyze the Effectiveness of Alternative Strategies for Accommodating the Bay Area's Long-Term Aviation Demand Without Additional Runways at the Primary Airports**

2. **Involve Stakeholders and the Public to Aid in Building a Regional Consensus On How to Respond to Congestion at the Primary Bay Area Airports**

3. **Assist RAPC in Developing a Vision and Implementation Plan for the Region's Aviation System**

Technical Study Team & Roles

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Project Management
Demand Forecasts
Demand Management
Alternative Airports

Airport Systems Consulting

Demand Forecasts
Demand Management
Alternative Airports
High Speed Rail

FTA

Airport Capacity
ATC Technologies

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Air Quality
Climate Change

URS

Airport Infrastructure Costs

HMMH

Noise Impacts

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Meeting Facilitation
Biological Resources

BW Research

Telephone Survey

Critical Study Questions

- What are the capacity limits of the primary Bay Area airports?
- When are these limits likely to be reached?
- What strategies offer the greatest potential to allow the region to efficiently accommodate future aviation demand?

Topics

1. Air Passenger Trends Since the 2000 RASP
2. Airline Passenger Forecasts
3. Passenger Forecast Benchmarking
4. Cargo Forecasts
5. GA Forecasts
6. Next Steps

Scope of Baseline Forecast Task

PROJECT OBJECTIVE

Update 2000 RASP Forecasts

- **Activity Metrics:**
  - Commercial airline passengers
  - Cargo volumes
  - Aircraft operations (including GA) and fleet mix
- **Planning Years:**
  - 2020 and 2035
- **Multiple Scenarios:**
  - Base, High and Low

Development of a Forecast Tracking System is a Key Element of the Study

- There is always uncertainty surrounding long-term forecasts of aviation demand.
- This uncertainty is accentuated by current economic conditions.
- A forecast tracking system will be developed to ensure that the expectations of RAPC and other stakeholders are informed by the latest trends in actual activity.
- The tracking system will allow RAPC to adjust the timeline on which the region will reach critical capacity thresholds.

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AIR PASSENGER TRENDS SINCE THE 2000 RASP

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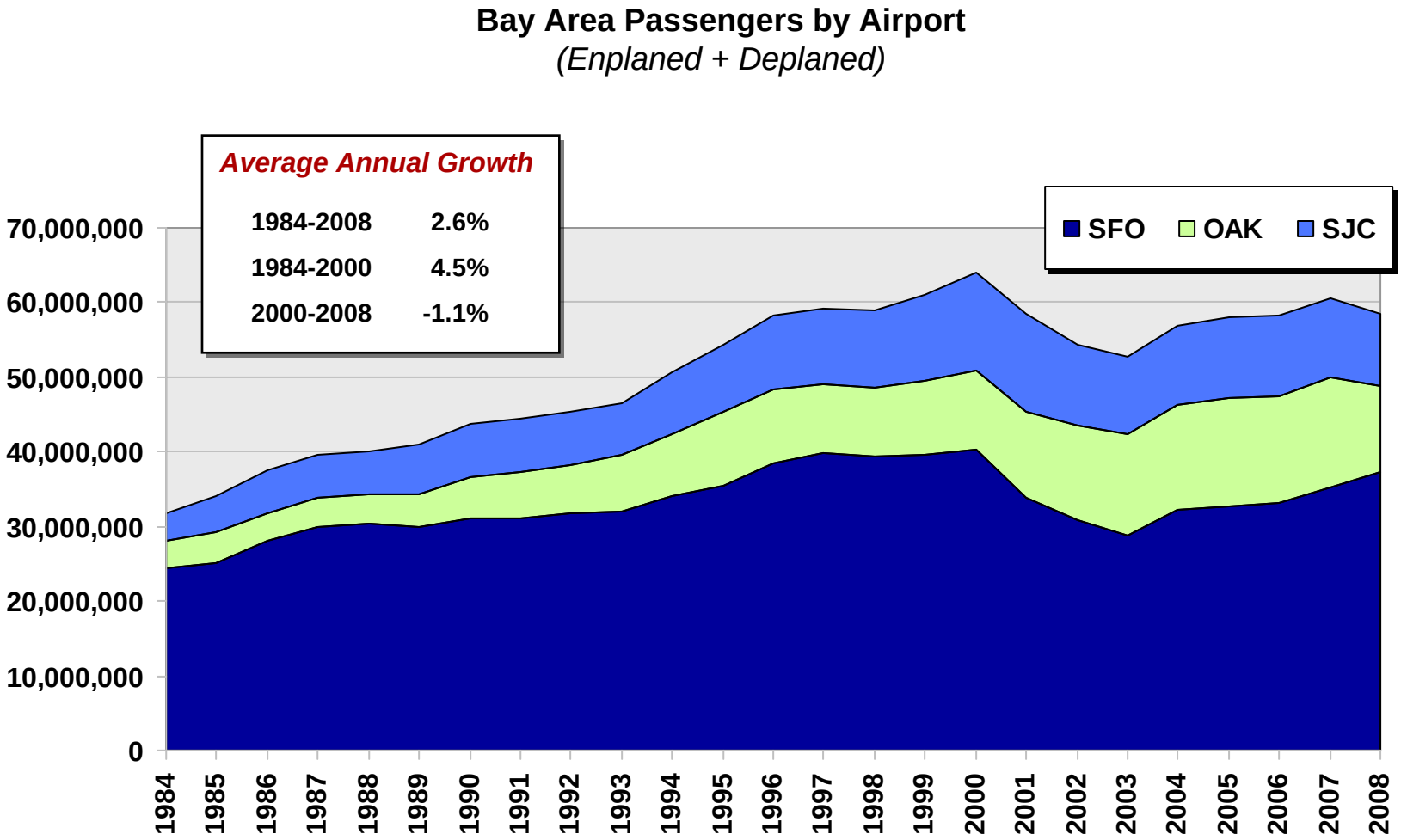
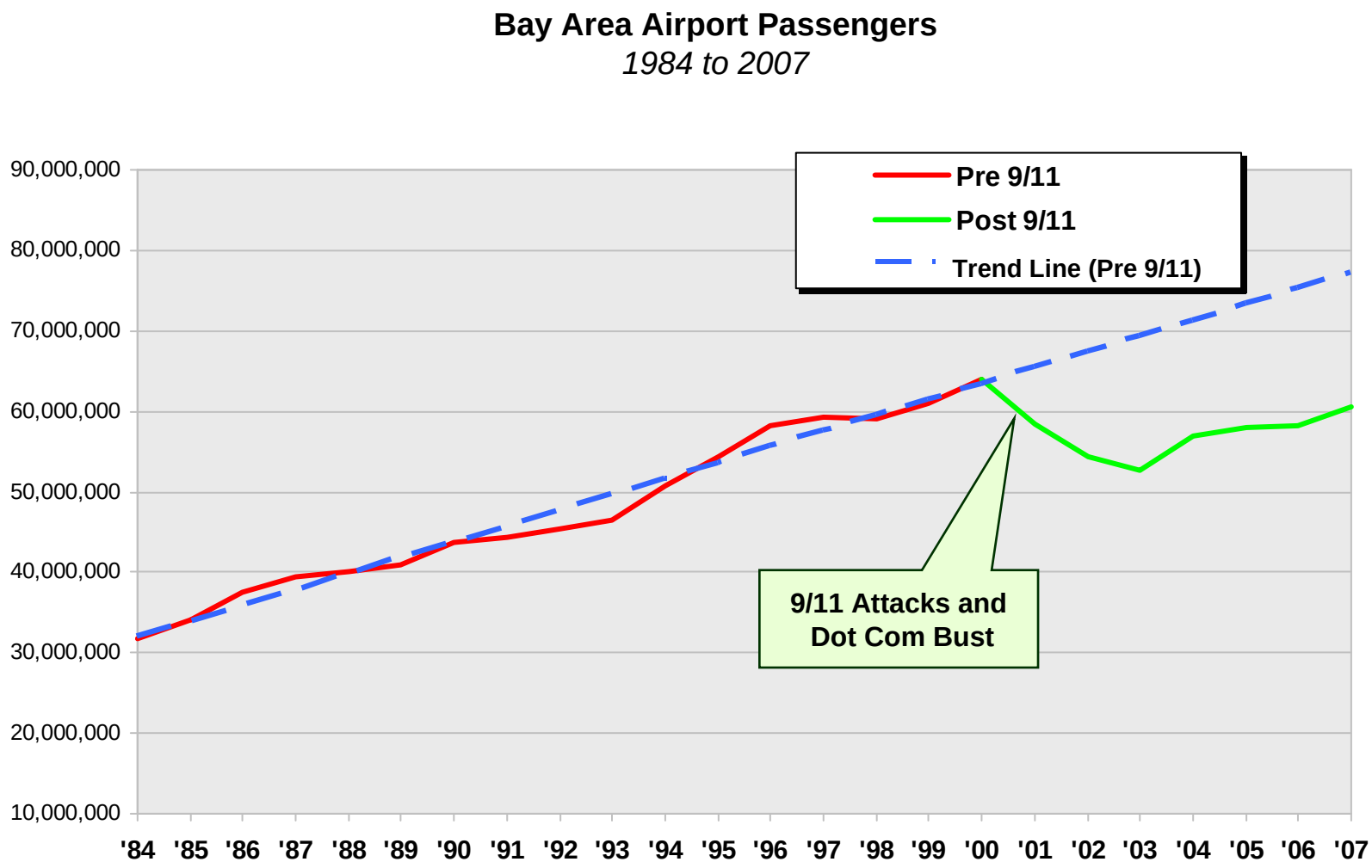
Bay Area Airports Handled 58.6M Passengers Last Year After Peaking at 64M in 2000



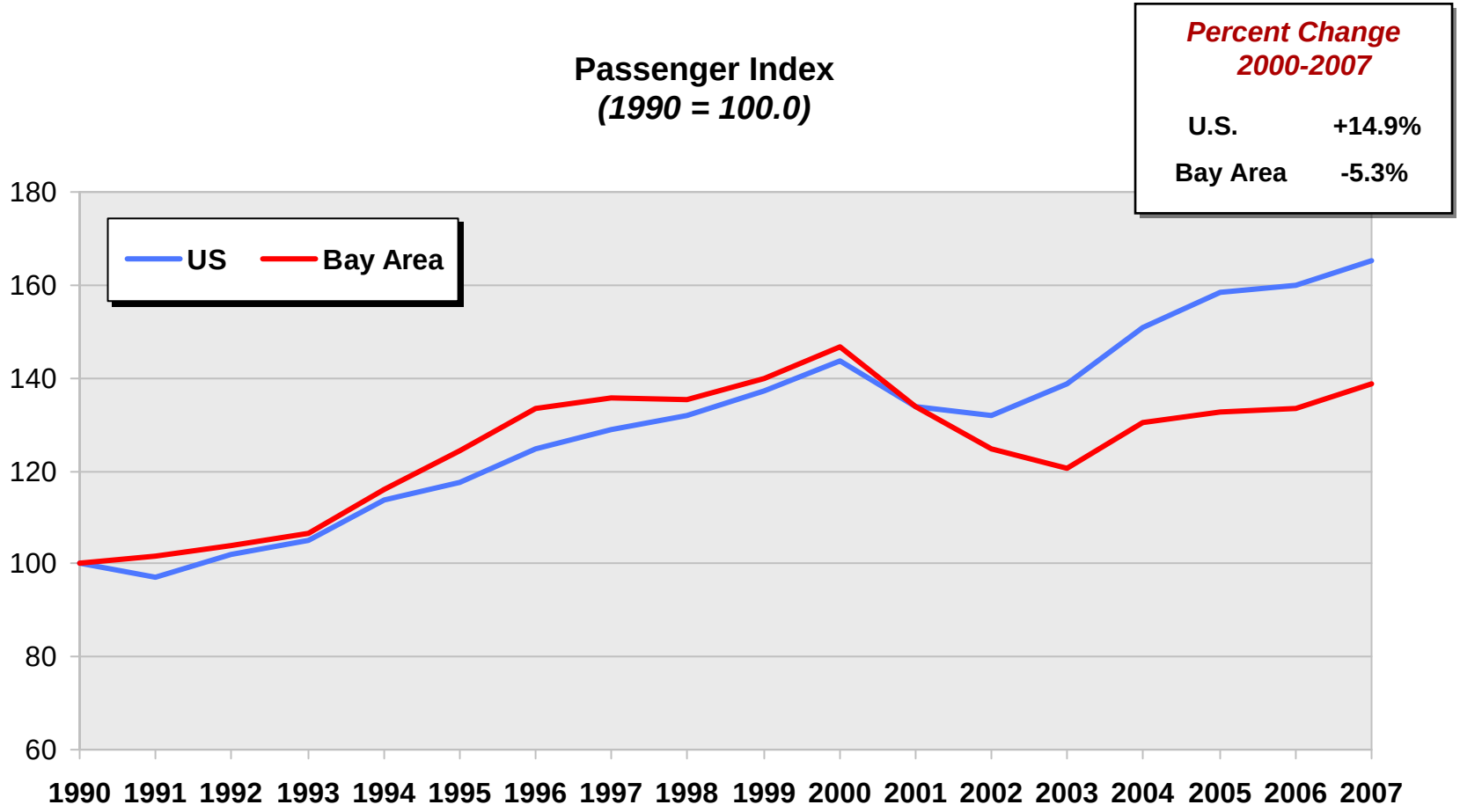
Source: ACI, and individual airport statistics.

Bay Area Airport Passenger Traffic was Showing Stable Growth Through 2000



Source: ACI, and individual airport statistics.

Since 2000, Bay Area Passenger Demand Has Not Kept Pace with U.S. Air Passenger Demand



Note: Region includes SFO, OAK and SJC airports.

Source: ACI, Worldwide Air Traffic Report and individual airports.

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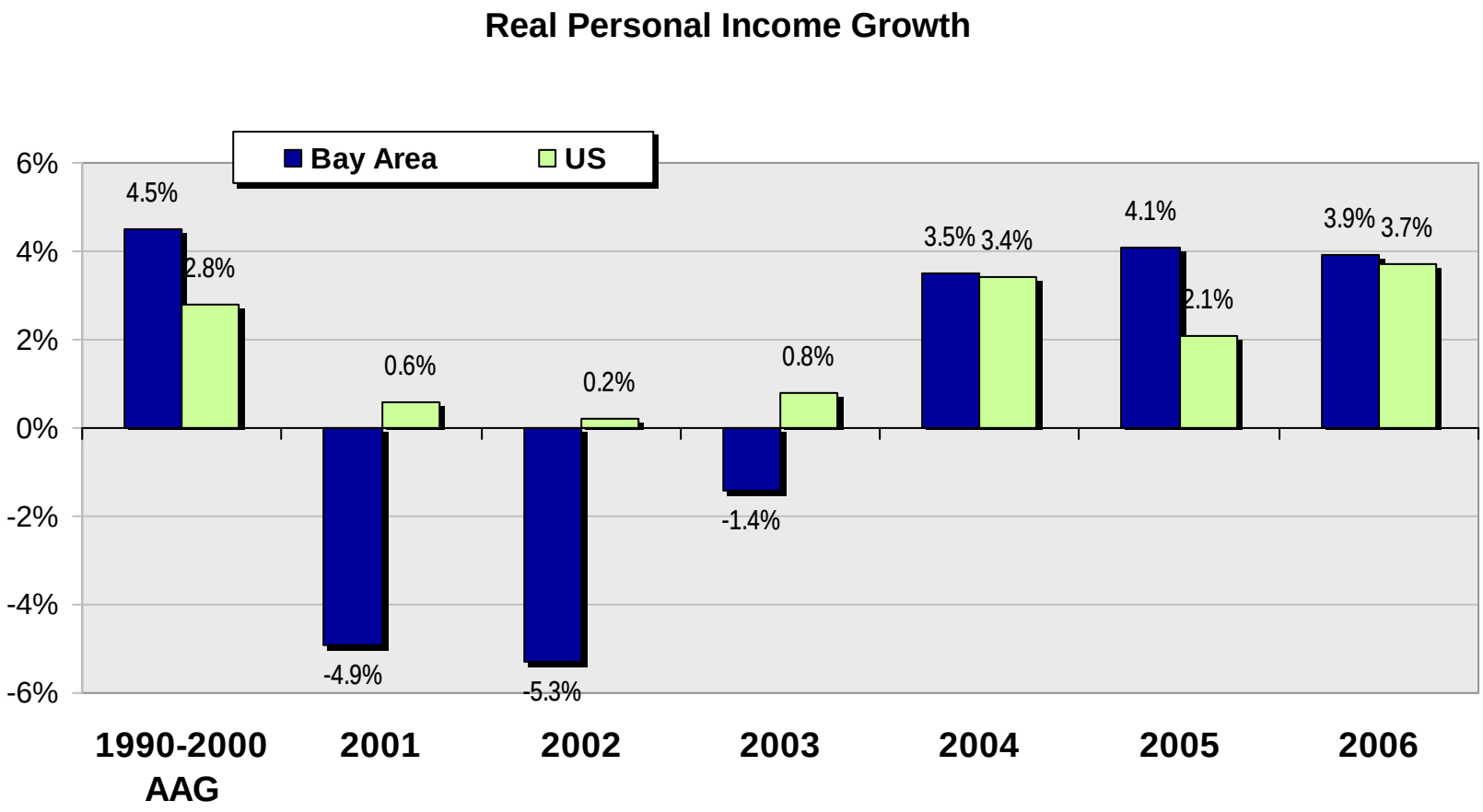
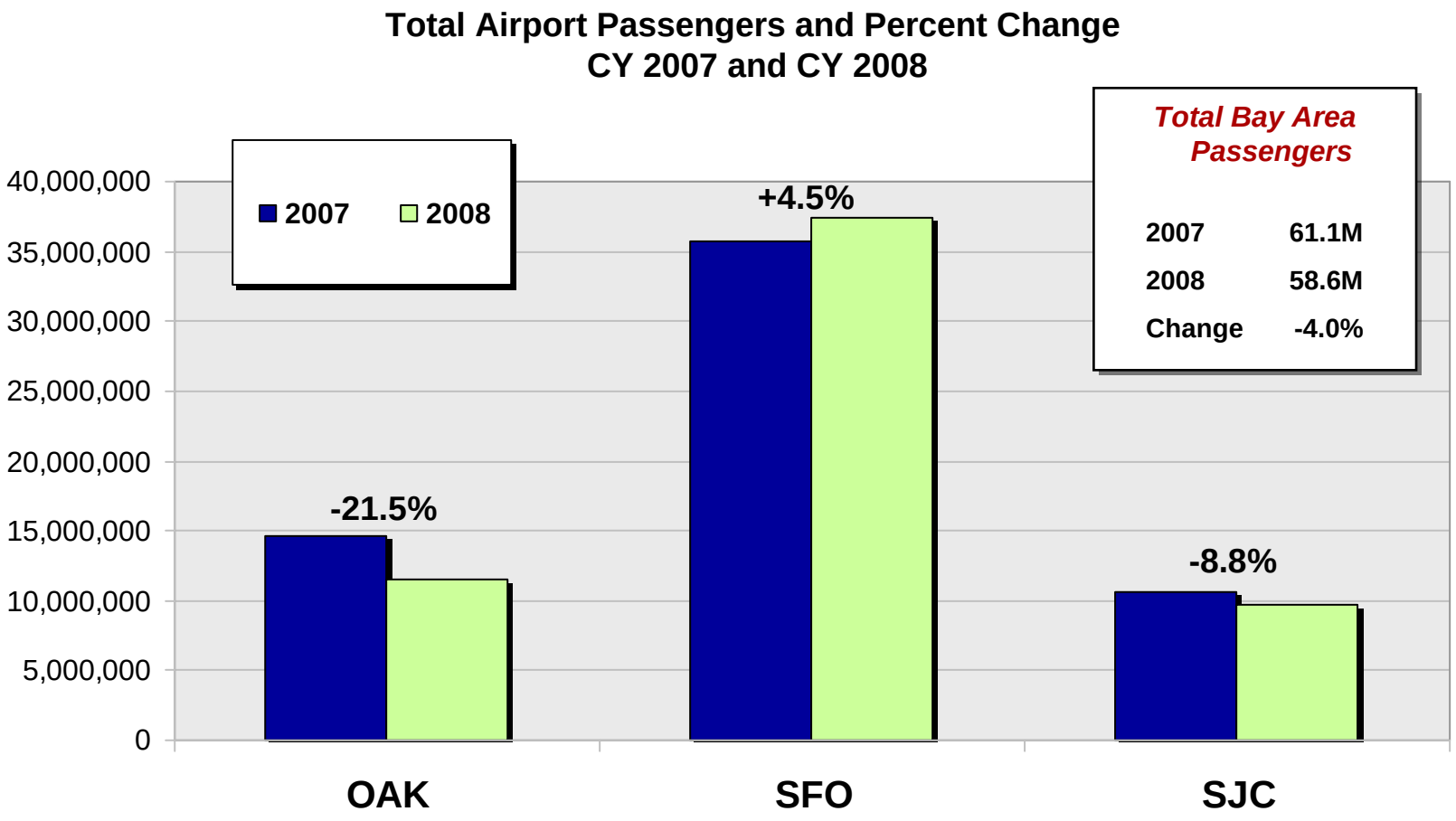
The Region Suffered Steep Declines in Personal Income During the Dot Com Fallout



Source: U.S. Department of Commerce, Bureau of Economic Analysis

In 2008, Total Bay Area Passenger Traffic Fell by 4%

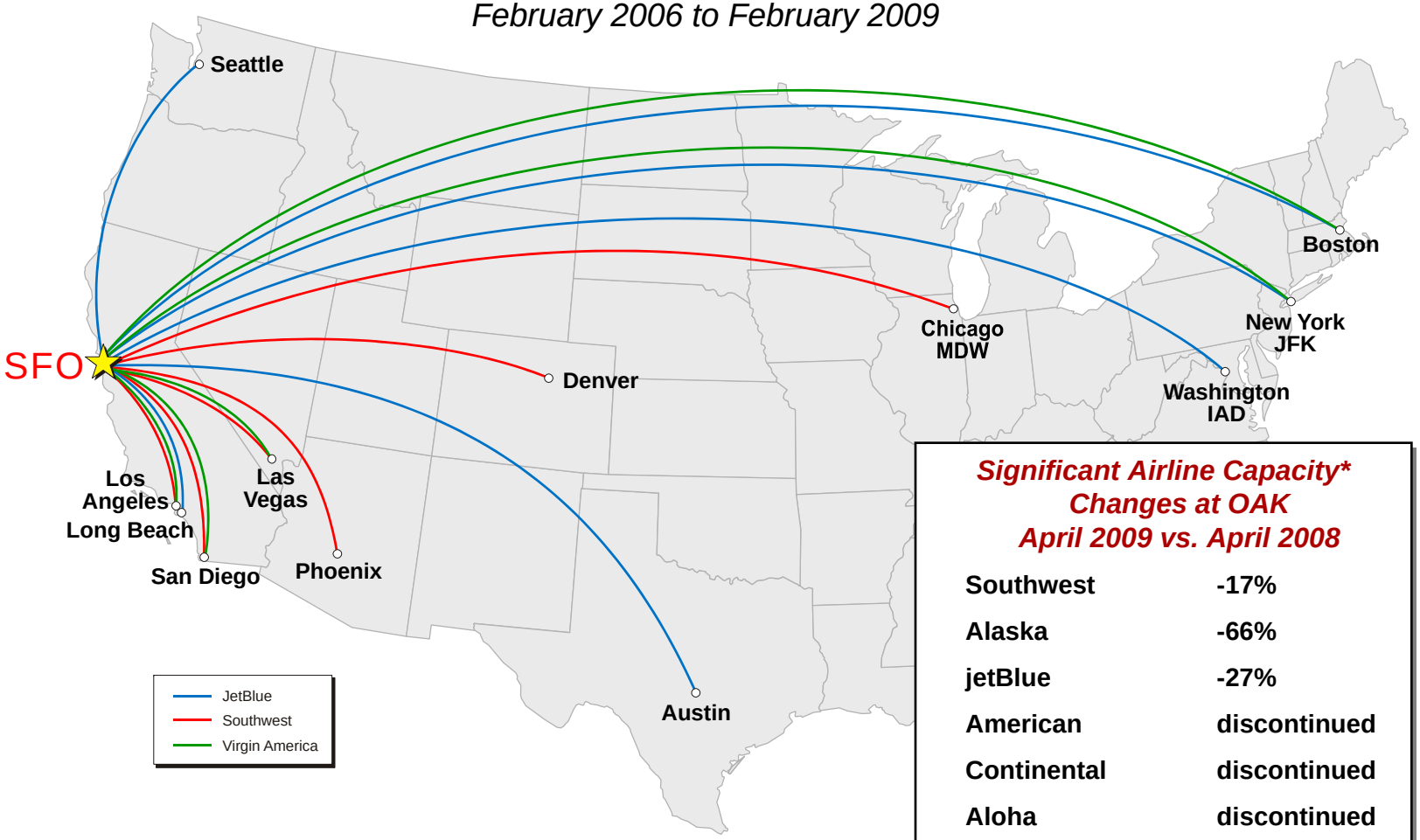


Source: Airport data reports.

SFO has Gained a Number of LCC Routes While Top Airlines at OAK have Contracted or Left the Market

SFO Low-Cost Carrier Nonstop Service Added Since February 2006

February 2006 to February 2009



Significant Airline Capacity* Changes at OAK April 2009 vs. April 2008

Southwest	-17%
Alaska	-66%
jetBlue	-27%
American	discontinued
Continental	discontinued
Aloha	discontinued
ATA	discontinued

Note: JetBlue Boston service is being reinstated in May 2009

* daily scheduled seats

Source: OAG Schedules

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AIRLINE PASSENGER FORECASTS

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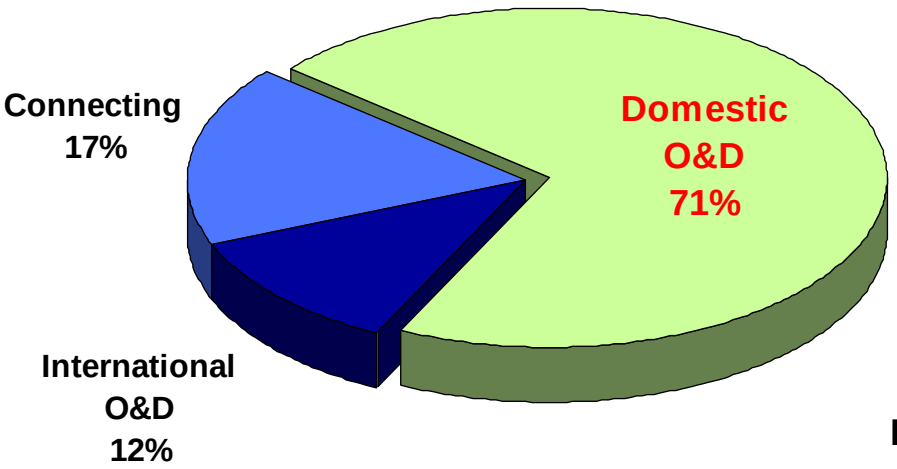
Domestic O&D Passengers Account for More Than Two-Thirds of Bay Area Airport Passengers

Mix of Bay Area Airport Passengers

2007



Base Year 2007 Passengers by Airport

In millions

Airport	Domestic	Intl	Conx	Total
OAK	**13.6**	0.2	0.8	14.6
SFO	**19.5**	6.8	9.1	35.3
SJC	**10.0**	0.2	0.5	10.7
Total	**43.1**	7.1	10.4	60.6

Sources: Airport Data Reports. U.S. DOT, O&D Passenger Survey. U.S. DOT, T100 Database, Database Products Inc.

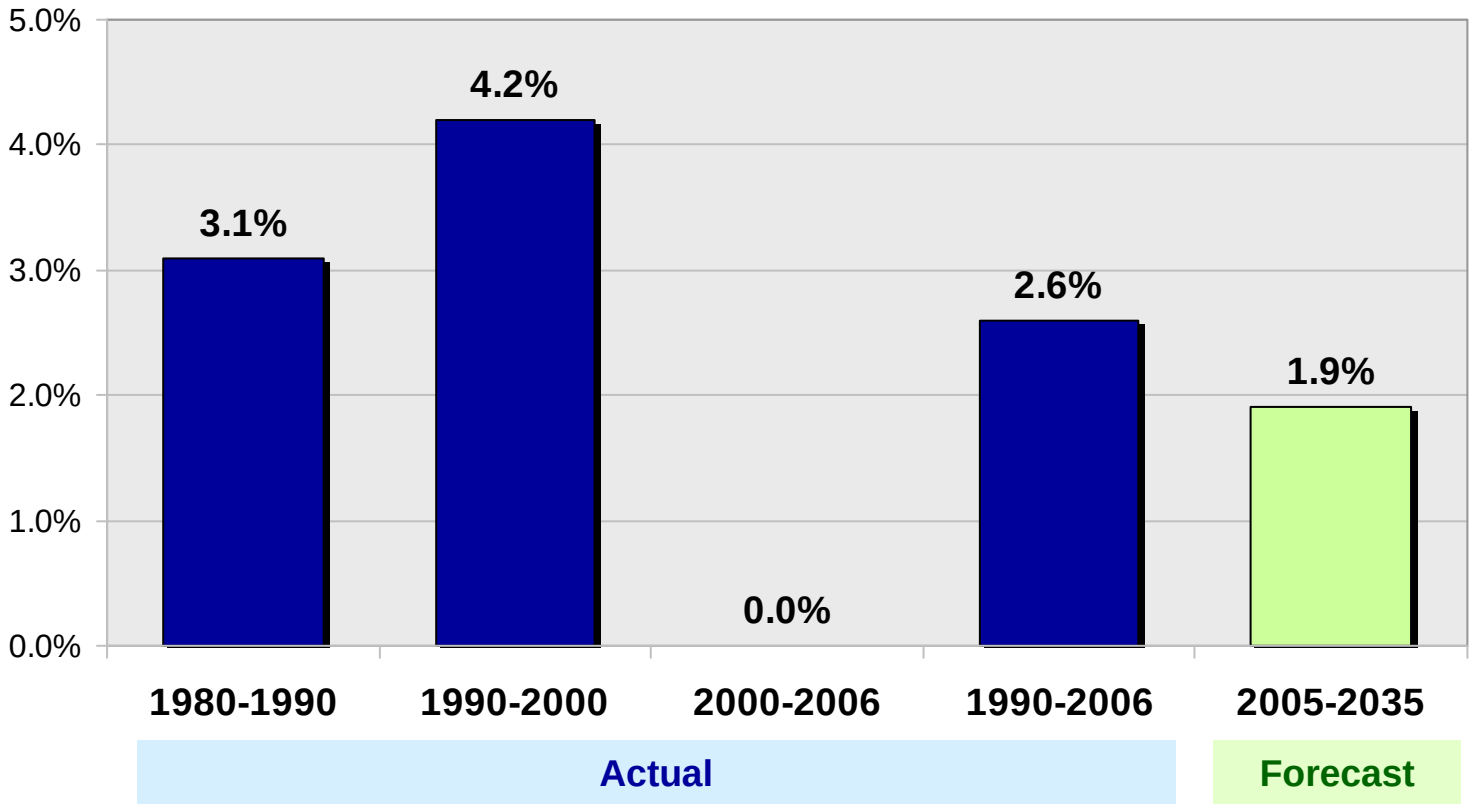
Overall Approach to Passenger Demand Forecasts

- **Analyzed 3 Main Traffic Segments, Each Driven by Different Variables**
  - Domestic O&D, International O&D and Connecting
- **Domestic O&D**
  - Calibrated Econometric Relationship Between Bay Area Passenger Demand and Explanatory Variables
    - *Personal Income, Airline Yields, and Post 9/11 Structural Change*
- **International O&D**
  - Forecast Bay Area Share of U.S. International Passengers by World Region
  - Assumed no growth in international traffic for 2007-2011 to account for impact of worldwide economic crisis
- **Connecting Passengers**
  - Forecast as a Ratio to Domestic and International Passengers

Growth in Bay Area Income, a Primary Determinant of Air Travel Demand, is Forecast to Slow Over the Forecast Period

Average Annual Growth in Real Personal Income for the Bay Area

Actual and ABAG Forecast



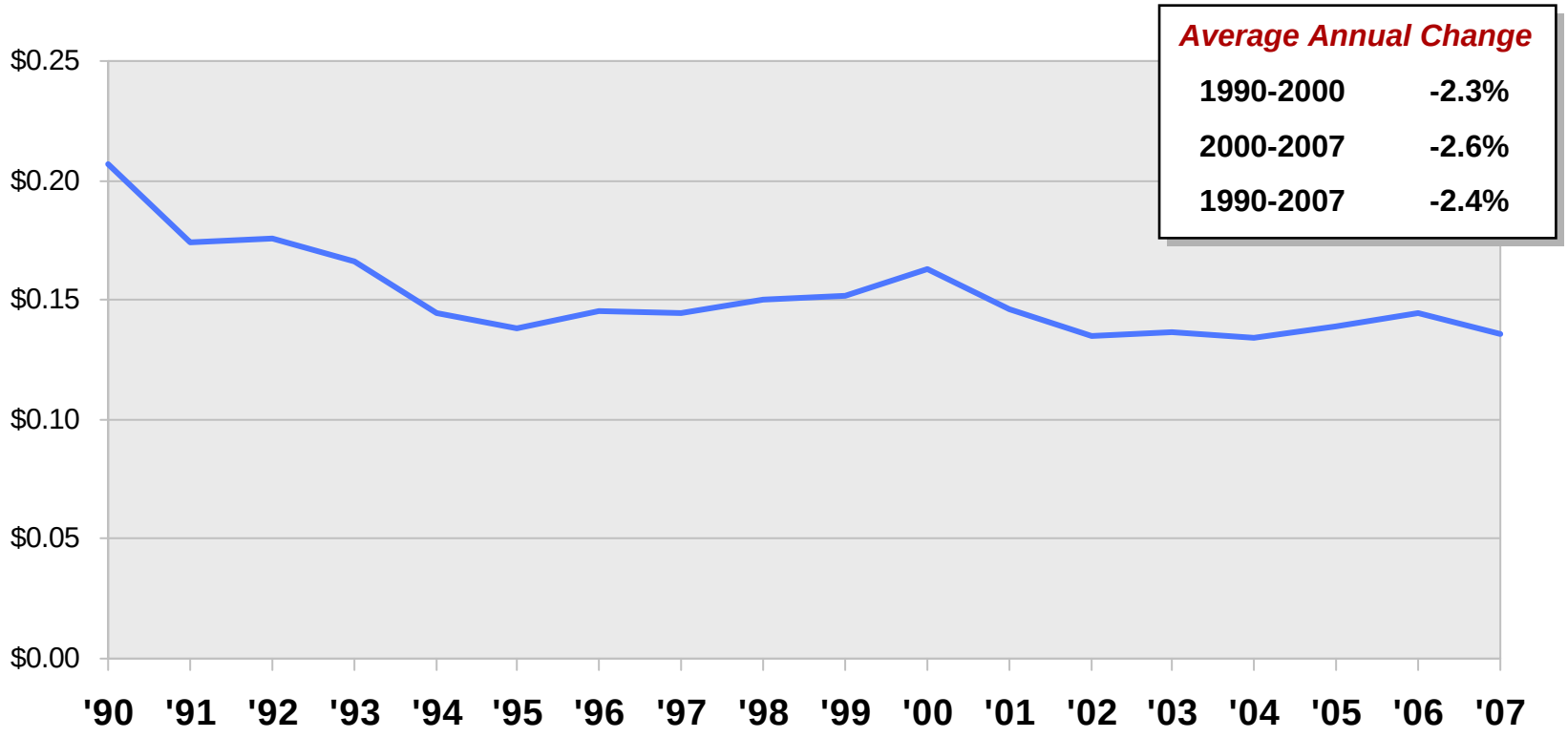
Sources: ABAG, 2007 Projections.

Bureau of Economic Analysis and Bureau of Labor Statistics.

Historically, the Price of Air Travel in the Bay Area Declined, Falling by 2.4% Per Year Between 1990 and 2007

Traffic Weighted Real Average Airline Yield for the Bay Area

Actual, 1990-2007



Note: Average Bay Area Yield for Top 50 O&D Markets in CY 2006, weighted by average market share for 1990 and 2006.

Sources: US DOT, O&D passenger Survey; Bureau of Labor Statistics, CPI-U.

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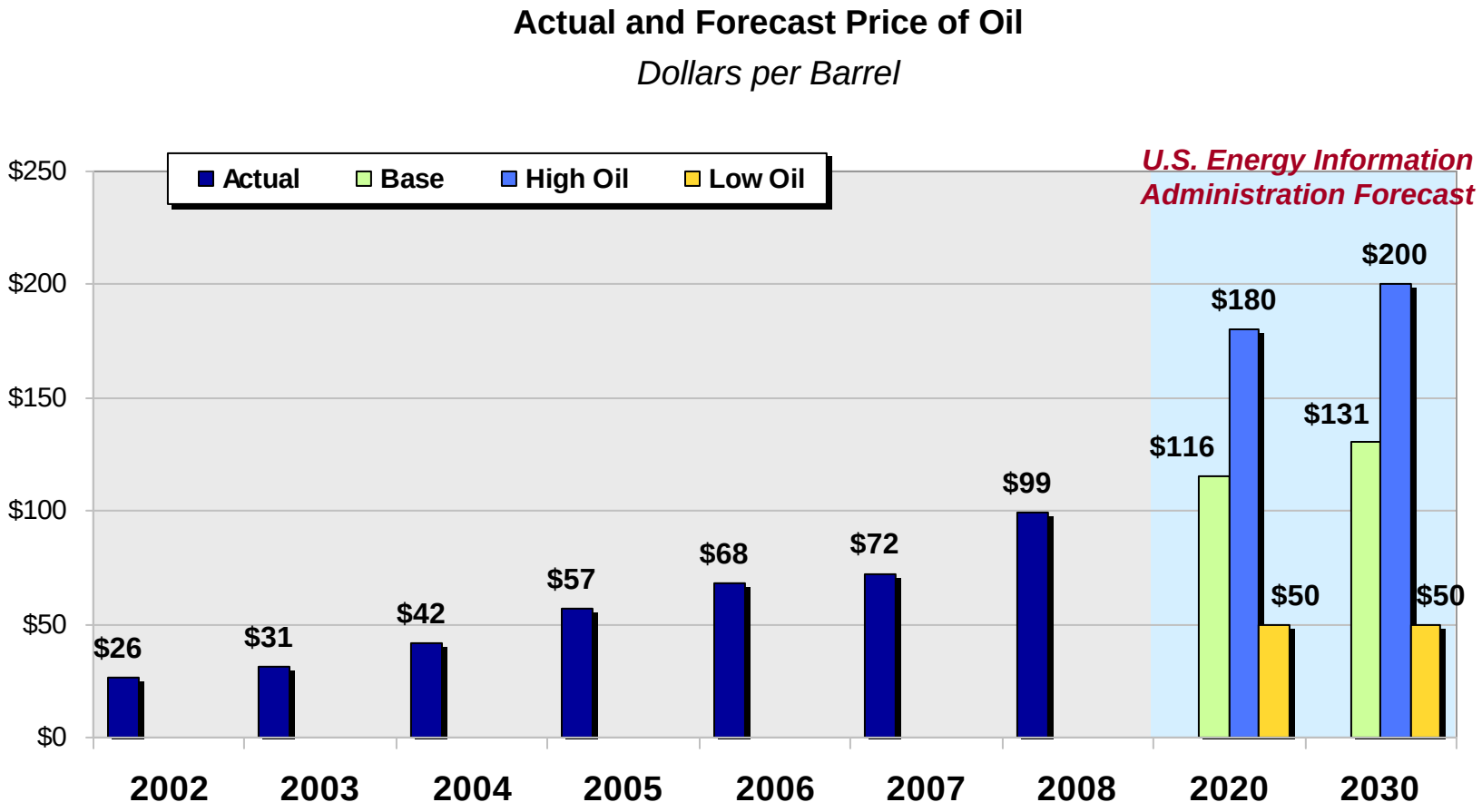
In the Future, the Price of Air Travel will be Largely Driven by Changes in Oil Prices



Note: Forecast Prices in constant 2007 dollars.

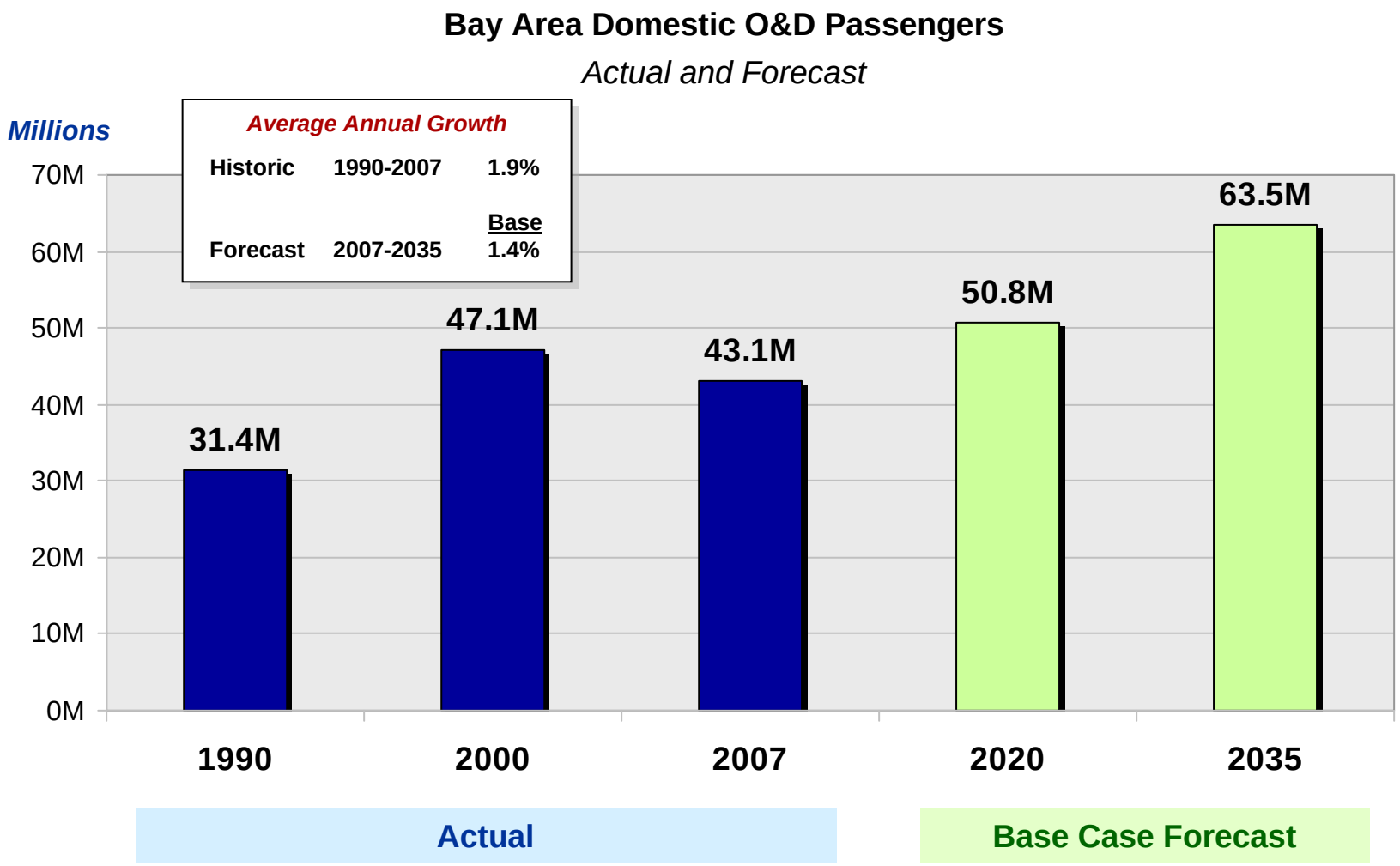
Source: Energy Information Administration (EIA), Annual Energy Outlook, Early Release, December 17, 2008.

Major Forecast Assumptions were Varied to Produce Base, Low and High Forecasts for Bay Area Domestic O&D Passengers

Variable	Base	Low	High
Personal Income (annual change)	1.8%	1.8%	2.2%
Personal Income Elasticity	0.88	0.76	1.00
Price of Oil (2035) [1]	$135	$207	$50
Airline Yields (annual change)	0.4%	1.0%	-0.3%
Post 9/11 Structural Changes [2]	Yes	Yes	Yes

[1] Price per barrel in constant 2007 Dollars
[2] Impact of Post 9/11 Structural Changes on passenger traffic is -18.3%

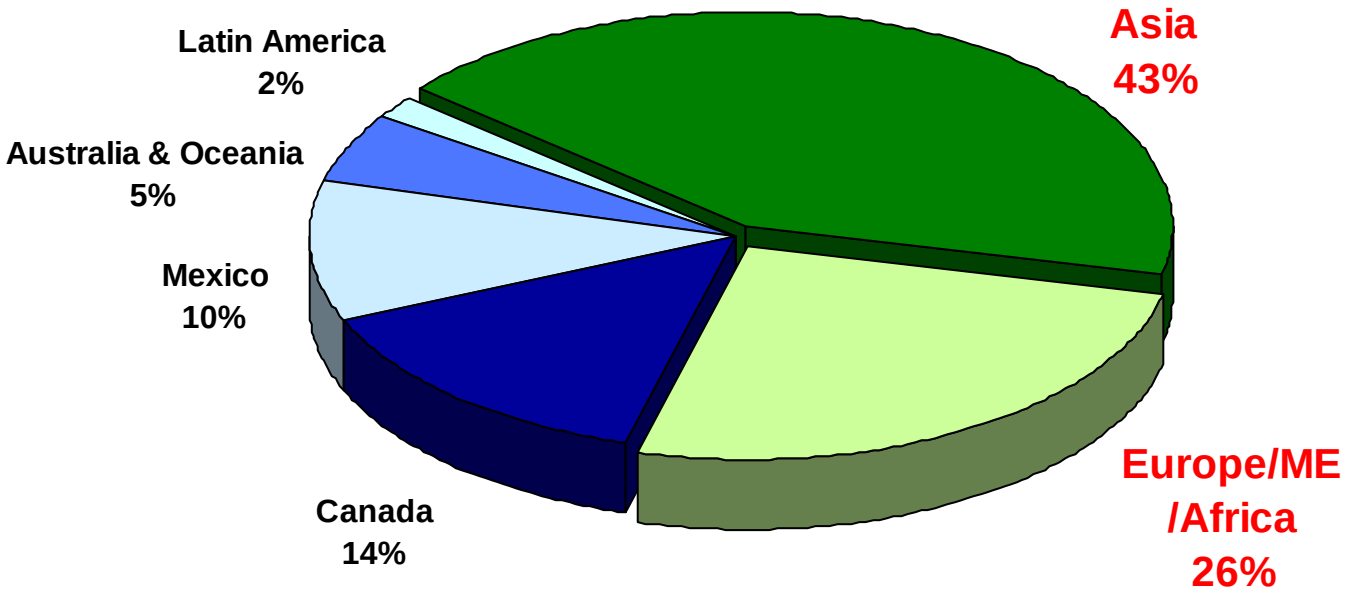
In the Base Case, Domestic O&D Passengers are Forecast to Grow by 1.4% per Year Reaching 64M in 2035



Asia and Europe Account for More than Two-Thirds of Bay Area International Passengers

Bay Area International Gateway Passengers by World Region

2007



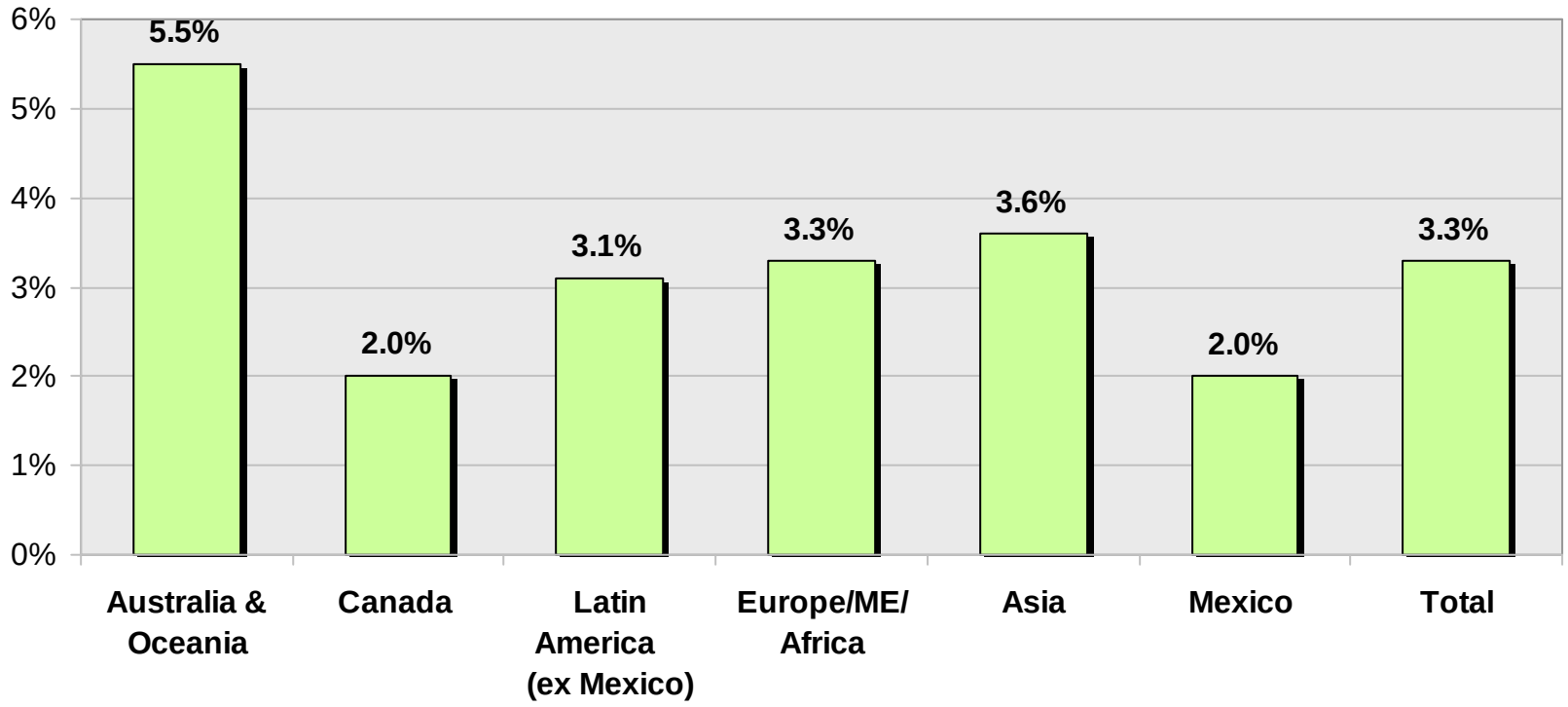
Source: U.S. DOT, T100 Database, Database Products Inc.

Australia and Asia are Forecast to be the Fastest Growing Regions for Bay Area International Traffic

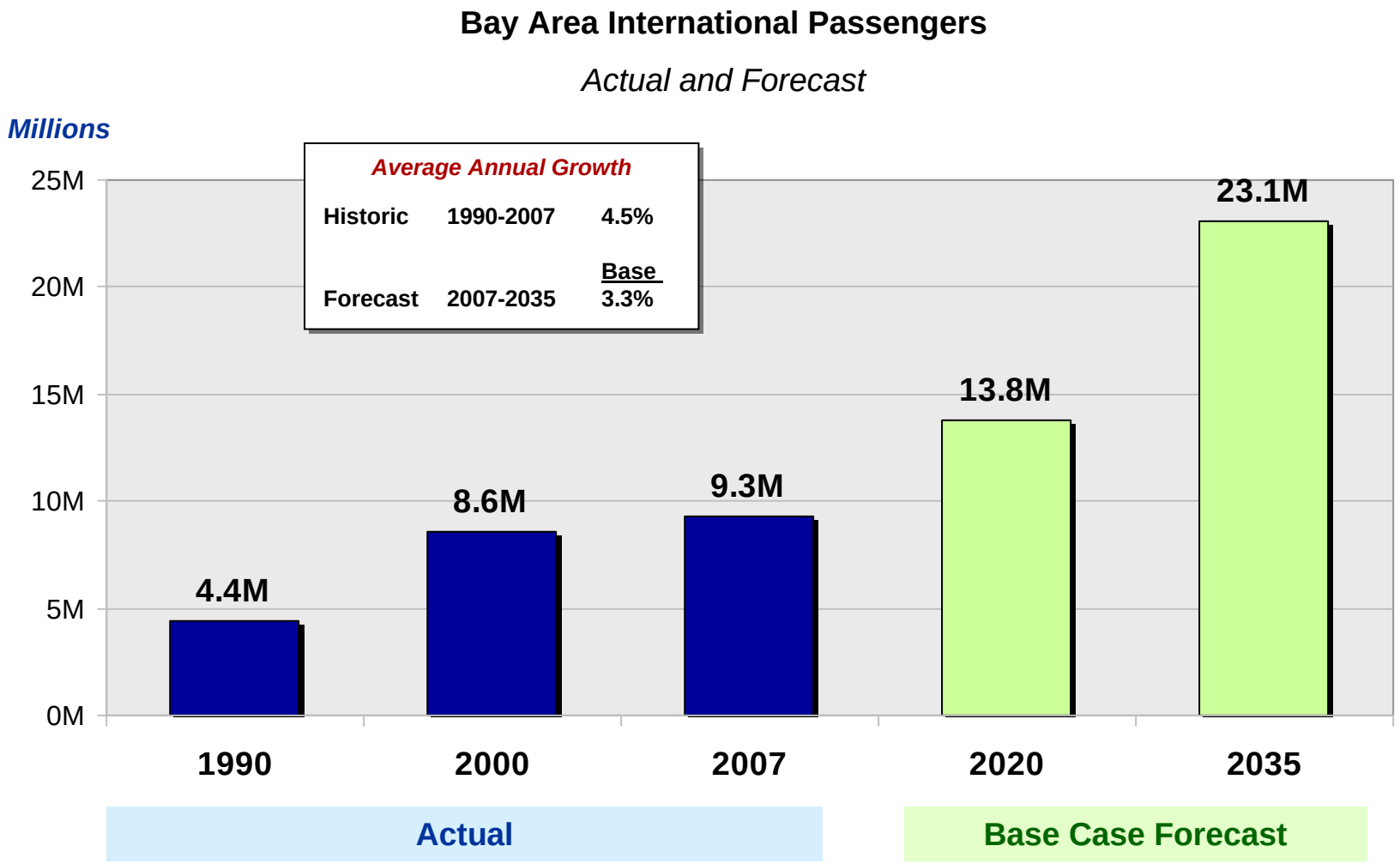
Forecast Average Annual Growth in Bay Area International Passengers by World Region

Average Annual Growth, 2007-2035

BASE CASE



In the Base Case, Bay Area International Passengers are Forecast to Grow by 3.3% per Year Reaching 23M in 2035

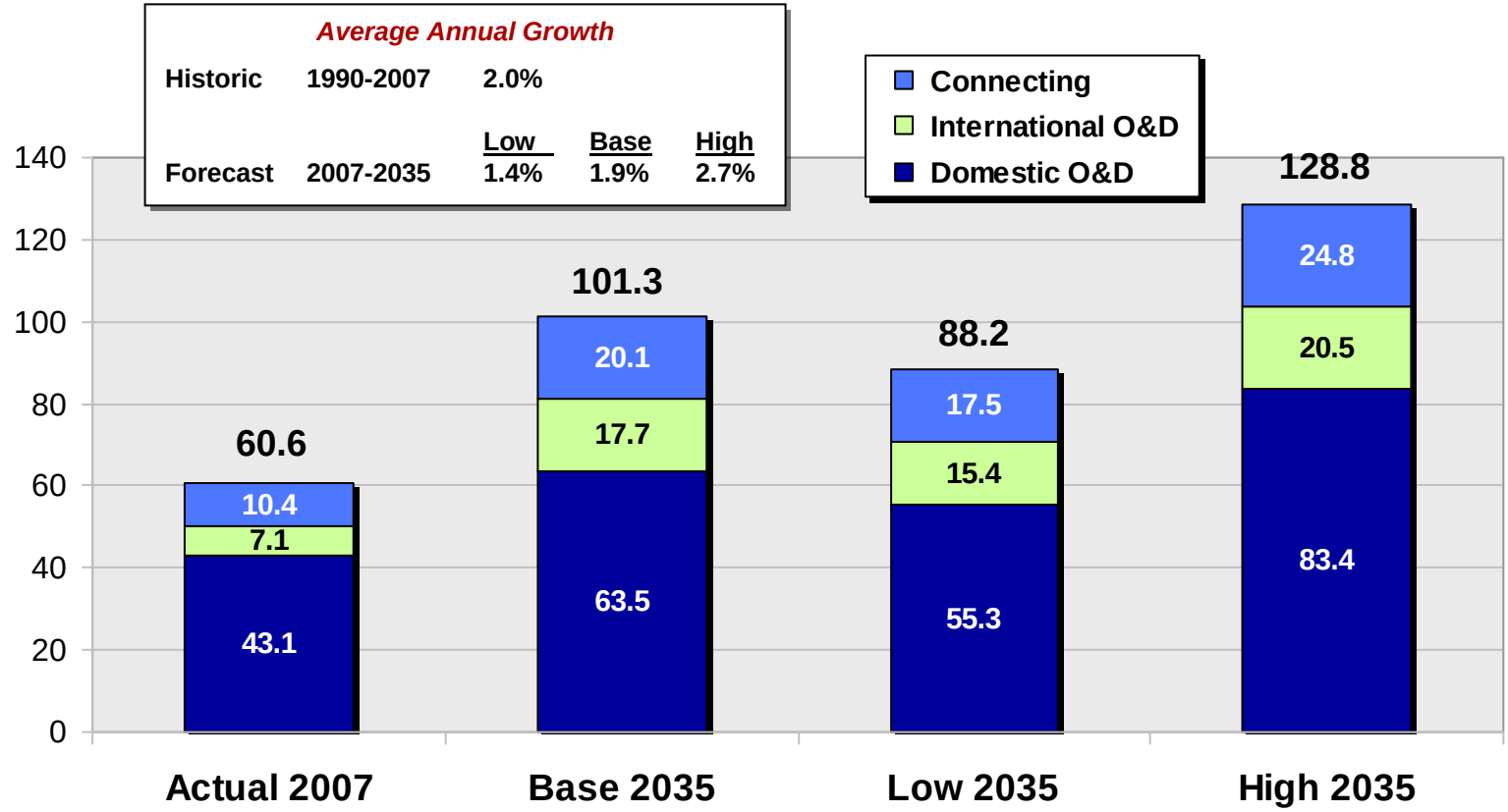


Note: Includes O&D and connecting passengers.

Total Bay Area Airport Passengers are Forecast at 88M to 129M in 2035

Actual and Forecast Total Bay Area Airport Passengers

2007 and 2035



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PASSENGER FORECAST BENCHMARKING

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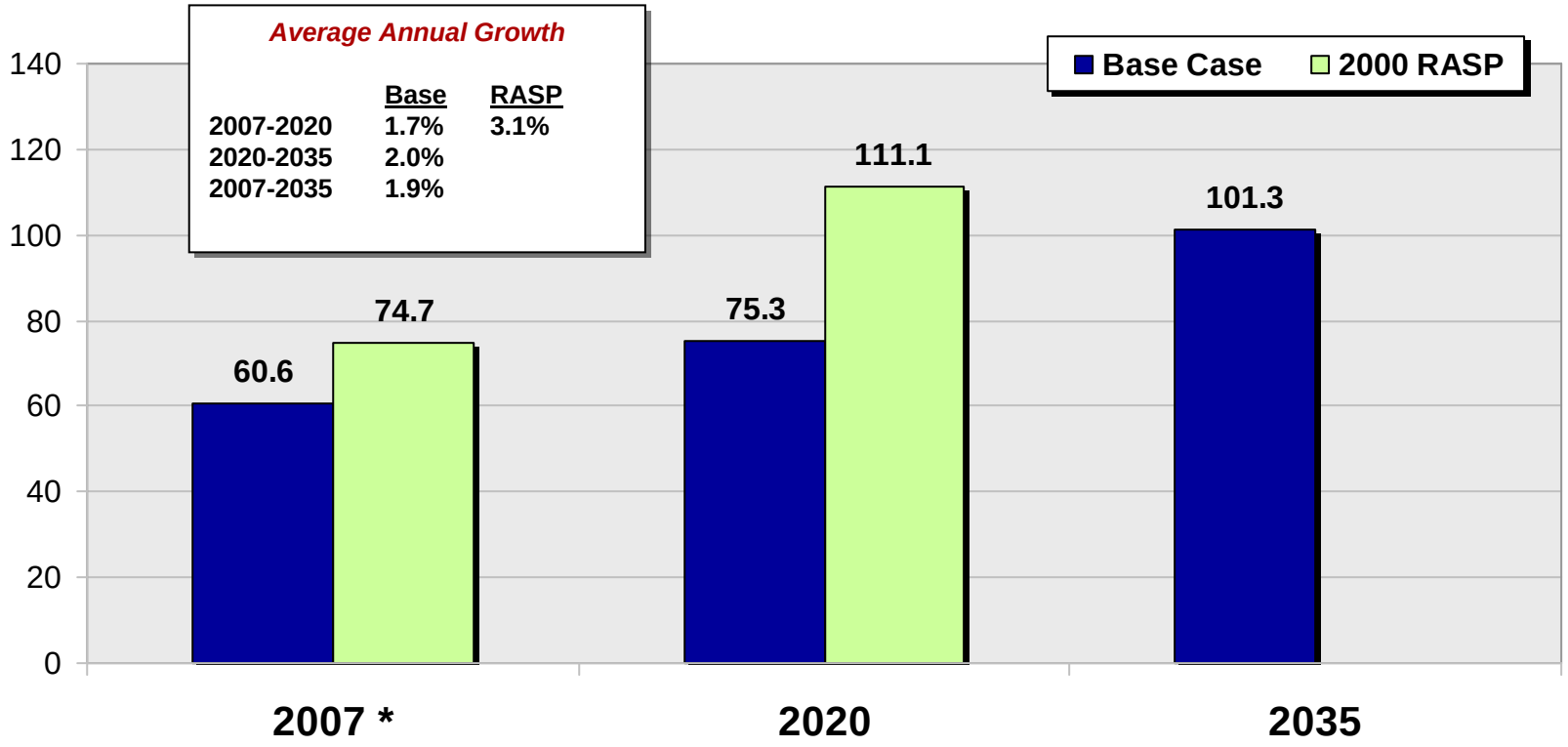
The New 2035 Base Case Forecast of 101M, is 9% Below the Previous Projection of 111M in 2020

Actual and Forecast Total Bay Area Airport Passengers

Base Case Update vs. 2000 RASP Forecast



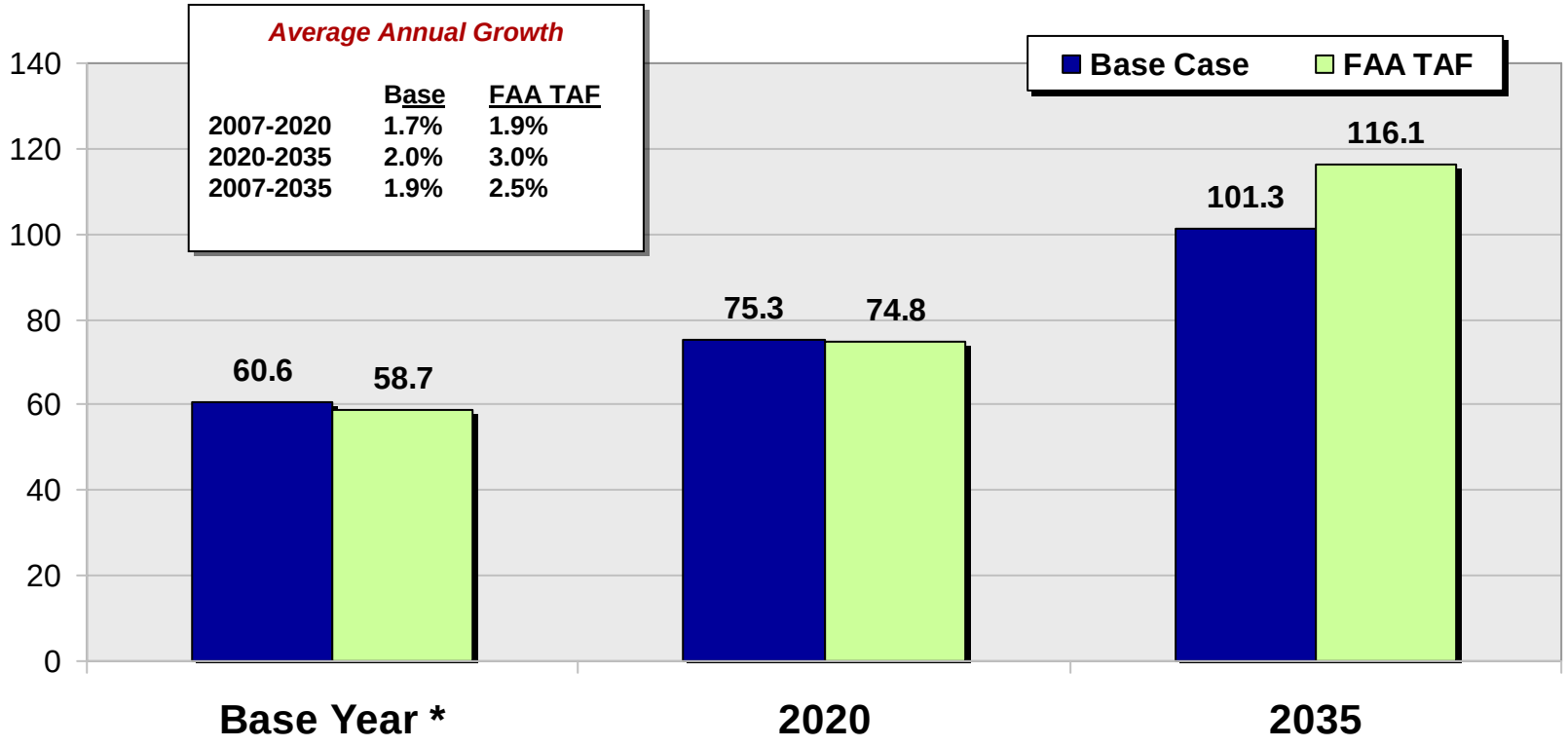
* Base Case passenger number for 2007 is actual.

Source: RAPC, Bay Area 2000 Regional Airport System Plan Update 2000, Volume II

The Base Case Forecast is 12.7% Below the Most Recent FAA TAF for the Bay Area

Actual and Forecast Total Bay Area Airport Passengers

Draft vs. FAA TAF



* Forecast base year is CY 2007. FAA base year is FYE October 2007.

Note: Reported airport traffic is higher than FAA airport statistics.
FAA Forecast for 2035 is extrapolated from 2025 using 2024-2025 forecast growth rate.
Source: FAA, Terminal Area Forecasts, December 2008

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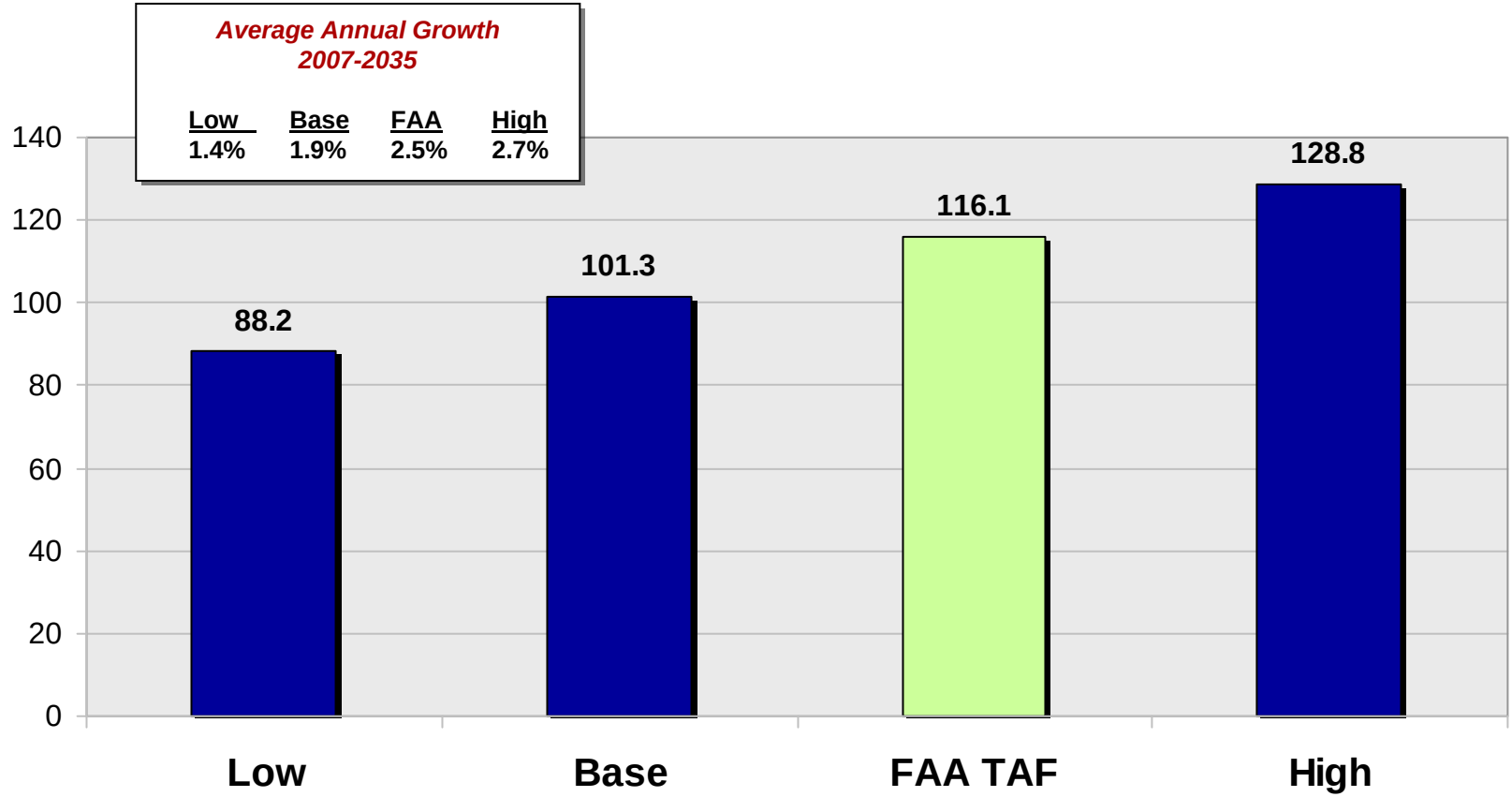
The FAA TAF Forecast Falls Within the Base and High Forecast Range

Forecast 2035 Total Bay Area Airport Passengers

Draft vs. FAA TAF



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CARGO FORECASTS

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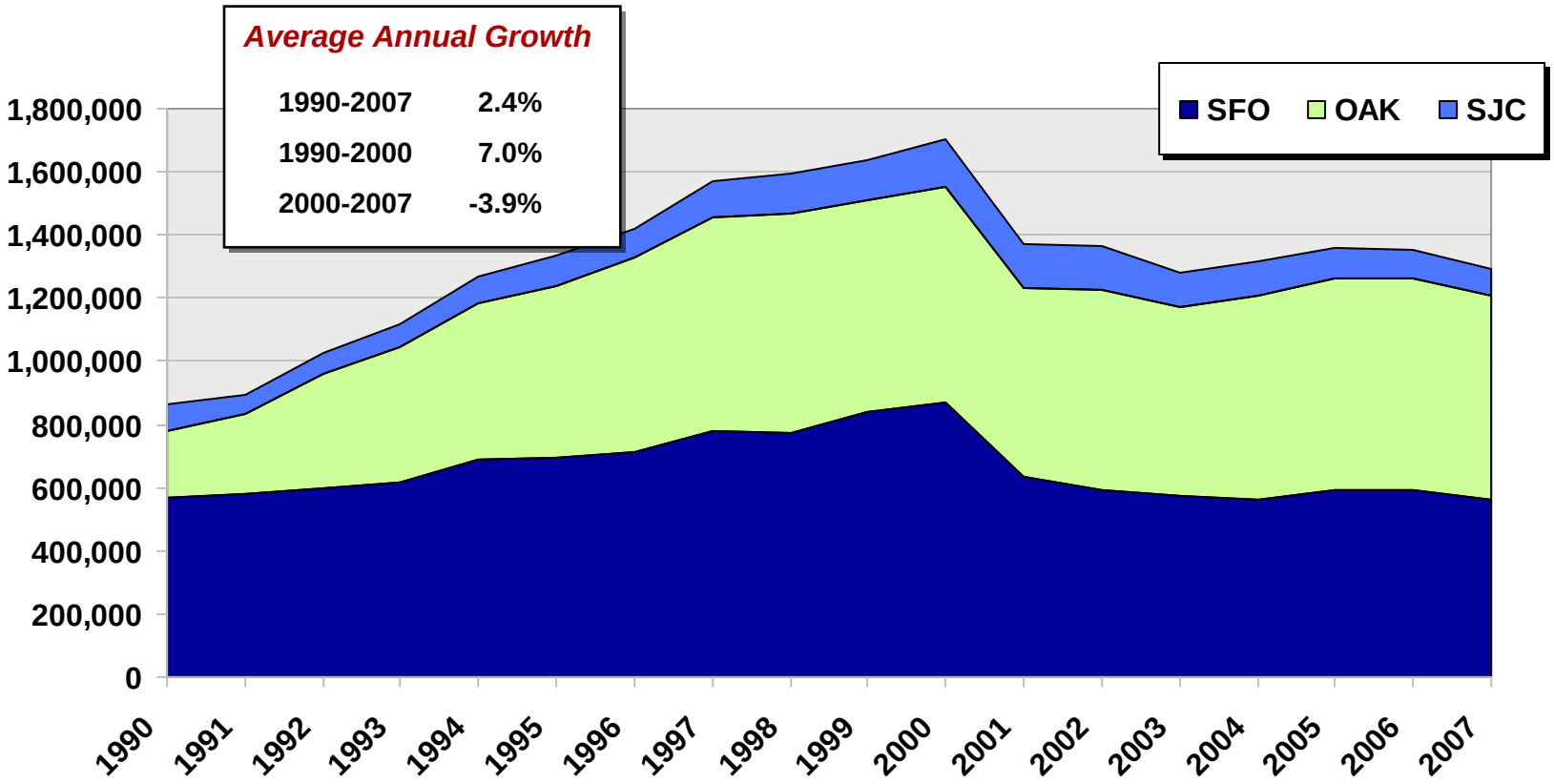
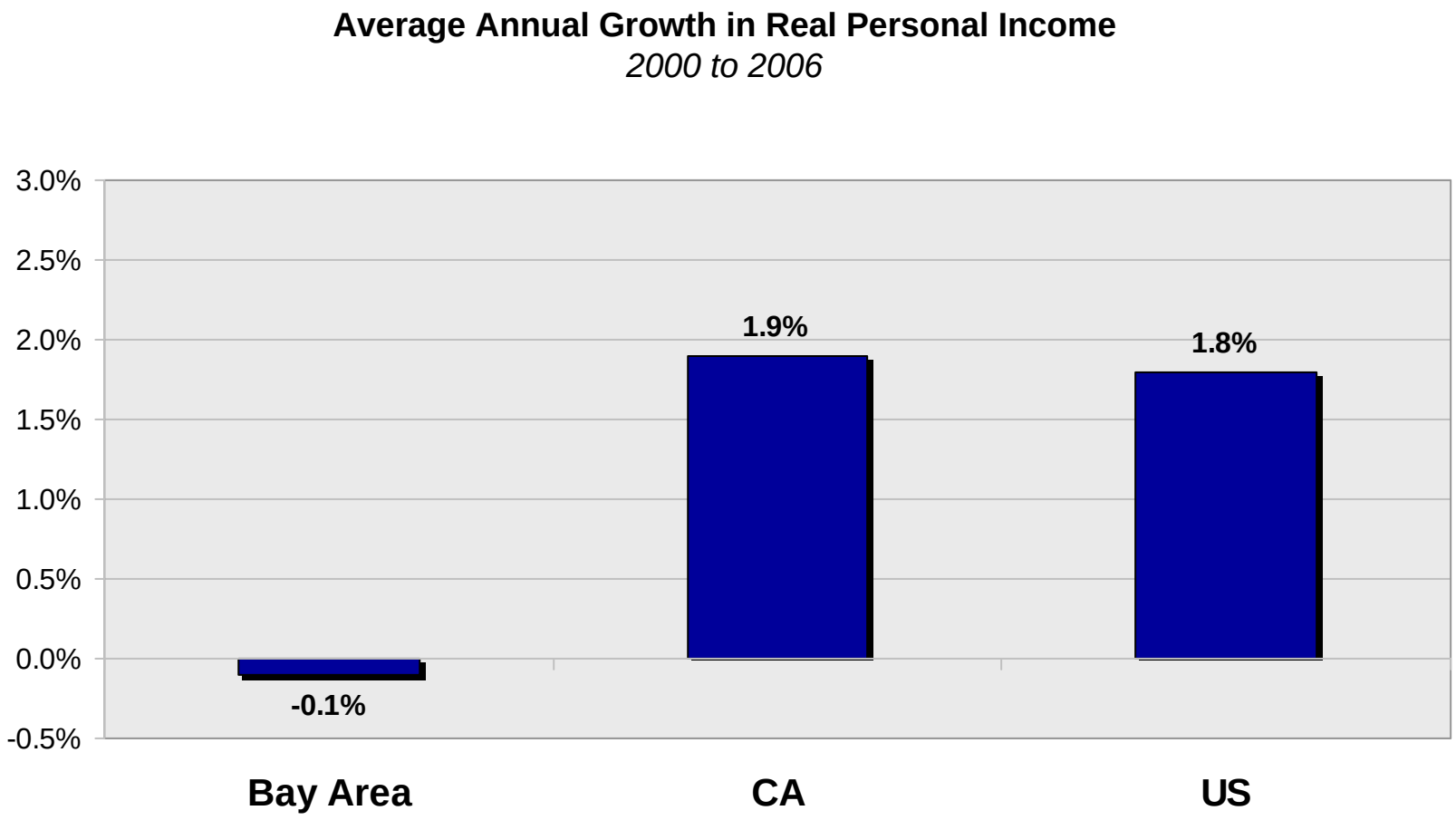
Total Cargo Handled by the Bay Area Airports Has Declined Sharply Since 2000

Bay Area Freight & Mail by Airport
(Enplaned + Deplaned Metric Tonnes)



Source: Airports Council International

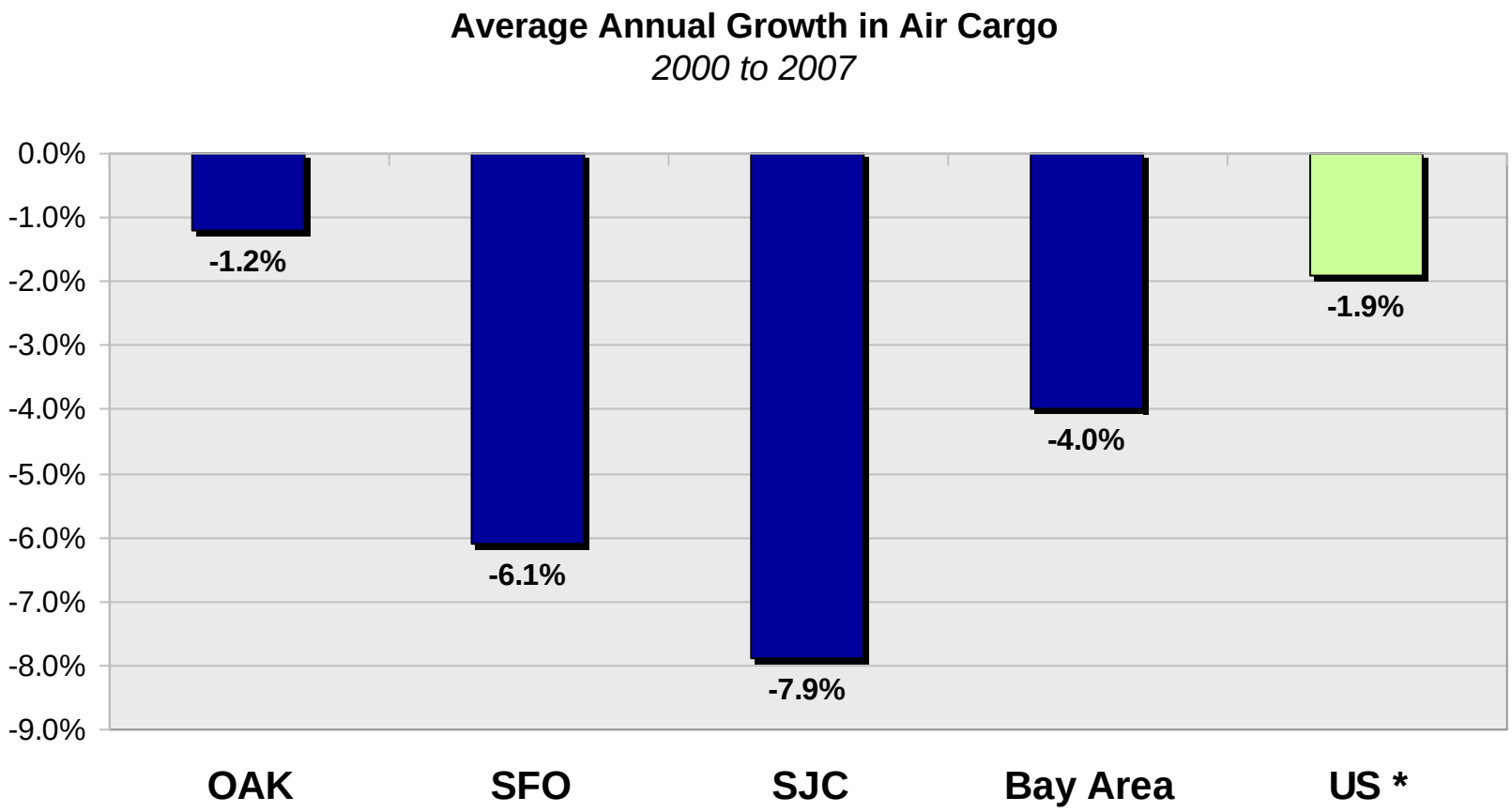
From 2000 to 2006, Personal Income for the Bay Area Declined Compared to Moderate Growth for the US and CA



Air Cargo Demand is Highly Correlated with Economic Growth

Source: U.S. Department of Commerce, Bureau of Economic Analysis

As a Result, Bay Area Air Cargo Declined at a Faster Rate than U.S. Air Cargo



* US based on cargo reported by top 60 US airports, excluding ANC (used for technical stops) and primary integrator sort hubs – MEM/FedEx and SDF/UPS.

Sources: ACI, Airport Cargo Statistics
Airport Statistical Reports
US DOT, T-100 On-flight Database

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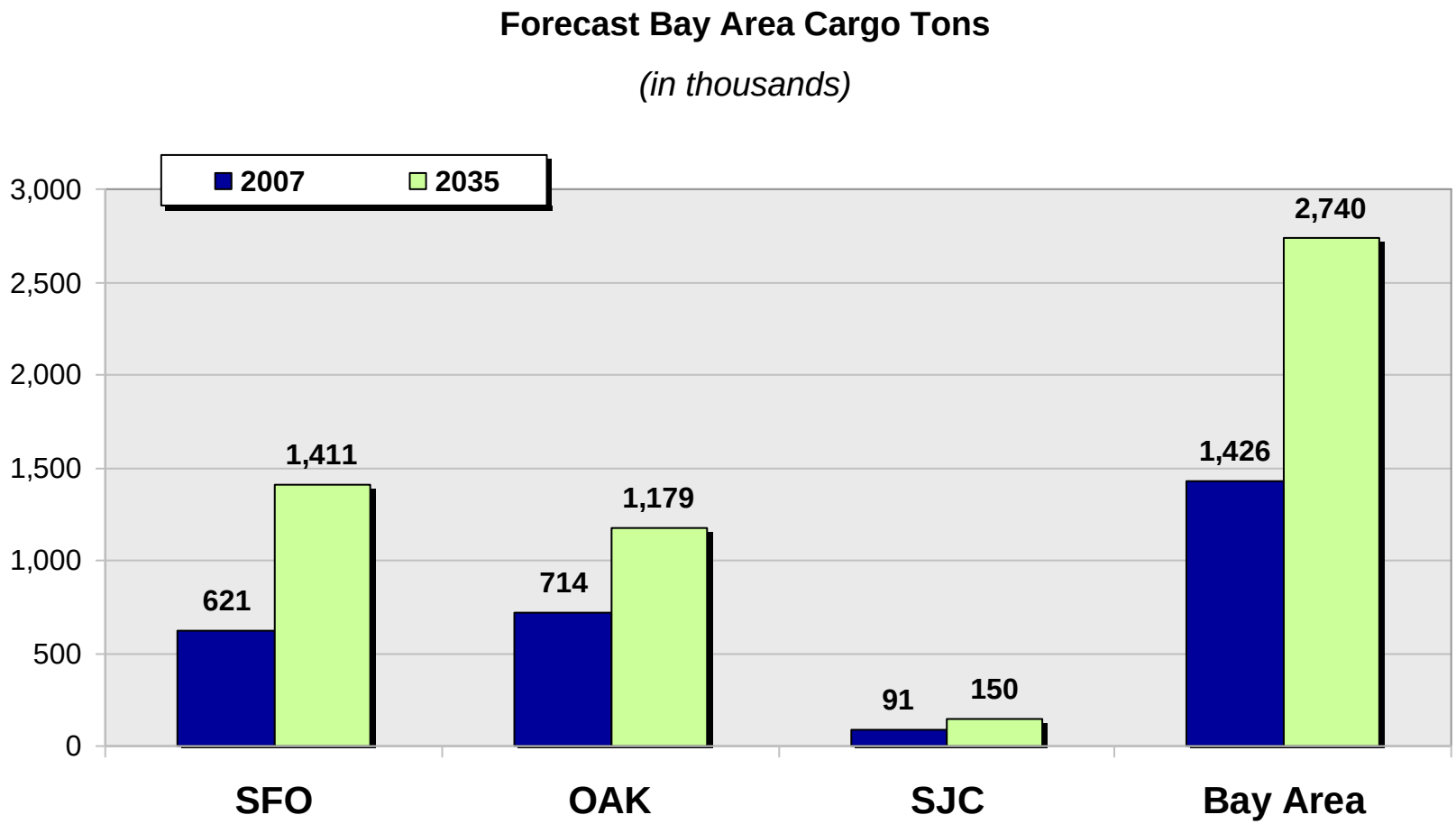
Cargo Forecast Approach and Assumptions

- **Assumed No Growth in Cargo Over the Short-term (2007-2011) to Reflect Current Economic Conditions**
- **Developed Long-term Growth Rates for the U.S. Air Cargo Market Based on FAA and Boeing Forecasts**
- **Forecast Bay Area Cargo Growth in Relation to the U.S. Cargo Market**
  - Base Case: Bay Area grows slower than U.S.(0.75 times based on forecast income growth)
    - *Forecast Bay Area Income Growth of 1.8% p.y. versus U.S. at 2.5% p.y.*
  - Low Case: Bay Area grows even slower than U.S. (0.50 times)
  - High Case: Bay Area grows at same rate as the U.S.

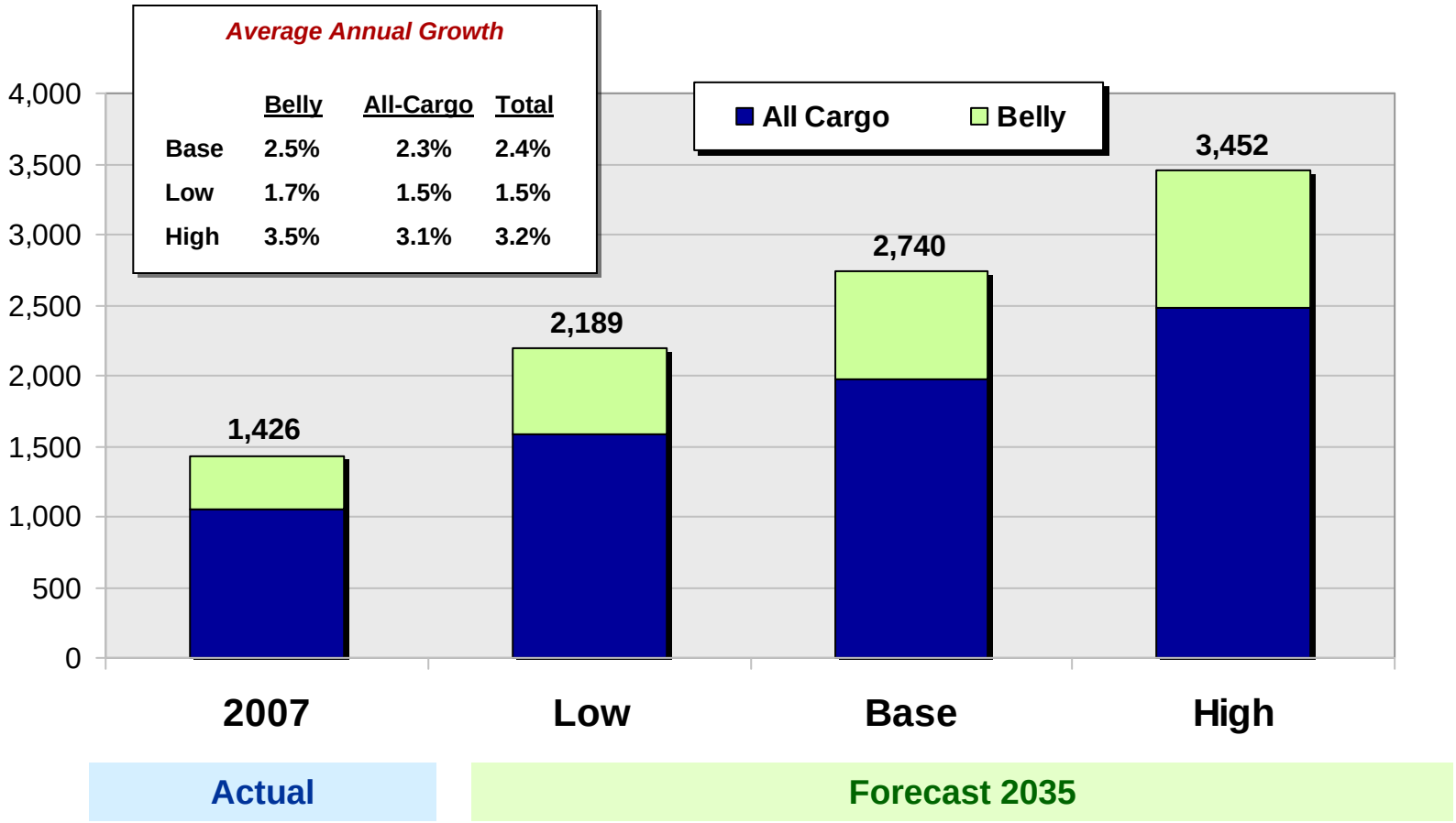
In the Base Case, Bay Area Cargo Tons are Forecast to Grow by 2.4% per Year Reaching 2.7M Tons in 2035



Note: Enplaned plus deplaned tons. Includes freight and mail for passengers airlines and all-cargo airlines.

All-Cargo Tons, Which Will Directly Translate into Additional Aircraft Operations, are Forecast to Grow by 2.3% per Year in the Base Case

Forecast Bay Area Cargo Tons *(in thousands)*



Note: Enplaned plus deplaned tons.

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BUSINESS GA FORECASTS

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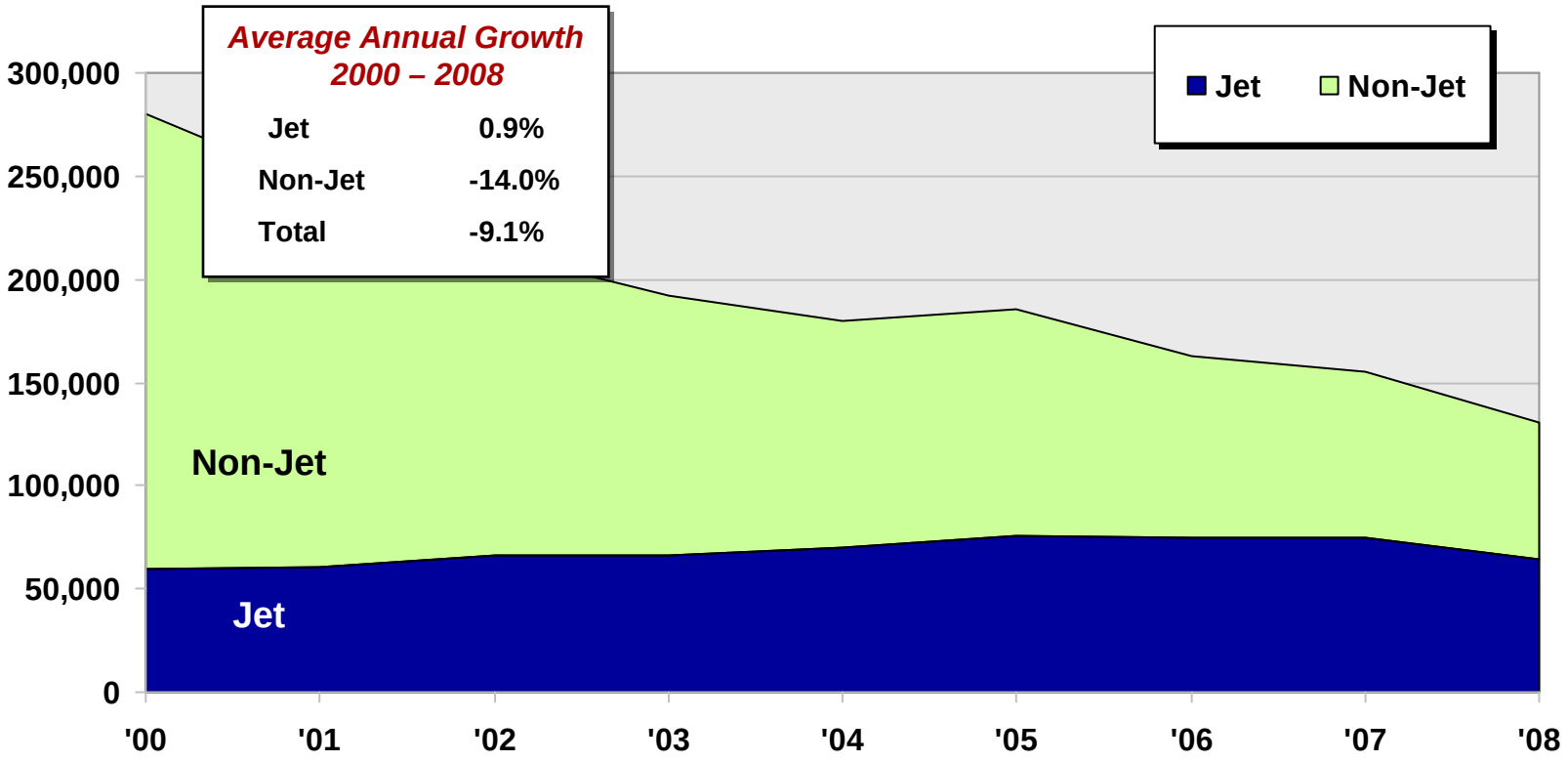
After Years of Strong Growth, Business GA has Been Particularly Hard Hit by the Global Recession and Credit Crisis

- **U.S. Business Jet Operations in 4Q 2008 Fell by Nearly 25%**
- **The Predicted Emergence of Very Light Jets (VLJs) and On-demand Air Taxi has not Materialized**
- **Corporations are selling their corporate planes and cutting back on private business jet travel**
- **Aircraft manufacturers like Bombardier are cutting business jet production**
  - Bombardier expects a 10% reduction in business aircraft deliveries in 2009
  - Honeywell expects a 5% to 10% reduction in business aircraft deliveries in 2009

Since 2000, Itinerant GA Operations at the Bay Area Airports have Declined by 9.1% Annually, but Business Jet Activity has Grown

Itinerant GA Operations at the Bay Area Airports

2000–2008



Note: Excludes local GA operations 9mainly pilot training and flights that stay in the local airspace)

Source: FAA, ETMSC and ATADS Databases

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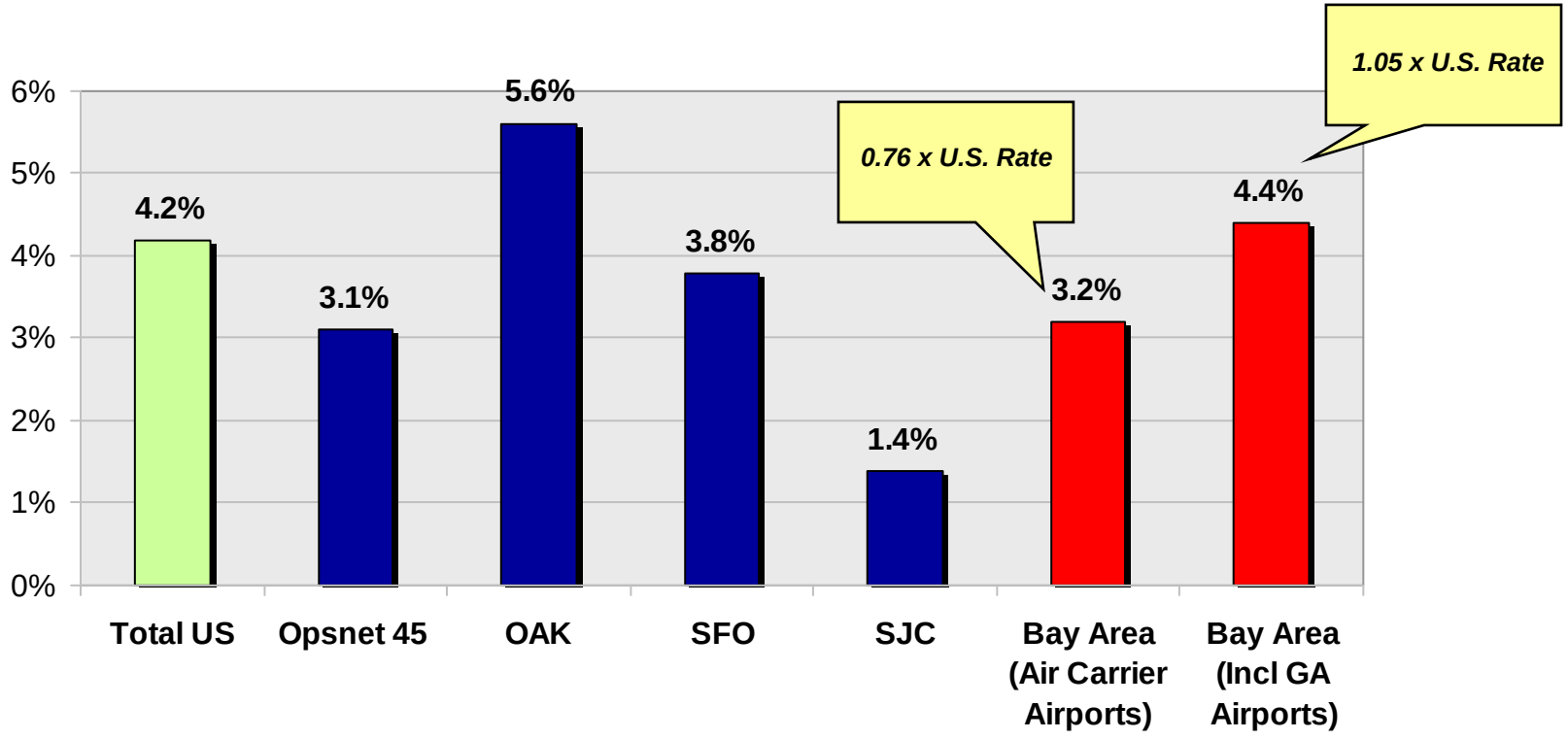
While Business Jet Activity at the Primary Bay Area Airports has Grown Slower than the U.S. Average, The Bay Area Including Nearby GA Airports Has Been Growing Faster Than the U.S.

Business Jet Operations – Historic Average Annual Growth Rate

2000- 2007

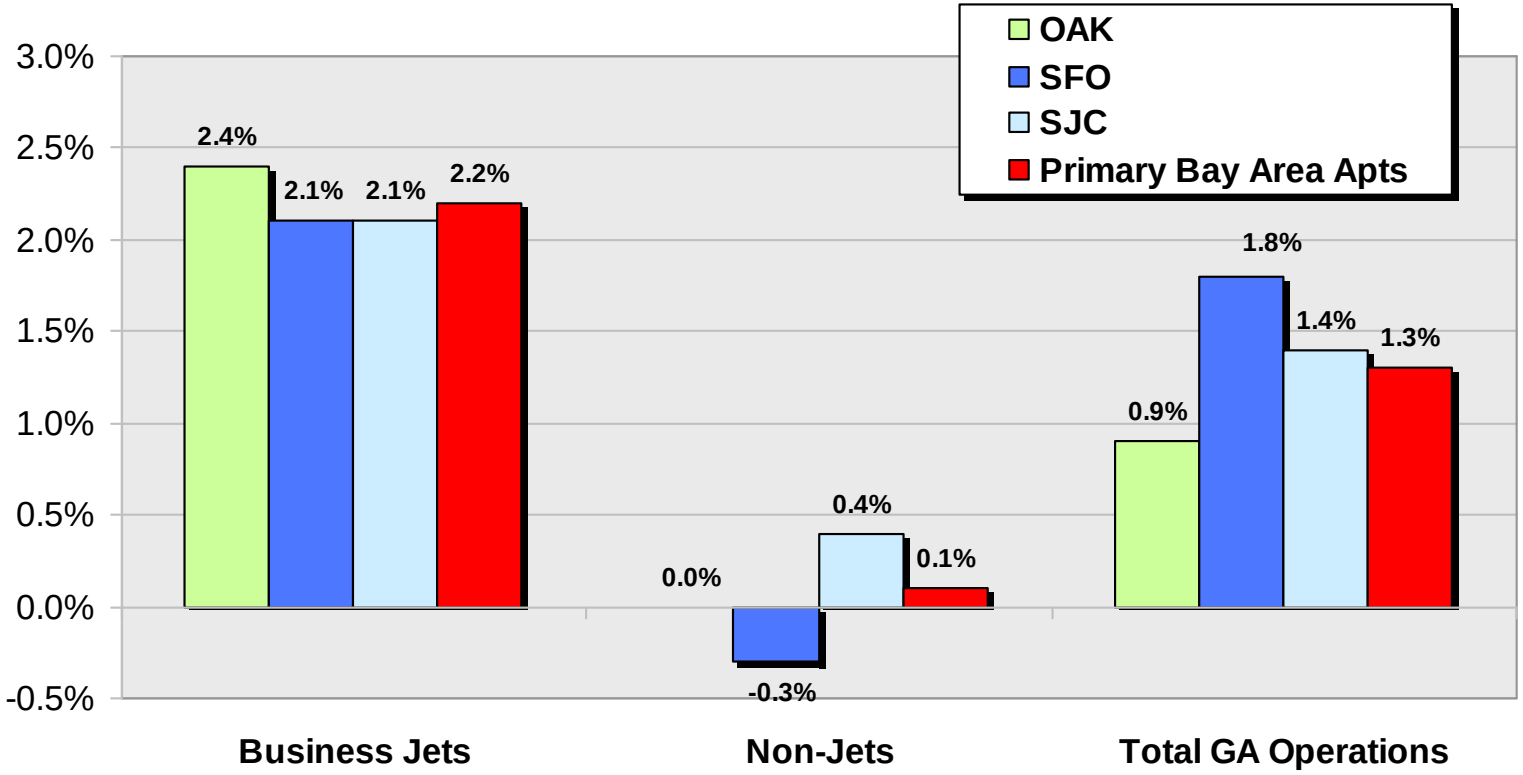


Source: FAA, ETMSC and ATADS databases; GA category adjusted to include business jet activity reported in other user group categories.

Bay Area GA Operations are Forecast to Increase at 1.3% per Year During the Forecast Period, with Business Jets Increasing at 2.2% per Year

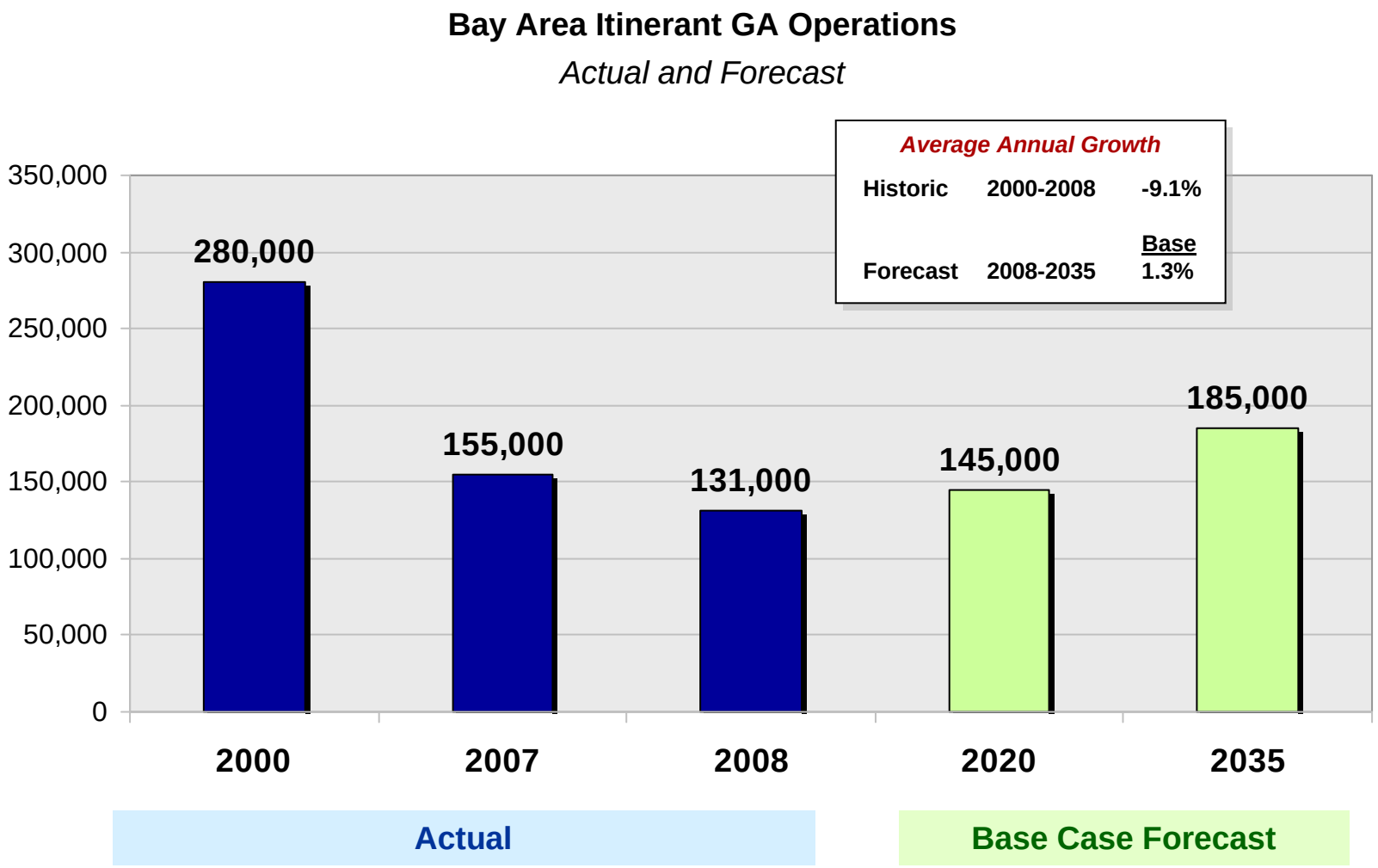
Forecast Annual Rates of Growth (or Decline) in GA Operations by Airport and Aircraft Class

2008- 2035

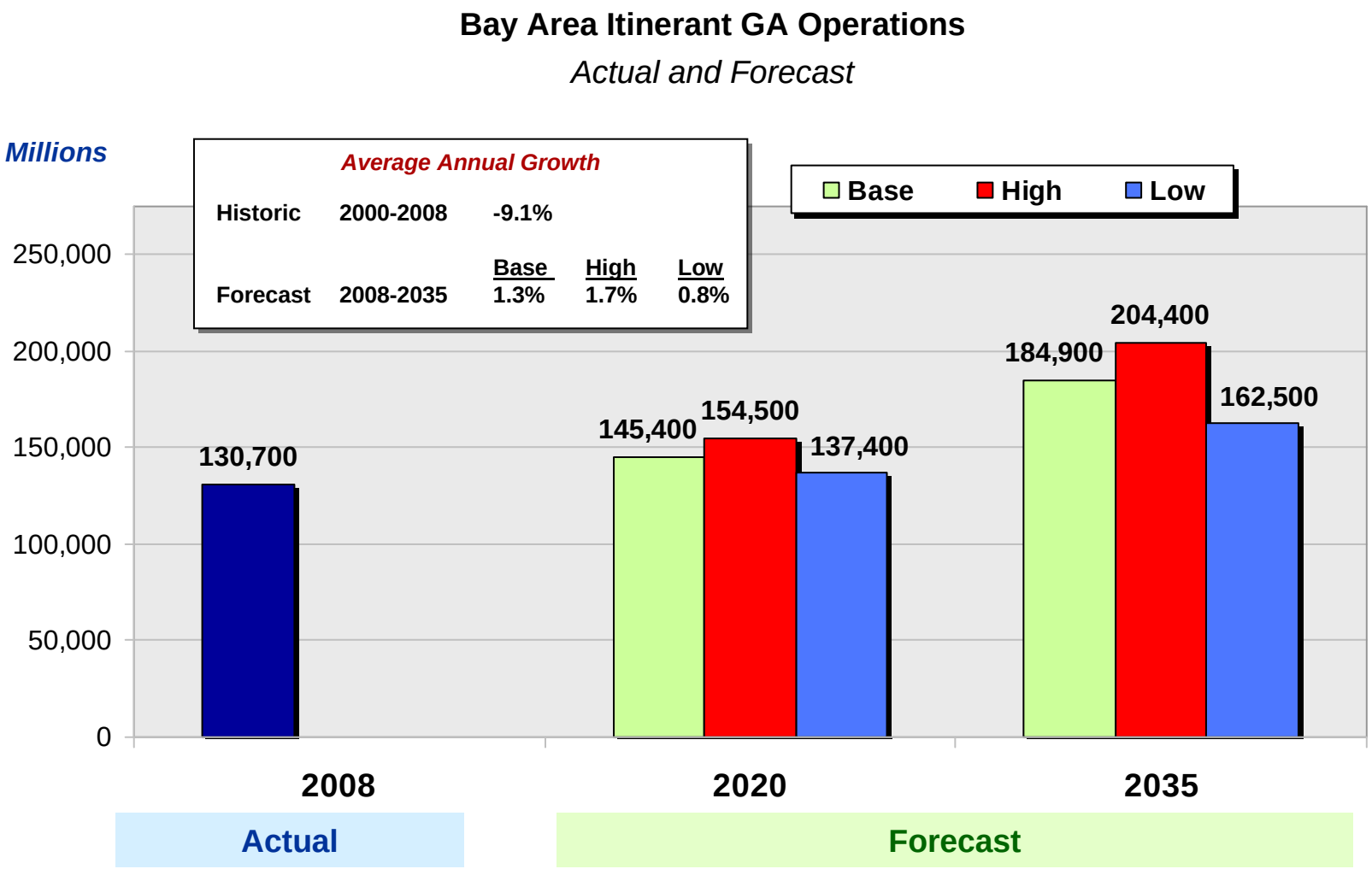


Note: Bay Area includes primary airports only (OAK, SFO and SJC)
Source: SH&E Forecasts (Base Case).

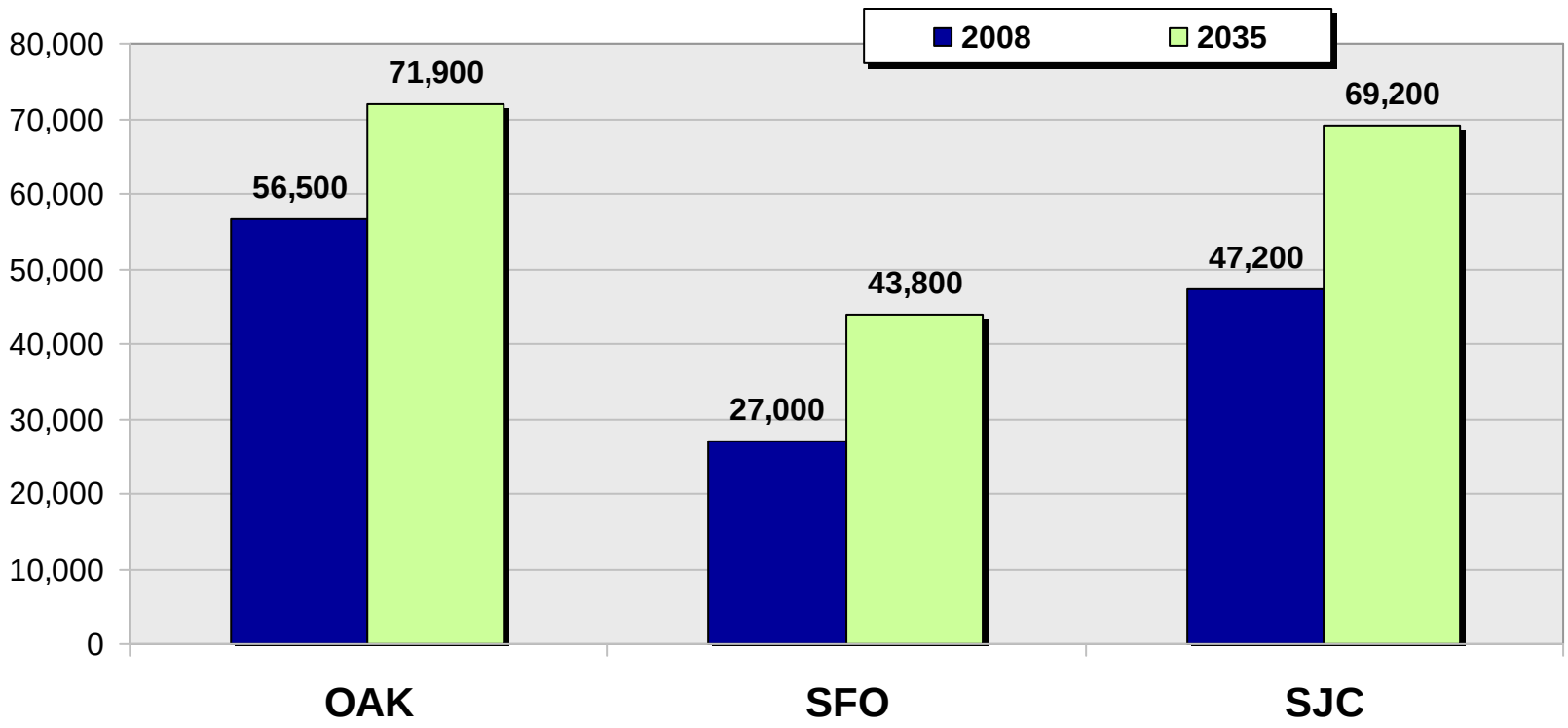
In the Base Case, Itinerant GA Operations are Forecast to Grow by 1.3% per Year Reaching 185,000 in 2035



The Forecast Range for Itinerant GA Operations is 162,500 to 204,400 in 2035



GA Operations Will Remain Concentrated at OAK and SJC Over the Forecast Period



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NEXT STEPS

Next Steps

- Distribute Forecast Passenger Demand by Airport
- Translate Passenger and Cargo Forecasts into Operations and Aircraft Types for Capacity Modeling
- Develop O&D Market Forecasts
- Disaggregate Forecast to the Ground O&D Level to Assess Potential Diversion to Alternative Regional Airports and High Speed Rail