

## **Ridership Forecasting and Model Update Report**

# final

# report

prepared for

Water Emergency Transportation Authority

prepared by

Cambridge Systematics, Inc.

December 2012

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# **Table of Contents**

1.0	Ove	rview1-1
2.0	ABA	AG Projections Data Review2-1
	2.1	Review of ABAG Projections 20092-1
	2.2	Comparison between Projections 2009 and Projections 20112-2
3.0	Vali	idation Data Development3-1
	3.1	Ferry Ridership counts
	3.2	Transbay Screenline Counts
4.0	Base	e Year Model Calibration and Validation4-1
	4.1	Summary of model update4-1
	4.2	Model Assumptions4-1
	4.3	Base Year (2010) Model Validation
5.0	Futi	ıre Year Model Runs5-1
	5.1	Year 2015 and 2035 Forecasting Assumptions5-1
	5.2	Future Year Transbay Travel Compared to 2010 Base Year5-3
	5.3	Future Year Ferry ridership forecasts
6.0	Con	nparison to Older Forecasts6-1
A.	ABA	AG Projection Data ComparisonA-1
B.	Yea	r 2015 and 2035 Service Assumptions by AlternativeB-1
C.	Yea	r 2015 and 2035 Ridership Forecasts by RouteC-1
D.	Yea	r 2015 and 2035 Ridership by TerminalD-1

# **List of Tables**

Table 4.1	Original Network Assumptions by Route (Base Year 1989)4-	2
Table 4.2	Updated Year 2010 Ferry Service Assumptions by Route4-	3
Table 4.3	Fare Conversion Factor4-	4
Table 4.4	Access Time Assumptions by Ferry Terminals (in minutes)4-	4
Table 4.5	Base Year (2010) Model Validation Results by Ferry Routes4-	5
Table 4.6	Base Year (2010) Transbay Screenline Validation4-	5
Table 5.1	Year 2015 and 2035 Weekday Headways by Route and Time Period5-	2
Table 5.2	Year 2015 and 2035 Ferry Run Times, Fares, and Speeds5-	3
Table 5.3	Ridership Forecasts of Current Ferry Routes <sup>1</sup> 5-	4
Table 5.4	Daily Person Trips for Forecasting Years5-	5
Table 5.5	Future Year Transbay Screenline Estimates5-	5
Table 5.6	Bay Bridge Daily Driving Traffic Volume by Purpose5-	6
Table 5.7	Total Weekday Daily Ferry Ridership by Route5-	7
Table 5.8	Annual Ferry Ridership by Route	1
Table 6.1	Comparison of Original and Updated No-Project Ridership Forecasts	1
Table 6.2	Comparison between Old and New Total Person Trip Tables6-	2
Table A.1	Projections 2009 and Projections 2011 Comparison by PopulationA-	2
Table A.2	Projections 2009 and Projections 2011 Comparison by Number of HouseholdsA-	3
Table A.3	Projections 2009 and Projections 2011 Comparison by EmploymentA-	4
Table A.4	Population within 1.5-Mile Buffer around Ferry Terminals	5
Table A.5	Number of Households within 1.5-Mile Buffer around Ferry TerminalsA-	6
Table A.6	Employment within 1.5-Mile Buffer around Ferry TerminalsA-	7
Table A.7	Population within 0.5-Mile Buffer around Ferry Terminals	8

Table A.8	Number of Households within 0.5-Mile Buffer around Ferry TerminalsA-9
Table A.9	Employment within 0.5-Mile Buffer around Ferry TerminalsA-10
Table B.1	Year 2015 Alternative 1 – Richmond Service Assumptions B-2
Table B.2	Year 2015 Alternative 2 – Berkeley Service Assumptions B-3
Table B.3	Year 2035 Alternative 3 – Constrained Service Scenario (ABAG Projections 2009) Service Assumptions
Table B.4	Year 2035 Alternative 4 – Constrained Service Scenario (ABAG Projections 2011) Service Assumptions
Table B.5	Year 2035 Alternative 5 – Expanded Service Service Scenario (ABAG Projections 2009) Service Assumptions
Table C.1	Year 2015 Alternative 1 – Richmond Ridership ForecastsC-2
Table C.2	Year 2015 Alternative 2 – Berkeley Ridership Forecasts C-3
Table C.3	Year 2035 Alternative 3 – Constrained Service Scenario Ridership Forecasts
Table C.4	Year 2035 Alternative 4 – Constrained Service Scenario (ABAG Projections 2011) Ridership Forecasts
Table C.5	Year 2035 Alternative 5 – Expanded Service Scenario Ridership Forecasts
Table D.1	Year 2015 Alternative 1 – Richmond Terminal-Level ForecastsD-2
Table D.2	Year 2015 Alternative 2 – Berkeley Terminal-Level ForecastsD-3
Table D.3	Year 2035 Alternative 3 – Constrained Service Scenario Terminal-Level ForecastsD-4
Table D.4	Year 2035 Alternative 4 – Constrained Service Scenario Terminal-Level Forecasts (ABAG Projections 2011)D-5
Table D.5	Year 2035 Alt 5 – Expanded Service Scenario Terminal-Level ForecastsD-6

# **List of Figures**

Figure 2.1	On-line Data Map Viewer for ABAG Projections 2009 Data	.2-2
Figure 2.2	Changes in Socioeconomic Data	.2-4
Figure 3.1	Monthly Ferry Ridership (January 1999 to September 2010)	.3-1
Figure 3.2	Harbor Bay Ferry Annual Ridership (1992 through 2010)	.3-2
Figure 3.3	Alameda/Oakland Ferry Annual Ridership (1999 through 2009)	.3-3
Figure 3.4	Vallejo Baylink Ferry Annual Ridership (1999 through 2009)	.3-3

## 1.0 Overview

This Ridership Forecasting and Model Update Final Report documents updates to the San Francisco Bay Area Water Emergency Transportation Authority's (WETA) Ferry Ridership Model. This report contains much of the information from the November 2011 *Model Update Validation Report*, but also includes a full review and analysis of future year ferry ridership forecasts generated from the updated Ferry Ridership Model.

The Ferry Ridership Model was originally developed by Cambridge Systematics, Inc. in 2002 for the Water Transit Authority (WTA), the predecessor agency to WETA. The Ferry Ridership Model (which will be referred to as the WETA model hereafter) incorporated trip generation and distribution data directly from the Metropolitan Transportation Commission (MTC) BAYCAST model (released in 2001). A market-based mode choice model was developed for the WETA model to estimate home-based work (HBW), home-based shopping (HBSH), and home-based social-recreational (HBSR) trips. Nonhome-based and school trips were estimated from the BAYCAST-2001 model. Weekend ridership was calculated as a function of the weekday ridership by trip purpose.

The WETA model has been used to produce ridership forecasts by different trip purposes for different project alternatives under evaluation by WETA. However, since the model was first developed in 2002, the economy and demography in the Bay Area have gone through significant changes, pressing the need for an updated WETA model. Specific justifications for the model update are as follows:

- The WETA model used 1998 as the base year, which is significantly outdated. MTC has revalidated the BAYCAST model at least twice since BAYCAST-2001 was originally incorporated into the WETA model nearly 10 years ago.
- MTC has updated the BAYCAST model using a more refined Traffic Analysis Zone (TAZ) structure. The number of TAZs has been increased from 1099 to 1454 in order to reflect changes in 2000 census geography, increases in computing capability, and forecasting needs for particular corridors.
- The population and employment data in the WETA model need to be updated in order to account for the evolving socioeconomic conditions of the region. The WETA model included Association of Bay Area Governments (ABAG) Projections 1999 data for future year 2025. Projections 2009 data were adopted by MTC, as well as by other Bay Area jurisdictions for future year 2035. Recently, ABAG has also released an "unofficial" set of land use forecasting called Projections 2011 that adjusted population and employment data downwards to account for the recession.

Key Ferry Ridership Model input assumptions, such as population and employment projections are examined in Section 2.0 and in Appendix A. Section 3.0 documents observed data, such as existing ferry ridership and Transbay travel patterns. Section 4.0 examines model validation, which includes an evaluation of how well the Ferry Ridership Model replicates Transbay travel conditions for the Year 2010 Base Year. Please note, sections 2.0, 3.0 and 4.0, as well as Appendix A in this report are identical to those contained in the *Model Update Validation Report*.

Section 5.0 has been substantially revised in this report. For the *Model Update Validation Report*, Section 5.0 covers only what are termed the No-Project Alternatives. That nomenclature is not used in this report, rather a total of five year future year 2015 and 2035 project alternatives are analyzed here. These five alternatives include:

- Year 2015 with a Richmond Terminal;
- Year 2015 with a Berkeley Terminal;
- Year 2035 Constrained Service Scenario;
- Year 2035 Constrained Service Scenario using ABAG Projections 2011 socioeconomic data; and
- Year 2035 Expanded Service Scenario.

The 2015 alternatives include ferry services operating on San Francisco Bay as of the last quarter of 2011. The South San Francisco-Oakland/Alameda Route, which began service in June of 2011, is included both 2015 project alternatives, but was not included in the 2010 base year No-Project model run. The planned Treasure Island-San Francisco is also included in each 2015 alternative. The only difference between the two 2015 project alternatives is that the first alternative included a new Richmond Terminal, while the second alternative includes a new Berkeley Terminal.

The 2035 alternatives include all services from the 2015 alternatives in addition to a number of additional ferry terminals, including Hercules, Antioch, Martinez and Redwood City. Ridership forecasts for each route and terminal are summarized in Section 5.0 and Appendices C and D.

A final section, 6.0, covers a comparison of how the new forecasts compare to the older forecasts. This section is unchanged from the *Model Update Validation Report.* 

As noted above, Appendices C and D cover ferry ridership forecasts at route and terminal levels of detail, respectively. Appendix B describes key ferry forecasting assumptions, such as headways, travel times and fares. These assumptions were not covered in the *Model Update Validation Report*.

The effectiveness of each ferry route and each ferry terminal is determined by a complex decision-making process for which ridership is but one component. Therefore, this report does not make conclusions on the effectiveness of current or proposed new routes; that is not the purpose of this report. The purpose of this report is to objectively document future ridership forecasts generated by the

updated Ferry Ridership Model. Decision-makers at WETA and the affected cities are thus provided with ridership data based on the best and most up-todate information on demographic and transportation patterns available.

# 2.0 ABAG Projections Data Review

To develop a new base year model and to establish a better baseline for ferry ridership forecasting, the latest BAYCAST-2008 model used in the current Regional Transportation Plan (RTP) for Transportation 2035 was obtained from MTC. This model system includes updated transportation network and socioeconomic input files. The updated base year WETA model was then recalibrated using the official Projections 2009 data.

Projections 2009 was developed by ABAG before the Bay Area, like the rest of the nation, was hit by the recession. It is known to have over-projected employment, which may lead to an overestimation of ferry ridership. In January 2011, ABAG prepared an update to Projections 2009. This latest updated projection of jobs, population, and housing, along with the Transportation 2035 transportation network, shows how the Bay Area would develop through a continuation of present trends and policies reflected in current plans. MTC staff has labeled this scenario the "Current Regional Plans" (aka draft Projections 2011). Although this draft data has not been (and will not be) adopted by the ABAG Board, MTC is using Projections 2011 data to help develop the Sustainable Communities Strategies (SCS) as part of the 2013 RTP. Agencies such as the San Francisco County Transportation Authority are also considering Projections 2011 data to support their planning activities.

WETA has decided to review both sets of ABAG projections data and evaluate the potential impacts on ferry ridership forecasting.

## 2.1 REVIEW OF ABAG PROJECTIONS 2009

An on-line map viewer was created to show the ABAG Projections 2009 data (both employment and population), along with the location of all existing and proposed ferry terminals. The map viewer (Figure 2.1) was distributed to planners in local jurisdictions near each ferry terminal, providing an effective tool for local jurisdictions to review the ABAG projections and share their thoughts of whether it is preferable to use the ABAG projections directly for these areas, or if it is better to substitute local land-use planning data to augment ABAG projections.





## 2.2 COMPARISON BETWEEN PROJECTIONS 2009 AND PROJECTIONS 2011

Projections 2011 data were compared with Projections 2009 data for the three modeling years (2010, 2015, and 2035). Tables A.1, A.2, and A.3 in Appendix A show the difference in population, household, and employment between these two projections series. A comparison of these datasets shows no significant change in regionwide and county-level population or number of households residing in the Bay Area for any of the modeling years. However, Projections 2011 shows a significant overall reduction in regional employment. For year 2035, the region is projected to have 14 percent less employment according to Projections 2011 compared to Projections 2009. The percentage changes in employment between Projections 2011 and Projections 2009 for years 2010 and 2015 are 6 percent and 7 percent, respectively.

The comparison took specific note of areas where changes in population and employment projections would have more direct impacts on ferry ridership. A 1.5-mile buffer and 0.5-mile buffer were drawn around each existing and proposed ferry terminal. Population and employment data were summarized within the buffers to show the difference between Projections 2009 and Projections 2011 data at and near each terminal site. Tables A.4, A.5, and A.6 summarize projection data within a 1.5-mile buffer of each terminal site (30 minutes of walking distance, assuming average walking speed at 3 miles per hour), while Tables A.7, A.8, and A.9 summarize data within a 0.5-mile buffer (10 minutes of walking distance). (Please note, while Angel Island does not have any residents, it is part of Zone 1446 in Tiburon, which is why there is population, household, and employment data near the Angel Island terminal.)

Population and household changes from Projections 2009 to Projections 2011 vary significantly for different terminals. For example, population projected within a 0.5-mile buffer of the proposed Mission Bay ferry terminal was reduced by 31 percent, while population projected near the existing Jack London Square ferry terminal was increased by 16 percent for year 2010 data. For any given terminal, projections for the short term (years 2010 and 2015) could be very different from those in the longer term (year 2035). For example, the population within a 10-minute walk of the proposed Antioch ferry terminal was adjusted downwards by 10 percent for year 2010 under Projections 2011, but the population living near the terminal for year 2035 increased by 39 percent compared to Projections 2009.

There is a significant reduction in employment projections near ferry terminals. The total employment within the 1.5-mile buffer areas for all ferry terminals is reduced by 7 percent for year 2010, 9 percent for year 2015, and 15 percent for year 2035 under Projections 2011. Projections 2011 data show less employment at nearly every ferry terminal when compared with Projections 2009 data, as much as a 30-percent reduction in some instances.

To enable a more detailed review of changes in the socioeconomic data between the two sets of projections, the on-line map viewer was updated to show differences for population, household, and employment (Figure 2.2). The map viewer allows users to select one theme layer (household, population, or employment) and specify the year of interest (2010, 2015, or 2035). Differences between the two sets of projection data were mapped at TAZ level.

The model calibration is based on the official Projections 2009 data, as it is the latest set of official projections for the regional; however, Projections 2011 data will be used in future model runs for ferry ridership forecasting for certain project scenarios.

#### Figure 2.2 Changes in Socioeconomic Data



# 3.0 Validation Data Development

## **3.1 FERRY RIDERSHIP COUNTS**

Calibration and validation are needed to evaluate the effectiveness of the updated WETA model. Validation data for ferry ridership were obtained from the ferry boarding count (ridership) data provided by WETA for the existing Vallejo, Alameda/Oakland, Harbor Bay, Sausalito, Tiburon, and Larkspur routes. Figure 3.1 shows the monthly ferry ridership for each of these routes from January 1999 through September 2010.



Figure 3.1 Monthly Ferry Ridership (January 1999 to September 2010)

Monthly ferry ridership provided by WETA included weekday and weekend ridership, except for the Harbor Bay route (which runs only on weekdays). Monthly data did not include charter or recreational service runs. The count data was based on one-way ferry rides and not round trips. For the Tiburon route, monthly data only included ridership for services operated during peak commuter periods. For the Alameda/Oakland and Vallejo routes, daily ridership data were provided in addition to the monthly data.

For the Alameda/Oakland route, the first two weeks of ridership data for May 2010 were summarized. For the Vallejo route, ridership was calculated based on the first week and first weekend of ridership data for May 2010. Harbor Bay, Larkspur, Sausalito, and Tiburon routes only have reported monthly ridership data that were not broken down into weekday versus weekend, or peak versus off-peak. The average ratios of weekday/weekend and peak/off-peak ridership were calculated from the Alameda/Oakland and Vallejo routes, and applied to estimate the ridership for weekday peak/off-peak and weekend ferry ridership for the North Bay routes.

Figures 3.2 through 3.4 summarize route-level annual ridership data for the Harbor Bay, Alameda/Oakland, and Vallejo routes. As shown in Figure 3.2, ridership for the Harbor Bay route has steadily increased from 1992 to 2010. Figure 3.3 shows that total annual ridership for the Alameda/Oakland route Oakland peaked in 2001 and then held fairly steady through 2009 with between 400,000 and 500,000 annual riders. Figure 3.4 shows a decrease in ridership for the Vallejo route from 1990 to 2009, particularly from 2007 onward.



Figure 3.2 Harbor Bay Ferry Annual Ridership (1992 through 2010)

Notes: 2010 observed ridership is for first nine months and extrapolated to full year. 2004 data had zero ridership for three months and expanded to represent a full year based on ridership for same months for 2003 and 2005.



Figure 3.3 Alameda/Oakland Ferry Annual Ridership (1999 through 2009)

#### Figure 3.4 Vallejo Baylink Ferry Annual Ridership (1999 through 2009)



## **3.2 TRANSBAY SCREENLINE COUNTS**

Screenline validation data for Transbay trips, including the number of Bay Bridge auto trips and transit ridership for the Bay Area Rapid Transit District (BART) and Alameda-Contra Costa Transit District (AC Transit), was obtained from the latest Transbay Mode Choice Study for AC Transit. Even though the AC Transit study has year 2005 data, it is the best available data source to validate the year 2010 updated WETA model.

# 4.0 Base Year Model Calibration and Validation

### 4.1 SUMMARY OF MODEL UPDATE

The WETA model was updated using Projections 2009 data for year 2010, and then calibrated and validated to ferry ridership by route, as well as trips by mode across Transbay screenlines. The model update included the following components:

- Used the latest MTC BAYCAST-2008 model transportation networks;
- Converted the model system to reflect MTC's new 1454 zone structure;
- Adjusted time factors (TF) for AC Transit Transbay lines to obtain reasonable ridership splits between BART and AC Transit trips on the Bay Bridge screenline;
- Conducted user-equilibrium time-of-day assignment, instead of all-ornothing daily assignment, to obtain more reasonable Bay Bridge auto volumes;
- Implemented feedback loops between transit and highway assignment to account for congestion in mode choice model; and
- Adjusted park-and-ride (PNR) drive access links for ferry terminals.

## 4.2 MODEL ASSUMPTIONS

During model calibration, some assumptions related to ferry service level were adjusted to provide better transit assignments by route for ferry riders, including the following:

- Headway;
- Crossing time;
- Wait time;
- Terminal constraints (time penalty); and
- Fare.

Table 4.1 presents a summary of ferry network assumptions in the original WETA model, while Table 4.2 lists network assumptions for the updated WETA models. Overall, the new assumptions for the updated model are more conservative than what was in the old model, reflecting higher fares and

generally longer headways that are characteristic of the current operating environment.

				Terminal	Fare	
Route	Crossing Headway Time		Wait Time	Constraints (Time Penalty)	1989 Dollars	2010 Dollars
AM Peak (6:00-9:00 a.m.)						
Larkspur – SF	30	40	10	15	\$3.50	\$6.30
SF – Larkspur	45	40	10	15	\$3.50	\$6.30
Sausalito – SF	75	30	15	15	\$2.20	\$4.00
Tiburon – SF	55	20	10	10	\$2.50	\$4.60
Vallejo – SF	60	55	10	10	\$3.80	\$6.90
Alameda/Oakland – SF	36	30	10	N/A	\$2.20	\$4.00
SF – Alameda/Oakland	45	35	10	N/A	\$2.20	\$4.00
Midday (9:00 a.m3:30 p.m.)						
Larkspur – SF	65	45	10	15	\$3.50	\$6.30
SF – Larkspur	65	45	10	15	\$3.50	\$6.30
Sausalito – SF	78	30	15	15	\$2.20	\$4.00
Sausalito – Pier 41	97.5	40	15	15	\$2.20	\$4.00
Tiburon – Pier 41	97.5	20	15	10	\$2.50	\$4.60
Vallejo – SF	90	55	10	10	\$3.80	\$6.90
Alameda-Oakland – SF – Pier 41	78	40	10	N/A	\$2.20	\$4.00
Pier 41/SF – Alameda/Oakland	130	45	10	N/A	\$2.20	\$4.00

 Table 4.1
 Original Network Assumptions by Route (Base Year 1989)

Source: Cambridge Systematics. Fares are consistent with Alternative 18, and converted from 2004 dollars to 1989 and 2010 approximate dollars.

				Terminal	Fare		
		Crossing		Constraints (Time			
Route	Headway	Time*	Wait Time	Penalty)	1989 Dollars	2010 Dollars	
Peak (6:00-9:00 a.m.	and 3:30-6:3	80 p.m.)					
Larkspur – SF	35	35	10	15	\$2.93	\$5.20	
Sausalito – SF	70	30	15	15	\$2.93	\$5.20	
Tiburon – SF	65	20	10	10	\$4.37	\$7.75	
Vallejo – SF	35	60	10	10	\$5.35	\$9.50	
Harbor Bay – SF	60	25	10	10	\$2.76	\$4.90	
Oakland – SF	65	30 (25)	10	N/A	\$2.87	\$5.10	
SF – Oakland	65	35 (30)	10	N/A	\$2.87	\$5.10	
SF – Alameda	65	45 (20)	10	N/A	\$2.87	\$5.10	
Alameda – SF	65	20 (35)	10	N/A	\$2.87	\$5.10	
Oakland – Pier 41	N/A	N/A	10	10	\$2.87	\$5.10	
Pier 41 – Oakland	N/A	N/A	10	10	\$2.87	\$5.10	
Alameda – Pier 41	N/A	N/A	10	10	\$2.87	\$5.10	
Pier 41 – Alameda	N/A	N/A	10	10	\$2.87	\$5.10	
Oakland – Alameda	65	10	10	10	\$0.63	\$1.12	
Midday (9:00 a.m3:3	30 p.m.)						
Larkspur – SF	52	60	10	15	\$2.93	\$5.20	
Sausalito – SF	105	30	15	15	\$2.93	\$5.20	
Tiburon – SF	N/A	20	15	10	\$4.37	\$7.75	
Vallejo – SF	105	35	10	10	\$5.35	\$9.50	
Harbor Bay – SF	N/A	N/A	N/A	N/A	\$2.76	\$4.90	
Oakland – SF	105	30	10	N/A	\$2.87	\$5.10	
SF – Oakland	105	30	10	N/A	\$2.87	\$5.10	
SF – Alameda	105	20	10	N/A	\$2.87	\$5.10	
Alameda – SF	105	40	10	N/A	\$2.87	\$5.10	
Oakland – Pier 41	105	45	10	10	\$2.87	\$5.10	
Pier 41 – Oakland	105	45	10	10	\$2.87	\$5.10	
Alameda – Pier 41	105	35	10	10	\$2.87	\$5.10	
Pier 41 – Alameda	105	35	10	10	\$2.87	\$5.10	
Oakland – Alameda	105	10	10	10	\$0.63	\$1.12	

Table 4.2	Updated Yea	r 2010 Ferry Service	Assumptions by Route
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\*PM Peak crossing time in parentheses if different from AM peak.

Current transit fares were provided in year 2010 dollars. The original WETA model used 1989 dollars because the last MTC model used was based on the 1990 Household Travel Survey, which asked how much money a household made the *previous* year. Therefore, the current transit fare was converted from the year 2010 to year 1989 dollar values using a conversion factor derived from the Bay Area price index (Table 4.3). No terminal parking fees currently exist or are assumed in the updated WETA model; however, the original WETA model did assume parking fees.

Table 4.3 Fare Conversion Factor

Year 1989 Price Index	126.4
Year 2010 Price Index	224.4
Conversion Factor	0.563

Source: http://www.abag.ca.gov/planning/research/cpi.html.

The calibration and validation process also involved adjusting walk and drive access assumptions at each ferry terminal by time period to better match the modeling results with the observed ferry ridership. Calibration efforts included change of PNR time penalty by route to increase or decrease ridership, change walk access distance for access link generation, and reduce maximum walk time by mode for each route to increase or decrease travel time, which is why the access time assumption for each ferry terminal may be different (Table 4.4).

	0	Original WETA Model				Updated WETA Model			
	Peak	Time	Off-Peak Time		Peak Time		Off-Peak Time		
Ferry Terminal	Walk	Drive	Walk	Drive	Walk	Drive	Walk	Drive	
Vallejo	30	30	20	30	10	30	12	30	
Oakland*	10	30	10	30	10	30	10	30	
Alameda*	10	30	10	30	10	30	10	30	
Harbor Bay*	10	30	10	30	10	30	10	30	
Sausalito	30	30	20	30	30	30	12	30	
Tiburon	30	30	20	30	40	30	12	30	
Larkspur	30	30	20	30	30	30	12	30	

Table 4.4Access Time Assumptions by Ferry Terminals (in minutes)

## 4.3 BASE YEAR (2010) MODEL VALIDATION

The updated WETA model was calibrated to year 2010 data from Projections 2009. Table 4.5 summarizes the ferry ridership validation results by ferry routes. The systemwide ridership forecast for year 2010 is within an error margin of six percent. The differences between observed and estimated ferry ridership vary by route, with the highest error margin being six percent for the Vallejo route and the lowest error margin being one percent for the Larkspur route.

Ferry Route	2010 Observed Ridership	2010 Estimated Ridership	Difference	Percent Difference
Vallejo	1,624	1,726	102	6%
Alameda/Oakland	1,187	1,217	30	3%
Harbor Bay	579	593	14	2%
Sausalito	1,565	1,505	-60	-4%
Tiburon	340	358	18	5%
Larkspur	3,285	3,243	-42	-1%
Total	8,581	8,642	61	1%

Table 4.5Base Year (2010) Model Validation Results by Ferry Routes

The next validation test was to compare observed and estimated person trips by mode across a major screenline; in this case, trips across the Bay Bridge. This screenline validation can help to ensure reliable estimates of competing modes in a significant ferry corridor. Table 4.6 shows the modeled and observed results for Transbay trips by BART, AC Transit, and auto. The overall difference with observed data is 10 percent. The percentage error for the updated WETA model is significantly lower than previously reported MTC modeling results. These results are considered acceptable for the purposes of this study.

#### Table 4.6 Base Year (2010) Transbay Screenline Validation

Transbay Screenline	2005 Observed Trips	2010 Estimated Trips	Difference	Percent Difference
BART	170,000	195,200	25,200	15%
AC Transit	11,000	11,600	600	5%
Auto	270,000	287,800	17,800	7%
Total	451,000	494,500	43,500	10%

# 5.0 Future Year Model Runs

## 5.1 YEAR 2015 AND 2035 FORECASTING ASSUMPTIONS

The updated WETA Model was used to generate ridership forecasts for future years 2015 and 2035 based on various project alternatives. Each alternative included existing routes connecting San Francisco with Vallejo, Oakland, Alameda, Harbor Bay, Tiburon, Larkspur and Sausalito, as well as a number of new routes<sup>1</sup>. For 2015, the project alternatives tested new ferry routes connecting Richmond or Berkeley to San Francisco. For 2035, the alternatives tested a wider range of new routes using both ABAG Projections 2009 and Projections 2011 socioeconomic forecasts (see Section 2.0 and Appendix A for details on socioeconomic forecasts).

The two project alternatives tested for year 2015 are nearly identical, except that one alternative includes a new Berkeley route and the other includes a new Richmond route. These alternatives were conceived because it is anticipated that the market sheds (i.e., the cities and neighborhoods that riders live in) for these routes have potential overlap. Each 2015 alternative also includes a new Treasure Island to Downtown San Francisco route. The Richmond, Berkeley, and Treasure Island routes are included in the 2015 alternatives as these expansion routes are the most likely to be implemented by WETA in the near term future.

The three project alternatives tested for year 2035 are based on two service concepts - the Constrained Service Scenario and Expanded Service Scenario. Two alternatives were developed based on the Constrained Service Scenario - one using ABAG Projections 2009 socioeconomic forecasts and the other using ABAG Projections 2011 data. A single alternative was developed based on the Expanded Service Scenario using ABAG Projections 2009 forecasts. In addition to the new routes included in the 2015 alternatives (Treasure Island, Berkeley, and Richmond), each 2035 project alternative includes additional new routes connecting San Francisco to Hercules, Martinez, Antioch and Redwood City, as proposed in the WETA Implementation and Operations Plan (IOP).

Table 5.1 shows the service headway assumptions for routes included in each alternative. Headways are generally unchanged between 2010 (existing conditions), 2015 and the 2035 Constrained Service Scenario alternatives. For the 2035 Expanded Service Scenario, shorter service headways were assumed to test the future year ridership impact of potentially offering more frequent service on

<sup>&</sup>lt;sup>1</sup> Note: The new service connecting South San Francisco with Oakland and Alameda was not in operation when these ridership forecasts were completed; however, the new South San Francisco service is included as an existing service in all future year forecasts.

existing and future expansion routes. The headways assumed for the 2035 Expanded Service Scenario are generally consistent with headways assumed during the original ferry ridership modeling work that supported development of the IOP.

	Peak-Period Headways (Minutes)			Off-Peak Period Headways (Minutes)			
Route	2010 & 2015	2035 Constrained	2035 Expanded	2015	2035 Constrained	2035 Expanded	
Vallejo – SF	35	35	30	105	105	60	
Oakland – SF	65	65	15	105	105	30	
Alameda – SF	65	65	15	105	105	30	
Harbor Bay – SF	60	60	30	N/A	N/A	60	
Sausalito – SF	70	70	30	105	105	60	
Tiburon – SF	65	65	30	N/A	N/A	60	
Larkspur – SF	35	35	20	52	52	52	
Oakland – South SF	45	45	30	N/A	N/A	60	
Alameda – South SF	45	45	30	N/A	N/A	60	
Treasure Island – SF	50	15	10	60	30	20	
Richmond – SF	45	45	30	N/A	N/A	60	
Berkeley – SF	40	40	30	N/A	N/A	60	
Antioch – SF		125	60		N/A	240	
Martinez – SF		75	60		N/A	240	
Hercules – SF		60	60		N/A	240	
Redwood City – SF		75	60		N/A	240	
Redwood City – Oak			60			240	

#### Table 5.1 Year 2015 and 2035 Weekday Headways by Route and Time Period

N/A indicates that off-peak services are not provided.

Notes: Year 2010 includes existing services only; 2015 also includes South San Francisco, Treasure Island, and Berkeley or Richmond.

Additional service assumptions are shown in Table 5.2, including peak-period run times, fares and vessel speeds. These assumptions are held constant across all alternatives, and apply only to those alternatives for which a specific route is included. Fares are assumed to grow with the rate of inflation, so the real cost of riding the ferry will remain constant over time.

Parking demand assumes unconstrained access for all alternatives. That is, there is no set assumption regarding parking facility size or crowding at individual

parking facilities. This assumption was made so the maximum potential travel demand to each ferry terminal would be obtained. Appendix B contains additional tables documenting service assumptions for each future year alternative.

Route	Peak-Period Run Times (Minutes)	Fares (in 2009 Dollars)	Vessel Speeds (Knots)
Vallejo – SF	60	\$9.50	35
Oakland – SF	30	\$5.10	25
Alameda – SF	20	\$5.10	25
Harbor Bay – SF	25	\$4.90	25
Sausalito – SF	30	\$5.20	16
Tiburon – SF	20	\$7.75	25
Larkspur – SF	35	\$5.20	35
Oakland – South SF	39	\$5.10	25
Alameda – South SF	29	\$5.10	25
Treasure Island – SF	15	\$1.50	15
Richmond – SF	36	\$5.10	25
Berkeley – SF	25	\$5.10	25
Antioch – SF	125	\$12.00	35
Martinez – SF	57	\$9.50	35
Hercules – SF	47	\$6.38	35
Redwood City – SF	68	\$9.50	35
Redwood City – Oakland	58	\$9.50	35

Table 5.2Year 2015 and 2035 Ferry Run Times, Fares, and Speeds

## 5.2 FUTURE YEAR TRANSBAY TRAVEL COMPARED TO 2010 BASE YEAR

Ridership on existing ferry routes is forecasted to increase by 23 percent from 2010 to 2015, and 47 percent from 2010 to 2035. Table 5.3 shows comparisons of forecasted ferry ridership growth by route.

Ferry ridership growth patterns vary by route. Vallejo has the lowest growth rate (7 percent from 2010 to 2015, and 31 percent from 2010 to 2035). Alameda/ Oakland has the highest growth rate, with ridership projected to double between from 2010 to 2035. Harbor Bay is also forecast to experience a similarly high ridership growth rate, a 91 percent increase from 2010 to 2035.

The three North Bay routes (Sausalito, Tiburon, and Larkspur) are projected to have significant growth from 2010 to 2015 (18 percent for Sausalito, 60 percent for Tiburon, and 39 percent for Larkspur). However, ridership growth for each of the North Bay routes is projected to slow significantly after 2015. Forecasts indicate that Sausalito ridership will increase only 1 percent from 2015 to 2035, while Tiburon and Larkspur are similarly forecasted to have little growth after 2015 (8 percent for Tiburon and 7 percent for Larkspur).

		Future Year 2015			Future Year 2035			
Ferry Route	Base Year 2010 Ridership	Ridership Estimate	Growth 2010- 2015	Percent Growth	Ridership	Growth 2010- 2035	Percent Growth	
Vallejo	1,726	1,841	115	7%	2,254	528	31%	
Alameda/Oakland	1,217	1,463	246	20%	2,454	1,237	102%	
Harbor Bay	593	763	170	29%	1,133	540	91%	
Sausalito	1,505	1,766	261	17%	1,778	273	18%	
Tiburon	358	546	188	52%	572	214	60%	
Larkspur	3,243	4,283	1,040	32%	4,499	1,256	39%	
Total	8,642	10,661	2,019	23%	12,690	4,048	47%	

#### Table 5.3 Ridership Forecasts of Current Ferry Routes<sup>1</sup>

<sup>1</sup> Summaries here exclude the South San Francisco to Oakland/Alameda Route which was not operating when these forecasts were prepared.

Note: Year 2035 scenario shows the Constrained Forecast using ABAG Projections 2009 data.

Ridership forecasts results are generally consistent with the projected travel pattern changes for the North Bay to San Francisco travel market. According to the person-trip tables from MTC, there will be very limited growth from 2010 to 2015 (1 percent) for daily home-based work trips from North Bay to San Francisco. Over the 25 years between 2010 and 2035, home-based work, shopping, and social-recreational trips are actually projected to decrease by 2 percent (see Table 5.4) for North Bay to San Francisco trips. By contrast, the travel market from East Bay to San Francisco is projected to grow by 9 percent from 2010 to 2015, and by 70 percent between 2010 and 2035.

	Paco Voar	Fu	iture Year 20 <sup>°</sup>	15	Future Year 2035		
Market	2010 Person Trips	Person Trips	Growth 2010-2015	Percent Growth	Person Trips	Growth 2010-2035	Percent Growth
East Bay to SF	277,700	302,300	24,700	9%	472,400	167,000	70%
North Bay to SF	74,800	75,500	700	1%	73,500	(2,000)	-2%

#### Table 5.4 Daily Person Trips for Forecasting Years

Notes: Person trips including home-based work, home-based shopping, home-based social-recreational purposes.

Table 5.5 summarizes the Transbay screenline travel estimates for auto, BART, and AC Transit. The auto mode is divided by vehicle type (auto and truck) and by auto occupancy. The transit operators are summarized by access modes (walk and drive).

	Rase Vear	Fu	uture Year 2015		Fu	iture Year 203	35
Transbay Screenline	2010 Ridership	Ridership	Growth 2010-2015	Percent Growth	Ridership	Growth 2010-2035	Percent Growth
Drive Alone	240,300	246,300	5,900	2%	294,100	53,700	22%
Shared Drive 2+	33,800	32,800	-1,00	-3%	38,200	4,400	13%
Truck	13,700	14,900	1,200	9%	15,700	2,000	15%
Total Drive	287,800	293,900	6,100	2%	348,000	60,200	21%
Walk to BART	119,800	133,300	13,500	11%	204,900	85,100	71%
Drive to BART	75,400	81,900	6,500	9%	128,400	53,000	70%
Total BART	195,200	215,100	20,000	10%	333,300	138,100	71%
Walk to AC	11,300	13,700	2,500	22%	15,000	3,700	33%
Drive to AC	300	200	-100	-36%	200	-100	-46%
Total AC	11,600	13,900	2,400	21%	15,100	3,600	31%
Total	206,700	229,100	22,400	11%	348,400	141,700	69%

#### Table 5.5 Future Year Transbay Screenline Estimates

Overall, total Transbay trips are forecast to increase by 11 percent from 2010 to 2015, and 69 percent from 2010 to 2035. Drive alone is forecast to increase 22 percent by year 2035, while carpooling is forecasted to increase by 13 percent.

BART has the highest growth rate (71 percent) in estimated Transbay trips through 2035. Walk and drive access to BART are projected to grow by nearly identical rates.

Drive access to AC Transit is the only category that is forecasted to decline from 2010 to 2035; however, drive access to AC Transit is not considered a significant

mode of travel, as most Transbay AC Transit riders walk to their bus stop. Walk access trips to AC Transit are forecasted to increase by 31 percent.

Ferry riders, on the other hand, are more likely drive to the terminal as the access mode. The ferry ridership forecasts do show more walk and transit access in the future; however, drive access is the primary mode of ferry access for all future year forecasts.

Table 5.6 shows the breakdown of average weekday daily trips by purpose for auto drivers over the Bay Bridge. Home-based (HB) work trips will continue to grow and be the leading purpose for Transbay travel, while other HB trips (social-recreational and shopping) are forecast to decrease in future years. Generally speaking, home-based work trips are more likely to be on transit than other trip purposes as these trips more typically occur during congested times of the day. Ferry ridership during weekdays is heavily oriented towards HB work trips.

	Paso Voar	Future Year 2015			Future Year 2035		
Mode	2010 Vehicles	Vehicles	Growth 2010-2015	Percent Growth	Vehicles	Growth 2010-2035	Percent Growth
HB Work	150,000	157,100	6,000	4%	201,100	50,000	33%
HB Shopping	15,300	14,900	-400	-3%	12,400	-3,000	-19%
HB Social & Recreational	28,600	28,100	-500	-2%	27,600	-1,100	-4%
HB School	4,600	3,900	-700	-15%	3,900	-700	-14%
Non-home based	57,700	57,600	-100	0%	67,300	9,600	17%
Truck	13,700	14,900	1,200	9%	15,700	2,000	15%
External Trips	16,700	17,400	700	4%	19,900	3,200	19%
Total	287,800	293,900	6,100	2%	348,000	60,100	21%

 Table 5.6
 Bay Bridge Daily Driving Traffic Volume by Purpose

#### 5.3 FUTURE YEAR FERRY RIDERSHIP FORECASTS

Ridership is summarized in a variety ways across each of the forecasts generated for the five future year project alternatives. Table 5.7 summarizes average weekday daily riders, and also includes the 2010 ridership forecasts for reference.

Annual ferry ridership shown in Table 5.8 is calculated by summing all weekday and weekend riders over the course of a total year. While the WETA Model does not directly forecast weekend travel, by using observed ridership patterns, ratios of weekday to weekend riders are calculated, thus allowing weekend ridership to be projected and an estimate of total annual ridership to be made. It has been assumed that the ratio of weekday to weekend ridership remains constant over time.

Of the proposed new expansion routes, only Treasure Island to San Francisco is assumed to operate during weekends. For Treasure Island, an assumption was made that during a typical weekend day 1 percent of weekday home-based work trips and 40 percent of weekday nonwork trips would occur on the weekends. Examined over each of the five future year alternatives, Treasure Island average weekend ridership totals about 28 percent to 30 percent of weekday ridership.

For the 2015 forecasts, the Berkeley and Richmond services generate nearly equal numbers of daily riders. Ridership totals for these two routes are similar to that forecasted for the existing Harbor Bay to San Francisco service. The Richmond and Berkeley routes each also show significant ridership growth potential based on forecasts generated for the three year 2035 project alternatives.

	Weekday Boardings							
Ferry Route	2015 Year 2010 Richmond		2035 Constrained 2015 Projections Berkeley 2009		2035 Constrained Projections 2011	2035 Expande d Services		
Vallejo – SF	1,726	1,840	1,841	2,254	1,429	2,289		
Oakland – SF	785	943	946	1,438	1,213	3,145		
Alameda – SF	432	519	518	1,016	542	1,741		
Harbor Bay – SF	593	763	762	1,133	797	1,815		
Sausalito – SF	1,505	1,765	1,767	1,778	1,031	1,799		
Tiburon – SF	358	548	543	572	342	836		
Larkspur – SF	3,243	4,283	4,283	4,499	2,598	4,634		
Oakland – South SF		372	362	369	362	594		
Alameda – So SF		60	61	77	58	143		
Treasure Isl – SF		170	169	2,215	2,215	2,475		
Richmond – SF		793		1,083	863	1,715		
Berkeley – SF			782	1,113	833	1,589		
Antioch – SF				375	268	445		
Martinez – SF				480	379	614		
Hercules – SF				416	335	565		
Redwood City – SF				166	97	214		
Redwood City – Oak						42		
Existing Routes	8,642	10,661	10,660	12,690	7,952	16,259		
All Routes	8,642	12,057	12,034	18,984	13,363	24,654		

#### Table 5.7 Total Weekday Daily Ferry Ridership by Route

#### South San Francisco

The South San Francisco route began operations in June 2011 providing service between the Oyster Point Ferry Terminal in South San Francisco and terminals located in Oakland at Jack London Square and in Alameda. The peak direction of travel during the AM peak period occurs from Oakland and Alameda to South San Francisco, representing the likely travel pattern of employees commuting from the East Bay to employment destinations at Oyster Point.

As shown in both 2015 and 2035 future year forecasts, the majority of trips for the South San Francisco route originate from the Oakland terminal via drive access modes. This result is due to the likelihood that the Oakland terminal can draw riders from a much larger population base than Alameda, as most potential riders in the East Bay would find it more convenient to travel to Jack London Square than to Alameda.

Future year forecasts for the South San Francisco service show limited ridership growth potential between 2015 and 2035, which may be the result of limited future year growth in overall travel demand projected between the East Bay and Oyster Point.

#### Berkeley and Richmond

The Berkeley and Richmond routes would provide service to San Francisco. The peak direction of travel during the AM peak period occurs from Berkeley or Richmond to San Francisco, representing the likely travel pattern of employees commuting from the East Bay to employment destinations in San Francisco.

For the 2015 and 2035 ridership forecasts, the Berkeley and Richmond services show similar numbers of total daily riders, which are on scale with those forecasted for the Harbor Bay to San Francisco route currently operated by WETA. In terms of access mode, the forecasts indicate that Berkeley riders are comparatively more likely to use transit access modes than riders for most existing and future WETA services. Similarly, Richmond riders are comparatively more likely to use walk access modes.

Future year forecasts for both the Richmond and Berkeley routes show significant ridership growth potential between 2015 and 2035. Ridership growth is strong from Berkeley and Richmond to San Francisco due to forecasted growth in overall travel demand the Bay Bridge. While BART and AC Transit will continue to be popular options, ferry ridership growth is forecasted to be strong.

#### Treasure Island

The Treasure Island route would provide service to Downtown San Francisco, with the peak direction of travel during the AM peak period occurring from Treasure Island to employment destinations in San Francisco.

For year 2015, very little ridership is forecasted for the Treasure Island route, likely due to the timeframe for construction of the planned Treasure Island
Development Project. This project, which will ultimately include construction of up to 8,000 new residential units, is not scheduled to commence until after 2015.

From year 2015 to year 2035, a greater than ten-fold increase in ridership is forecasted for the Treasure Island route. Unlike other existing and future expansion routes proposed by WETA, future year ridership forecasts for the Treasure Island route show comparatively high proportions of off-peak and nonwork trips. In terms of mode of access, forecasts for the Treasure Island route indicate that riders are likely to access the Treasure Island terminal exclusively by walk mode.

The significant growth of Treasure Island forecasted ridership from 2015 to 2035 is the likely result of new housing and other land-uses being constructed as part of the Treasure Island Development Project. Ferries are expected to be an attractive travel mode option for future commuters traveling between Treasure Island and Downtown San Francisco. Ferry service is a relatively direct – and inexpensive travel option to the greater downtown San Francisco area compared to the costs associated with driving, especially parking. Additionally, given congestion on the Bay Bridge, ferries can provide a significant alternative to driving or other transit options, such as Muni bus service.

#### Antioch

The Antioch route would provide service to San Francisco with the peak direction of travel during the AM peak period occurring from Antioch to employment destinations in San Francisco.

For year 2035, ridership forecasts generate for both the Constrained Service and Expanded Service Scenarios show comparatively low ridership potential for this route ranging from 268 to 445 average weekday trips relative to existing and future WETA services. The majority of Antioch riders are forecasted to access the terminal by drive mode. Future year forecasts show especially few offpeak or non-work trips forecasted for the Antioch service.

The limited future year ridership forecasted for this route is likely due to several unfavorable service characteristics. First, the travel time for a one-way ferry trip is about two hours, which compares poorly with alternative drive modes and future rail service to San Francisco which will be implemented as part of the eBART project. Second, relatively few Antioch-area residents work in San Francisco (Antioch residents are far more likely to work in the East Bay). Antioch and East Contra Costa residents are far more likely to work at job centers in Central Costa County and Eastern Alameda County than to San Francisco.

#### Martinez and Hercules

The Martinez and Hercules routes would provide service to San Francisco with the peak direction of travel during the AM peak period occurring from Martinez or Hercules to San Francisco.

For 2035, future year ridership forecasts for the Martinez and Hercules routes show comparatively more riders than Antioch, although comparatively fewer riders than existing or most other future WETA services. In terms of access mode, the overwhelming majority of riders for the Martinez route are projected to access the Martinez terminal by drive mode, while forecasts for the Hercules route indicate relatively more riders accessing the Hercules terminal by walk or transit modes, likely due to the future development of the Hercules Intermodal Transit Center.

The future year ridership potential of the Martinez and Hercules routes are each limited in a similar fashion by the availability of competitive alternative transit modes. While travel times are somewhat comparable to BART service available to each travel market, the proposed ferry routes run relatively infrequently compared to BART and are comparatively more expensive. While forecasted ridership does increase for year 2035 under the Expanded Service Scenario, which assumed shorter headways, ridership growth potential is still likely limited by the competitive disadvantage of the proposed ferry service in relation to alternative rail modes.

#### Redwood City

Two routes were considered for future ferry service at Redwood City, a Redwood City route to San Francisco and a Redwood City route to Oakland. For both routes, the peak direction of travel during the AM peak period occurs from Redwood City to San Francisco or Oakland, representing the likely travel pattern of employees commuting from Redwood City to employment destinations in San Francisco and Oakland.

The Redwood City to San Francisco route is forecasted to generate few riders. Ridership potential is limited by robust competitive rail services to Downtown San Francisco, combined with relatively infrequent ferry runs, and with the location of the Redwood City Terminal. The terminal location is on the far east side of U.S. 101, while most residents live west of U.S. 101.

The Redwood City to Oakland route is forecasted to generate very few riders. As proposed, this route does not easily link strong travel markets, and any travelers going to Redwood City jobs or activities would be forced to transfer to local transit routes. Also, given the proximity of major jobs centers in Silicon Valley and San Francisco, relatively few southern Peninsula residents have jobs in the Oakland area.

Appendix C provides additional documentation of route-level ridership data. This appendix includes route-level ridership broken down by:

- Total ridership (weekday, weekend, and annual);
- Mode of access and egress;
- Time of day;
- Trip purpose; and
- Direction of travel.

Appendix D presents terminal-level ridership forecasts. As opposed to the route-level forecasts, which represent the number of passengers riding on a particular route, the terminal-level forecasts measure the number of passengers who travel through a particular terminal. For terminals with one route, the terminal ridership forecasts will equal the route forecasts. However, for terminals with multiple routes (such as San Francisco), the terminal forecasts equal the ridership sum of all the routes serving that terminal. Terminal-level ridership is broken down by mode of access and egress, as well as parking demand.

	Weekday Boardings									
Ferry Route	2015 Richmond	2035 Constrain 5 2015 Projectio ond Berkeley 2009		2035 Constrained Projections 2011	2035 Expanded Services					
Vallejo – SF	662,100	662,500	797,000	505,300	809,400					
Oakland – SF	395,200	396,500	721,600	608,700	1,578,200					
Alameda – SF	163,500	163,200	245,700	131,100	421,000					
Harbor Bay – SF	198,400	198,100	117,800	82,900	188,800					
Sausalito – SF	741,600	742,400	896,800	520,000	907,400					
Tiburon – SF	142,500	141,200	59,500	35,600	86,900					
Larkspur – SF	1,258,800	1,258,800	849,200	490,400	874,700					
Oakland – South SF	96,800	94,100	38,300	37,700	61,800					
Alameda – South SF	15,600	15,800	8,000	6,100	14,800					
Treasure Island – SF	49,700	49,400	394,500	394,500	445,100					
Richmond – SF	206,200		112,600	89,800	178,400					
Berkeley – SF		203,300	115,800	86,600	165,300					
Antioch – SF			39,000	27,900	46,300					
Martinez – SF			49,900	39,400	63,900					
Hercules – SF			43,300	34,800	58,800					
Redwood City – SF			17,300	10,100	22,300					
Redwood City – Oakland					4,300					
Existing Routes	3,562,100	3,562,700	3,687,600	2,374,000	4,866,400					
All Routes	3,930,400	3,925,300	4,506,300	3,100,900	5,927,400					

#### Table 5.8Annual Ferry Ridership by Route

## 6.0 Comparison to Older Forecasts

The new outputs from the updated model were compared to the old results from the original WETA model. The comparison reveals some striking differences, as shown in Table 6.1 below. Overall, total ridership forecasted for the new 2010 base year from the updated model decreases by 27 percent compared to ridership forecasts for the old 1998 base year from the original model. The lower base year ridership forecast is mainly the result of calibration efforts using actual ridership statistics as part of the model update process. Total observed ferry ridership was 11,650 for the original 1998 model validation, but only 8,581 for the recent update of the 2010 model – a 26 percent decrease.

## Table 6.1Comparison of Original and Updated No-Project Ridership<br/>Forecasts

Ferry Route	New Base 2010	Old Base 1998 <sup>1</sup>	Percent Difference 2010-1998	New 2015	New 2035	Old NP 2025 <sup>2</sup>	Percent Difference 2015-2025	Percent Difference 2035-2025
Vallejo	1,726	1,990	-13%	1,841	2,254	5,933	-69%	-62%
Alameda/Oakland	1,217	1,439	-15%	1,463	2,454	2,472	-41%	-1%
Harbor Bay	593	362	64%	763	1,133	586	30%	93%
Sausalito	1,505	2,773	-46%	1,766	1,778	4,271	-59%	-58%
Tiburon	358	1,102	-68%	546	572	2,287	-76%	-75%
Larkspur	3,243	4,243	-24%	4,283	4,499	7,689	-44%	-41%
Total	8,642	11,909	-1%	10,661	12,690	23,238	-54%	-45%

Sources:

<sup>1</sup> Table 10, Ferry Ridership by Route and Time Period, *Final Working Paper: Ridership Model Calibration and Validation*, Cambridge Systematics, Inc., May 15, 2002.

<sup>2</sup> Table 5, 2025 Ridership for Alternative 1 – Comprehensive Service, *Final Working Paper: Ridership Model Forecast*, Cambridge Systematics, Inc., July 25, 2002.

Notes:

Year 2015 includes only existing routes.

Year 2035 forecast includes ridership forecasts for existing routes only under the Constrained Alternative with ABAG Projections 2009 data.

The new no-project ridership forecasts for years 2015 and 2035 are 54 percent and 46 percent lower, respectively, when compared to the no-project forecast for year 2025 from the original model. In the East Bay, updated ridership forecasts are lower for Vallejo. Ridership forecasts are virtually unchanged for Alameda/ Oakland, while Harbor Bay shows additional new growth in ridership. The updated forecasts show significantly less ridership for all three North Bay

terminals (Sausalito, Tiburon, and Larkspur). The following are a few probable reasons to explain the decrease in forecasted ridership:

- Most importantly, as the updated model was calibrated to lower ferry ridership count data, the model will produce lower ridership forecasts if all other inputs are the same.
- Model assumptions are different, as noted in Section 4.2 of the report. In general, headways are the most significant variable in terms of understanding ridership changes. Headways affect wait times that typically have a much higher weighting in the ridership calculations than do run times and fares. The overall assumptions for headways, based on existing operating conditions, are generally more conservative for the updated no-project forecasts.
- Total person travel also plays a key role in determining ferry ridership. Travel pattern projections have changed in the MTC BAYCAST model. Table 6.2 shows the difference in person trips for the major market areas from East Bay to San Francisco and from North Bay to San Francisco. The 2010 and 2035 trip rates come from the latest BAYCAST model used in the model update, while the 1998 and 2025 trip tables are from the BAYCAST 2000 model that was used in the original WETA model. As shown in Table 6.2, person-trip volumes are comparatively lower than previously projected for the market from North Bay to San Francisco. As a result, the North Bay routes show greater ridership losses than the East Bay routes under the updated WETA model.
- Lastly, current economic conditions likely account a significant share of the travel volume change and decrease in ferry ridership forecasts.

Ferry Route	New Base 2010	Old Base 1998	Percent Difference 2010-1998	New NP 2035	Old NP 2025	Percent Difference 2035-2025
East Bay to SF	277,703	267,724	4%	472,358	388,560	22%
North Bay to SF	74,754	77,907	-4%	73,466	94,817	-23%

#### Table 6.2 Comparison between Old and New Total Person Trip Tables

Note: Person trips including home-based work, home-based shopping, home-based social-recreational purposes.

# A. ABAG Projection Data Comparison

Tables A.1 to A.9 present the Projections 2009 and Projections 2011 Comparison by Population, Households and Employment.

		Year 2010			Year 2015				
County	Projections 2009	Projections 2011	Percent Difference	Projections 2009	Projections 2011	Percent Difference	Projections 2009	Projections 2011	Percent Difference
San Francisco	810,007	809,969	0%	837,486	837,885	0%	968,995	971,192	0%
San Mateo	733,285	733,097	0%	766,891	766,597	0%	892,995	893,077	0%
Santa Clara	1,821,988	1,821,972	0%	1,945,313	1,945,544	0%	2,431,397	2,433,531	0%
Alameda	1,549,803	1,549,789	0%	1,626,120	1,623,061	0%	1,966,289	1,958,271	0%
Contra Costa	1,090,292	1,090,299	0%	1,130,698	1,130,657	0%	1,322,908	1,323,405	0%
Solano	443,097	443,087	0%	458,003	458,099	0%	506,499	504,330	0%
Napa	138,801	138,796	0%	142,304	142,197	0%	148,797	148,521	0%
Sonoma	497,889	497,938	0%	509,904	509,937	0%	561,492	561,239	0%
Marin	256,495	255,639	0%	260,296	259,088	0%	274,301	272,673	-1%
Total	7,341,657	7,340,586	0%	7,677,015	7,673,065	0%	9,073,673	9,066,239	0%

 Table A.1
 Projections 2009 and Projections 2011 Comparison by Population

		Year 2010			Year 2015		Year 2035		
County	Projections 2009	Projections 2011	Percent Difference	Projections 2009	Projections 2011	Percent Difference	Projections 2009	Projections 2011	Percent Difference
San Francisco	346,687	346,691	0%	359,180	359,788	0%	415,013	417,997	1%
San Mateo	264,404	264,516	0%	275,709	275,814	0%	322,728	322,833	0%
Santa Clara	613,970	614,010	0%	653,805	653,850	0%	827,191	827,346	0%
Alameda	557,257	557,684	0%	585,405	585,171	0%	707,970	705,361	0%
Contra Costa	392,697	392,677	0%	407,242	407,262	0%	480,495	480,493	0%
Solano	148,165	148,166	0%	152,740	152,724	0%	171,296	171,281	0%
Napa	51,242	51,262	0%	52,167	52,176	0%	54,624	54,640	0%
Sonoma	188,335	188,331	0%	192,594	192,583	0%	211,287	211,282	0%
Marin	104,615	104,595	0%	105,937	105,861	0%	112,229	112,104	0%
Total	2,667,372	2,667,932	0%	2,784,779	2,785,229	0%	3,302,833	3,303,337	0%

#### Table A.2Projections 2009 and Projections 2011 Comparison by Number of Households

		Year 2010			Year 2015		Year 2035		
County	Projections 2009	Projections 2011	Percent Difference	Projections 2009	Projections 2011	Percent Difference	Projections 2009	Projections 2011	Percent Difference
San Francisco	568,706	544,752	-4%	606,564	569,741	-6%	806,831	698,793	-13%
San Mateo	346,319	330,125	-5%	373,371	349,793	-6%	505,848	442,850	-12%
Santa Clara	906,247	858,392	-5%	981,216	922,280	-6%	1,412,632	1,212,952	-14%
Alameda	712,834	675,572	-5%	761,251	715,720	-6%	1,039,701	906,293	-13%
Contra Costa	376,799	345,917	-8%	409,649	367,511	-10%	555,657	469,463	-16%
Solano	140,120	126,323	-10%	152,523	134,386	-12%	211,883	173,066	-18%
Napa	70,772	70,132	-1%	74,186	73,123	-1%	91,477	86,961	-5%
Sonoma	218,363	190,367	-13%	236,703	202,850	-14%	325,104	262,169	-19%
Marin	135,592	129,679	-4%	139,107	132,754	-5%	158,274	147,872	-7%
Total	3,475,752	3,271,259	-6%	3,734,570	3,468,158	-7%	5,107,407	4,400,419	-14%

## Table A.3Projections 2009 and Projections 2011 Comparison by Employment

	Year 2010			Year 2015			Year 2035		
Ferry Terminal	Projections 2009	Projections 2011	Percent Difference	Projections 2009	Projections 2011	Percent Difference	Projections 2009	Projections 2011	Percent Difference
Alameda	13,296	14,751	11%	17,192	17,156	0%	26,143	23,504	-10%
Alameda (Naval Station)	13,732	13,697	0%	13,936	13,839	-1%	14,548	14,383	-1%
Alviso	9,222	9,446	2%	9,528	10,595	11%	14,552	15,223	5%
Angel Island	5,700	5,655	-1%	5,789	5,840	1%	6,166	6,477	5%
Antioch	36,016	31,600	-12%	36,402	34,062	-6%	37,839	43,596	15%
AT&T Park	15,166	15,663	3%	17,882	19,586	10%	28,084	25,957	-8%
Berkeley	7,283	7,298	0%	7,525	7,463	-1%	7,946	8,096	2%
Ferry Building	60,124	58,636	-2%	67,141	67,383	0%	78,885	82,601	5%
Harbor Bay	14,045	14,094	0%	14,218	14,245	0%	14,948	14,827	-1%
Hercules	37,320	37,425	0%	39,938	39,847	0%	53,377	52,161	-2%
Jack London Square	42,734	48,136	13%	49,574	60,208	21%	74,801	93,719	25%
Larkspur	46,120	45,791	-1%	47,750	46,325	-3%	50,417	50,334	0%
Martinez	18,835	19,409	3%	19,358	19,649	2%	20,955	20,712	-1%
Mission Bay	14,713	13,343	-9%	20,844	17,065	-18%	31,104	25,080	-19%
Moffett Federal Airfield	41,162	40,754	-1%	43,925	43,670	-1%	55,554	55,115	-1%
Pier 41-Fisherman's Wharf	59,398	59,825	1%	59,673	60,376	1%	63,273	62,559	-1%
Pittsburg	32,104	31,109	-3%	33,524	32,455	-3%	43,057	37,638	-13%
Port Sonoma	15,027	14,682	-2%	15,291	14,828	-3%	16,414	15,087	-8%
Redwood City	9,094	8,897	-2%	10,802	9,921	-8%	15,364	13,504	-12%
Richmond	16,242	16,819	4%	17,014	17,514	3%	25,380	23,515	-7%
Sausalito	8,608	8,615	0%	8,711	8,716	0%	9,119	9,117	0%
South San Francisco	11,731	11,460	-2%	13,758	13,612	-1%	21,226	21,824	3%
Tiburon	2,123	2,100	-1%	2,214	2,201	-1%	2,214	2,200	-1%
Treasure Island	1,454	1,465	1%	1,453	1,480	2%	15,612	18,159	16%
Vallejo	32,140	29,827	-7%	34,319	30,371	-12%	42,093	32,971	-22%
Total	587,110	582,728	-1%	631,397	629,633	0%	788,881	785,473	0%

## Table A.4Population within 1.5-Mile Buffer around Ferry Terminals

	Year 2010				Year 2015		Year 2035		
Ferry Terminal	Projections 2009	Projections 2011	Percent Difference	Projections 2009	Projections 2011	Percent Difference	Projections 2009	Projections 2011	Percent Difference
Alameda	5,430	6,030	11%	7,185	7,226	1%	11,108	10,243	-8%
Alameda (Naval Station)	6,251	6,252	0%	6,317	6,316	0%	6,562	6,578	0%
Alviso	2,889	2,891	0%	2,988	3,268	9%	4,745	4,888	3%
Angel Island	2,523	2,545	1%	2,535	2,623	3%	2,625	2,936	12%
Antioch	12,443	10,986	-12%	12,610	11,868	-6%	13,330	15,490	16%
AT & T Park	6,772	7,343	8%	7,816	9,156	17%	12,499	11,800	-6%
Berkeley	2,914	2,915	0%	3,015	2,971	-1%	3,165	3,208	1%
Ferry Building	33,584	31,808	-5%	37,767	35,928	-5%	44,840	42,640	-5%
Harbor Bay Pkwy	5,301	5,302	0%	5,348	5,360	0%	5,574	5,593	0%
Hercules	12,917	12,823	-1%	13,913	13,680	-2%	18,944	18,217	-4%
Jack London Square	18,430	20,547	11%	21,435	25,602	19%	32,705	38,914	19%
Larkspur	16,000	16,043	0%	16,503	16,299	-1%	17,766	18,040	2%
Martinez	7,606	7,796	2%	7,781	7,910	2%	8,487	8,486	0%
Mission Bay	6,947	6,522	-6%	9,710	8,292	-15%	14,413	11,913	-17%
Moffet Federal Airfield	17,349	17,347	0%	18,436	18,588	1%	23,174	23,991	4%
Pier 41-Fisherman's Wharf	35,147	35,114	0%	35,319	35,379	0%	37,753	36,325	-4%
Pittsburg	9,736	9,434	-3%	10,243	9,831	-4%	13,176	11,563	-12%
Port Sonoma	5,628	5,510	-2%	5,707	5,561	-3%	6,131	5,663	-8%
Redwood City	2,435	2,559	5%	2,854	2,909	2%	4,733	4,324	-9%
Richmond	6,554	6,733	3%	6,900	7,052	2%	10,605	9,843	-7%
Sausalito	4,833	4,831	0%	4,854	4,851	0%	4,924	4,923	0%
South San Francisco	3,884	3,838	-1%	4,540	4,545	0%	7,431	7,520	1%
Tiburon	949	947	0%	959	958	0%	969	970	0%
Treasure Island	460	459	0%	460	459	0%	5,473	7,650	40%
Vallejo	11,952	11,172	-7%	12,684	11,301	-11%	15,641	12,481	-20%
Total	248,829	247,233	-1%	267,787	267,092	0%	335,345	331,984	-1%

## Table A.5Number of Households within 1.5-Mile Buffer around Ferry Terminals

	Year 2010				Year 2015		Year 2035		
Ferry Terminal	Projections 2009	Projections 2011	Percent Difference	Projections 2009	Projections 2011	Percent Difference	Projections 2009	Projections 2011	Percent Difference
Alameda	19,634	21,218	8%	21,073	23,068	9%	27,101	28,421	5%
Alameda (Naval Station)	2,227	2,181	-2%	2,322	2,272	-2%	3,600	3,523	-2%
Alviso	13,049	12,428	-5%	13,374	13,297	-1%	18,917	18,280	-3%
Angel Island	2,689	2,774	3%	2,885	2,809	-3%	3,675	2,927	-20%
Antioch	12,975	11,877	-8%	16,626	14,314	-14%	29,169	22,971	-21%
AT & T Park	123,038	109,560	-11%	136,865	114,373	-16%	179,305	138,204	-23%
Berkeley	16,859	15,527	-8%	17,152	15,679	-9%	18,262	16,291	-11%
Ferry Building	121,337	110,868	-9%	124,259	115,237	-7%	155,554	134,541	-14%
Harbor Bay Pkwy	9,626	6,526	-32%	10,392	6,989	-33%	12,206	8,081	-34%
Hercules	6,304	5,606	-11%	7,136	6,057	-15%	11,154	9,067	-19%
Jack London Square	67,042	73,040	9%	73,980	79,517	7%	103,028	97,707	-5%
Larkspur	32,056	28,231	-12%	33,103	29,242	-12%	37,726	33,867	-10%
Martinez	12,865	11,843	-8%	14,448	11,994	-17%	21,109	12,620	-40%
Mission Bay	28,127	20,648	-27%	32,464	23,408	-28%	47,681	35,831	-25%
Moffet Federal Airfield	43,737	41,562	-5%	44,278	42,079	-5%	55,163	49,809	-10%
Pier 41-Fisherman's Wharf	74,088	70,756	-4%	76,044	71,318	-6%	90,269	77,508	-14%
Pittsburg	7,342	6,412	-13%	9,003	7,467	-17%	16,064	11,181	-30%
Port Sonoma	11,507	10,728	-7%	11,905	10,926	-8%	14,647	11,734	-20%
Redwood City	16,171	15,048	-7%	18,146	16,289	-10%	22,733	17,693	-22%
Richmond	16,450	15,126	-8%	18,217	16,749	-8%	24,871	22,342	-10%
Sausalito	8,083	7,675	-5%	8,270	7,864	-5%	9,310	8,820	-5%
South San Francisco	46,059	41,162	-11%	49,502	44,122	-11%	66,133	58,202	-12%
Tiburon	1,070	776	-27%	1,081	792	-27%	1,103	819	-26%
Treasure Island	872	657	-25%	903	701	-22%	2,551	4,737	86%
Vallejo	10,351	9,144	-12%	11,702	9,694	-17%	16,466	11,852	-28%
Total	720,371	666,940	-7%	772,946	702,027	-9%	1,005,527	851,921	-15%

## Table A.6Employment within 1.5-Mile Buffer around Ferry Terminals

	Year 2010				Year 2015		Year 2035		
Ferry Terminal	Projections 2009	Projections 2011	Percent Difference	Projections 2009	Projections 2011	Percent Difference	Projections 2009	Projections 2011	Percent Difference
Alameda	3,685	3,742	2%	4,366	4,296	-2%	6,101	6,326	4%
Alameda (Naval Station)	10,740	10,789	0%	11,004	11,011	0%	11,866	11,854	0%
Alviso	3,217	3,229	0%	3,389	3,561	5%	4,885	4,874	0%
Angel Island	5,700	5,655	-1%	5,789	5,840	1%	6,166	6,477	5%
Antioch	21,069	18,873	-10%	21,287	21,326	0%	22,240	30,815	39%
AT & T Park	10,731	10,384	-3%	18,933	16,235	-14%	28,695	27,891	-3%
Berkeley	1,481	1,493	1%	1,652	1,577	-5%	1,797	1,907	6%
Ferry Building	5,003	5,001	0%	6,554	7,639	17%	11,078	11,976	8%
Harbor Bay Pkwy	14,045	14,094	0%	14,218	14,245	0%	14,948	14,827	-1%
Hercules	12,067	12,733	6%	13,729	14,310	4%	20,770	21,198	2%
Jack London Square	6,507	7,544	16%	9,236	10,454	13%	18,344	18,646	2%
Larkspur	17,586	17,388	-1%	18,911	17,464	-8%	20,582	20,474	-1%
Martinez	5,549	5,713	3%	5,751	5,817	1%	6,287	6,277	0%
Mission Bay	1,003	690	-31%	1,759	1,137	-35%	2,667	1,586	-41%
Moffet Federal Airfield	13,828	13,801	0%	14,982	15,321	2%	19,963	21,286	7%
Pier 41-Fisherman's Wharf	11,800	12,236	4%	11,849	12,235	3%	12,371	12,616	2%
Pittsburg	8,838	9,320	5%	8,902	9,650	8%	9,364	10,994	17%
Port Sonoma	2,811	2,540	-10%	2,875	2,539	-12%	2,998	2,539	-15%
Redwood City	2,591	2,792	8%	3,523	3,622	3%	5,571	6,315	13%
Richmond	6,320	6,478	3%	6,676	6,779	2%	13,509	11,275	-17%
Sausalito	7,946	7,943	0%	8,046	8,043	0%	8,437	8,441	0%
South San Francisco	7,757	7,523	-3%	9,619	9,500	-1%	16,790	17,084	2%
Tiburon	2,123	2,100	-1%	2,214	2,201	-1%	2,214	2,200	-1%
Treasure Island	1,454	1,465	1%	1,453	1,480	2%	15,612	18,159	16%
Vallejo	8,243	7,703	-7%	9,247	8,154	-12%	11,877	9,870	-17%
Total	207,175	205,248	-1%	231,048	228,208	-1%	309,675	318,631	3%

## Table A.7Population within 0.5-Mile Buffer around Ferry Terminals

	Year 2010			Year 2015			Year 2035		
Ferry Terminal	Projections 2009	Projections 2011	Percent Difference	Projections 2009	Projections 2011	Percent Difference	Projections 2009	Projections 2011	Percent Difference
Alameda	1,028	1,026	0%	1,252	1,208	-4%	1,871	1,918	3%
Alameda (Naval Station)	4,347	4,349	0%	4,441	4,437	0%	4,771	4,794	0%
Alviso	761	761	0%	797	837	5%	1,148	1,158	1%
Angel Island	2,523	2,545	1%	2,535	2,623	3%	2,625	2,936	12%
Antioch	7,429	6,728	-9%	7,488	7,601	2%	7,836	11,206	43%
AT & T Park	5,534	5,539	0%	9,768	8,312	-15%	14,871	13,648	-8%
Berkeley	629	630	0%	707	660	-7%	760	783	3%
Ferry Building	3,132	2,967	-5%	4,113	4,220	3%	6,840	6,193	-9%
Harbor Bay Pkwy	5,301	5,302	0%	5,348	5,360	0%	5,574	5,593	0%
Hercules	4,599	4,743	3%	5,248	5,325	1%	8,080	7,999	-1%
Jack London Square	2,869	3,411	19%	4,032	4,797	19%	7,758	8,311	7%
Larkspur	5,464	5,483	0%	5,855	5,515	-6%	6,580	6,606	0%
Martinez	2,271	2,324	2%	2,337	2,365	1%	2,575	2,568	0%
Mission Bay	455	348	-24%	747	561	-25%	1,097	767	-30%
Moffet Federal Airfield	6,117	6,115	0%	6,684	6,790	2%	9,265	9,728	5%
Pier 41-Fisherman's Wharf	7,008	7,134	2%	7,040	7,139	1%	7,381	7,302	-1%
Pittsburg	2,806	2,994	7%	2,826	3,108	10%	3,016	3,576	19%
Port Sonoma	1,058	980	-7%	1,077	981	-9%	1,125	979	-13%
Redwood City	992	1,212	22%	1,268	1,493	18%	2,565	2,521	-2%
Richmond	2,796	2,843	2%	2,954	2,990	1%	5,977	5,146	-14%
Sausalito	4,568	4,566	0%	4,587	4,586	0%	4,657	4,657	0%
South San Francisco	2,877	2,842	-1%	3,490	3,504	0%	6,233	6,307	1%
Tiburon	949	947	0%	959	958	0%	969	970	0%
Treasure Island	460	459	0%	460	459	0%	5,473	7,650	40%
Vallejo	3,144	3,204	2%	3,536	3,299	-7%	4,872	4,039	-17%
Total	85,573	85,582	0%	96,062	95,215	-1%	130,438	133,254	2%

#### Table A.8Number of Households within 0.5-Mile Buffer around Ferry Terminals

		Year 2010		Year 2015				Year 2035		
Ferry Terminal	Projections 2009	Projections 2011	Percent Difference	Projections 2009	Projections 2011	Percent Difference	Projections 2009	Projections 2011	Percent Difference	
Alameda	3,293	4,553	38%	4,374	5,428	24%	9,006	7,791	-13%	
Alameda (Naval Station)	1,540	2,131	38%	1,627	2,214	36%	2,731	3,500	28%	
Alviso	3,064	2,715	-11%	3,196	3,392	6%	3,779	5,758	52%	
Angel Island	2,689	2,774	3%	2,885	2,809	-3%	3,675	2,927	-20%	
Antioch	10,812	9,885	-9%	14,288	12,047	-16%	26,058	19,771	-24%	
AT & T Park	22,239	16,419	-26%	25,441	18,479	-27%	36,243	26,214	-28%	
Berkeley	15,264	14,044	-8%	15,562	14,180	-9%	16,508	14,717	-11%	
Ferry Building	89,636	79,452	-11%	91,170	82,652	-9%	118,632	95,538	-19%	
Harbor Bay Pkwy	5,231	2,263	-57%	5,907	2,573	-56%	7,135	3,096	-57%	
Hercules	3,033	2,486	-18%	3,608	2,733	-24%	5,119	3,929	-23%	
Jack London Square	29,169	31,408	8%	31,191	33,893	9%	42,469	40,089	-6%	
Larkspur	18,261	15,655	-14%	18,918	16,182	-14%	21,544	19,258	-11%	
Martinez	5,975	5,367	-10%	6,471	5,465	-16%	7,975	5,772	-28%	
Mission Bay	1,338	943	-30%	2,103	1,088	-48%	3,843	1,956	-49%	
Moffet Federal Airfield	29,844	27,700	-7%	30,044	28,003	-7%	35,099	32,031	-9%	
Pier 41-Fisherman's Wharf	12,411	11,210	-10%	12,851	11,241	-13%	15,875	13,059	-18%	
Pittsburg	2,916	2,585	-11%	3,988	3,097	-22%	8,571	4,953	-42%	
Port Sonoma	1,228	1,220	-1%	1,250	1,230	-2%	1,355	1,323	-2%	
Redwood City	7,604	6,795	-11%	9,065	7,883	-13%	10,181	8,860	-13%	
Richmond	6,325	5,567	-12%	7,518	6,409	-15%	10,176	7,759	-24%	
Sausalito	7,423	6,975	-6%	7,587	7,161	-6%	8,509	8,108	-5%	
South San Francisco	45,574	40,434	-11%	48,993	43,374	-11%	65,439	57,332	-12%	
Tiburon	1,070	776	-27%	1,081	792	-27%	1,103	819	-26%	
Treasure Island	872	657	-25%	903	701	-22%	2,551	4,737	86%	
Vallejo	5,040	3,611	-28%	6,139	4,280	-30%	8,463	5,842	-31%	
Total	352,928	317,606	-10%	378,283	337,556	-11%	497,739	416,017	-16%	

## Table A.9Employment within 0.5-Mile Buffer around Ferry Terminals

# B. Year 2015 and 2035 Service Assumptions by Alternative

	\	lessels		Run Time (Minutes)		Heac (Min	lways utes)	Average
Route	Speed (Knots)	Capacity (Passengers)	AM Peak Period	Off-Peak Period	PM Peak Period	Peak Periods	Off-Peak Periods	2008-2009 Dollars)
Vallejo to SF	35	350	60	60	60	35	105	\$9.50
SF to Vallejo								
Oakland to SF	25	350	30	30	25	65	105	\$5.10
SF to Oakland			35	30	30			
Alameda to SF	25	350	20	40	35	65	105	\$5.10
SF to Alameda			45	20	20			
Oakland to Pier 41	25	350	N/A	45	N/A	N/A	105	\$5.10
Pier 41 to Oakland								
Alameda to Pier 41	25	350	N/A	35	N/A	N/A	105	\$5.10
Pier 41 to Alameda								
Harbor Bay to SF	25	149-199	25	N/A	25	60	N/A	\$4.90
SF to Harbor Bay								
Alameda to Oakland	25	350	10	10	10	65	105	\$1.12
Oakland to Alameda								
Larkspur to SF	35	350	35	35	35	35	52	\$5.20
SF to Larkspur								
Sausalito to SF	16	350	30	30	30	70	105	\$5.20
SF to Sausalito								
Tiburon to SF	25	350	20	N/A	20	65	N/A	\$7.75
SF to Tiburon								
Oakland to SSF	25	149-199	39	N/A	39	45	N/A	\$5.10
SSF to Oakland								
Alameda to SSF	25	149-199	29	N/A	29	45	N/A	\$5.10
SSF to Alameda								
Richmond to SF	25	299	36	N/A	36	45	N/A	\$5.10
SF to Richmond								
Treasure Island to SF	15	399	15	15	15	50	60	\$1.50
SF to Treasure Island								

## Table B.1 Year 2015 Alternative 1 – Richmond Service Assumptions

		lessels		Run Time (Minutes)		Head (Min	lways utes)	Average
Route	Speed (Knots)	Capacity (Passengers)	AM Peak Period	Off-Peak Period	PM Peak Period	Peak Periods	Off-Peak Periods	2008-2009 Dollars)
Vallejo to SF	35	350	60	60	60	35	105	\$9.50
SF to Vallejo								
Oakland to SF	25	350	30	30	25	65	105	\$5.10
SF to Oakland			35	30	30			
Alameda to SF	25	350	20	40	35	65	105	\$5.10
SF to Alameda			45	20	20			
Oakland to Pier 41	25	350	N/A	45	N/A	N/A	105	\$5.10
Pier 41 to Oakland								
Alameda to Pier 41	25	350	N/A	35	N/A	N/A	105	\$5.10
Pier 41 to Alameda								
Harbor Bay to SF	25	149-199	25	N/A	25	60	N/A	\$4.90
SF to Harbor Bay								
Alameda to Oakland	25	350	10	10	10	65	105	\$1.12
Oakland to Alameda								
Larkspur to SF	35	350	35	35	35	35	52	\$5.20
SF to Larkspur								
Sausalito to SF	16	350	30	30	30	70	105	\$5.20
SF to Sausalito								
Tiburon to SF	25	350	20	N/A	20	65	N/A	\$7.75
SF to Tiburon								
Oakland to SSF	25	149-199	39	N/A	39	45	N/A	\$5.10
SSF to Oakland								
Alameda to SSF	25	149-199	29	N/A	29	45	N/A	\$5.10
SSF to Alameda								
Berkeley to SF	25	299	25	N/A	25	40	N/A	\$5.10
SF to Berkeley								
Treasure Island to SF	15	399	15	15	15	50	60	\$1.50
SF to Treasure Island								

## Table B.2 Year 2015 Alternative 2 – Berkeley Service Assumptions

	١	/essels		Run Time (Minutes)		Head (Min	lways utes)	Average
Route	Speed (Knots)	Capacity (Passengers)	AM Peak Period	Off-Peak Period	PM Peak Period	Peak Periods	Off-Peak Periods	2008-2009 Dollars)
Vallejo to SF	35	350	60	60	60	35	105	9.5
SF to Vallejo								
Oakland to SF	25	350	30	30	25	65	105	5.1
SF to Oakland			35	30	30			
Alameda to SF	25	350	20	40	35	65	105	5.1
SF to Alameda			45	20	20			
Oakland to Pier 41	25	350	N/A	45	N/A	N/A	105	5.1
Pier 41 to Oakland								
Alameda to Pier 41	25	350	N/A	35	N/A	N/A	105	5.1
Pier 41 to Alameda								
Harbor Bay to SF	25	149-199	25	N/A	25	60	N/A	4.9
SF to Harbor Bay								
Alameda to Oakland	25	350	10	10	10	65	105	1.12
Oakland to Alameda								
Larkspur to SF	35	350	35	35	35	35	52	5.2
SF to Larkspur								
Sausalito to SF	16	350	30	30	30	70	105	5.2
SF to Sausalito								
Tiburon to SF	25	350	20	N/A	20	65	N/A	7.75
SF to Tiburon								
Oakland to SSF	25	149-199	39	N/A	39	45	N/A	5.1
SSF to Oakland								
Alameda to SSF	25	149-199	29	N/A	29	45	N/A	5.1
SSF to Alameda								
Richmond to SF	25	299	36	N/A	36	45	N/A	5.1
SF to Richmond								
Berkeley to SF	25	299	25	N/A	25	40	N/A	5.1
SF to Berkeley								
Treasure Island to SF	15	399	15	15	15	15	30	1.5
SF to Treasure Island								

# Table B.3Year 2035 Alternative 3 – Constrained Service Scenario (ABAG Projections<br/>2009) Service Assumptions

Ridership Forecasting Report Appendix

	\	/essels		Run Time (Minutes)			Headways (Minutes)	
Route	Speed (Knots)	Capacity (Passengers)	AM Peak Period	Off-Peak Period	PM Peak Period	Peak Periods	Off-Peak Periods	2008-2009 Dollars)
Hercules to SF	35	299	47	N/A	47	60	N/A	6.375
SF to Hercules								
Antioch to SF	35	299	125	N/A	125	125	N/A	12
SF to Antioch								
Martinez to SF	35	299	57	N/A	57	75	N/A	9.5
SF to Martinez								
Redwood City to SF	35	299	68	N/A	68	75	N/A	9.5
SF to Redwood City								

	\	/essels		Run Time (Minutes)		Head (Mir	dways iutes)	Average
Route	Speed (Knots)	Capacity (Passengers)	AM Peak Period	Off-Peak Period	PM Peak Period	Peak Periods	Off-Peak Periods	Fare (FY 2008-2009 Dollars)
Vallejo to SF	35	350	60	60	60	35	105	9.5
SF to Vallejo								
Oakland to SF	25	350	30	30	25	65	105	5.1
SF to Oakland			35	30	30			
Alameda to SF	25	350	20	40	35	65	105	5.1
SF to Alameda			45	20	20			
Oakland to Pier 41	25	350	N/A	45	N/A	N/A	105	5.1
Pier 41 to Oakland								
Alameda to Pier 41	25	350	N/A	35	N/A	N/A	105	5.1
Pier 41 to Alameda								
Harbor Bay to SF	25	149-199	25	N/A	25	60	N/A	4.9
SF to Harbor Bay								
Alameda to Oakland	25	350	10	10	10	65	105	1.12
Oakland to Alameda								
Larkspur to SF	35	350	35	35	35	35	52	5.2
SF to Larkspur								
Sausalito to SF	16	350	30	30	30	70	105	5.2
SF to Sausalito								
Tiburon to SF	25	350	20	N/A	20	65	N/A	7.75
SF to Tiburon								
Oakland to SSF	25	149-199	39	N/A	39	45	N/A	5.1
SSF to Oakland								
Alameda to SSF	25	149-199	29	N/A	29	45	N/A	5.1
SSF to Alameda								
Richmond to SF	25	299	36	N/A	36	45	N/A	5.1
SF to Richmond								
Berkeley to SF	25	299	25	N/A	25	40	N/A	5.1
SF to Berkeley								
Treasure Island to SF	15	399	15	15	15	15	30	1.5
SF to Treasure Island								

# Table B.4Year 2035 Alternative 4 – Constrained Service Scenario (ABAG Projections<br/>2011) Service Assumptions

Ridership Forecasting Report Appendix

	\	/essels		Run Time (Minutes)			Headways (Minutes)	
Route	Speed (Knots)	Capacity (Passengers)	AM Peak Period	Off-Peak Period	PM Peak Period	Peak Periods	Off-Peak Periods	Fare (FY 2008-2009 Dollars)
Hercules to SF	35	299	47	N/A	47	60	N/A	6.375
SF to Hercules								
Antioch to SF	35	299	125	N/A	125	125	N/A	12
SF to Antioch								
Martinez to SF	35	299	57	N/A	57	75	N/A	9.5
Vallejo to SF	35	350	60	60	60	35	105	9.5
SF to Vallejo								
Oakland to SF	25	350	30	30	25	65	105	5.1

	\	/essels		Run Time (Minutes)		Heac (Min	lways utes)	Average
Route	Speed (Knots)	Capacity (Passengers)	AM Peak Period	Off-Peak Period	PM Peak Period	Peak Periods	Off-Peak Periods	2008-2009 Dollars)
Vallejo to SF	35	350	60	60	60	30	60	9.5
SF to Vallejo								
Oakland to SF	25	350	30	30	25	15	30	5.1
SF to Oakland			35	30	30			
Alameda to SF	25	350	20	40	35	15	30	5.1
SF to Alameda			45	20	20			
Oakland to Pier 41	25	350	N/A	45	N/A	N/A	30	5.1
Pier 41 to Oakland								
Alameda to Pier 41	25	350	N/A	35	N/A	N/A	30	5.1
Pier 41 to Alameda								
Harbor Bay to SF	25	149-199	25	25	25	30	60	4.9
SF to Harbor Bay								
Alameda to Oakland	25	350	10	10	10	15	30	1.12
Oakland to Alameda								
Larkspur to SF	35	350	35	35	35	20	52	5.2
SF to Larkspur								
Sausalito to SF	16	350	30	30	30	30	60	5.2
SF to Sausalito								
Tiburon to SF	25	350	20	20	20	30	60	7.75
SF to Tiburon								
Oakland to SSF	25	149-199	39	39	39	30	60	5.1
SSF to Oakland								
Alameda to SSF	25	149-199	29	29	29	30	60	5.1
SSF to Alameda								
Richmond to SF	25	299	36	36	36	30	60	5.1
SF to Richmond								
Berkeley to SF	25	299	25	25	25	30	60	5.1
SF to Berkeley								
Treasure Island to SF	15	399	15	15	15	10	20	1.5
SF to Treasure Island								

# Table B.5Year 2035 Alternative 5 – Expanded Service Service Scenario (ABAG<br/>Projections 2009) Service Assumptions

Ridership Forecasting Report Appendix

		lessels		Run Time (Minutes)			lways utes)	Average Fare (EV
Route	Speed (Knots)	Capacity (Passengers)	AM Peak Period	Off-Peak Period	PM Peak Period	Peak Periods	Off-Peak Periods	2008-2009 Dollars)
Hercules to SF	35	299	47	47	47	60	240	6.375
SF to Hercules								
Antioch to SF	35	299	125	125	125	60	240	12
SF to Antioch								
Martinez to SF	35	299	57	57	57	60	240	9.5
SF to Martinez								
Redwood City to SF	35	299	68	68	68	60	240	9.5
SF to Redwood City								
Redwood City to Oak	35	299	58	58	58	60	240	9.5
Oak to Redwood City								

## C. Year 2015 and 2035 Ridership Forecasts by Route

	Daily Ridership			Wee by I	ekday Riders Mode of Acc	ship ess	Weekday Ridership by Mode of Egress	
Ferry Route	Weekday Daily	Weekend Daily	Annual Ridership	Walk Access	Drive Access	Transit Access	Walk Egress	Transit Egress
Vallejo – SF	1,840	1,766	662,100	111	1,604	124	1,317	523
Oakland – SF	943	1,443	395,200	134	569	240	628	315
Alameda – SF	519	275	163,500	171	323	25	282	237
Harbor Bay – SF	763		198,400	94	634	35	550	213
Sausalito – SF	1,765	2,718	741,600	891	670	204	1,103	662
Tiburon – SF	548		142,500	213	301	34	420	128
Larkspur – SF	4,283	1,396	1,258,800	311	3,758	214	2,792	1,491
Oakland – South SF	372		96,800	5	228	139	319	54
Alameda – South SF	60		15,600	7	48	5	52	8
Treasure Island – SF	170	53	49,700	113	57	0	82	88
Richmond – SF	793		206,200	88	676	29	595	198
Total	12,057	7,651	3,930,400	2,139	8,870	1,048	8,140	3,916

## Table C.1 Year 2015 Alternative 1 – Richmond Ridership Forecasts

-	Weekday by Tim	r Ridership le of Day	Weekday by Pu	Ridership Irpose	Weekday AM Peak by Directio		Ridership	
Ferry Route	Peak	Off-Peak	HB-Work	Nonwork	Both Directions	To SF/SSF	From SF/SSF	
Vallejo – SF	1,464	376	1,767	73	742	712	30	
Oakland – SF	642	301	649	294	286	275	11	
Alameda – SF	294	225	397	122	131	126	5	
Harbor Bay – SF	763	0	674	89	382	366	15	
Sausalito – SF	1,151	614	1,532	233	576	552	23	
Tiburon – SF	548	0	519	29	274	263	11	
Larkspur – SF	2,991	1,292	4,008	275	1,496	1,436	60	
Oakland – South SF	372	0	343	29	186	179	7	
Alameda – South SF	60	0	59	2	30	29	1	
Treasure Island – SF	93	77	64	106	47	45	2	
Richmond – SF	793	0	716	77	397	381	16	
Total	9,172	2,885	10,728	1,329	4,545	4,363	182	

	Daily Ridership			Wee by I	ekday Riders Mode of Acc	ship ess	Weekday Ridership by Mode of Egress	
Ferry Route	Weekday Daily	Weekend Daily	Annual Ridership	Walk Access	Drive Access	Transit Access	Walk Egress	Transit Egress
Vallejo – SF	1,841	1,767	662,500	111	1,604	125	1,329	512
Oakland – SF	946	1,447	396,500	128	574	244	634	312
Alameda – SF	518	275	163,200	170	323	25	282	236
Harbor Bay – SF	762		198,100	94	634	34	549	213
Sausalito – SF	1,767	2,721	742,400	891	668	208	1,107	660
Tiburon – SF	543		141,200	208	301	34	416	127
Larkspur – SF	4,283	1,396	1,258,800	311	3,758	214	2,797	1,486
Oakland – South SF	362		94,100	5	226	131	308	54
Alameda – South SF	61		15,800	7	49	5	53	8
Treasure Island – SF	169	53	49,400	112	57	0	81	88
Berkeley – SF	782		203,300	8	663	111	624	158
Total	12,034	7,659	3,925,300	2,046	8,858	1,130	8,180	3,854

## Table C.2 Year 2015 Alternative 2 – Berkeley Ridership Forecasts

-	Weekday by Tim	r Ridership Ne of Day	Weekday by Pu	Ridership rpose	Weekd	ay AM Peak Ric by Direction	lership
Ferry Route	Peak	Off-Peak	HB-Work	Nonwork	Both Directions	To SF/SSF	From SF/SSF
Vallejo – SF	1,465	376	1,767	74	742	713	30
Oakland – SF	645	301	642	304	288	276	12
Alameda – SF	293	225	396	122	131	125	5
Harbor Bay – SF	762	0	673	89	381	366	15
Sausalito – SF	1,153	614	1,537	230	577	553	23
Tiburon – SF	543	0	515	28	272	261	11
Larkspur – SF	2,991	1,292	4,007	276	1,496	1,436	60
Oakland – South SF	362	0	332	30	181	174	7
Alameda – South SF	61	0	59	2	30	29	1
Treasure Island – SF	92	77	63	106	46	44	2
Berkeley – SF	782	0	711	71	391	375	16
Total	9,149	2,885	10,703	1,331	4,533	4,352	181

	Daily Ridership			Wee by I	ekday Riders Mode of Acco	Weekday Ridership by Mode of Egress		
Ferry Route	Weekday Daily	Weekend Daily	Annual Ridership	Walk Access	Drive Access	Transit Access	Walk Egress	Transit Egress
Vallejo – SF	2,254	2,164	797,000	142	1,833	421	2,176	78
Oakland – SF	1,438	2,200	721,600	189	980	458	1,053	385
Alameda – SF	1,016	538	245,700	482	574	442	857	159
Harbor Bay – SF	1,133		117,800	140	1,133	0	1,025	108
Sausalito – SF	1,778	2,738	896,800	1,001	1,167	611	1,546	232
Tiburon – SF	572		59,500	215	572	0	539	33
Larkspur – SF	4,499	1,467	849,200	344	3,148	1,351	4,178	321
Oakland – South SF	369		38,300	7	369	0	328	40
Alameda – South SF	77		8,000	16	77	0	68	9
Treasure Island – SF	2,215	631	394,500	2,215	1,219	996	947	1,269
Richmond – SF	1,083		112,600	163	1,083	0	993	90
Berkeley – SF	1,113		115,800	12	1,113	0	1,029	84
Antioch – SF	375		39,000	10	375	0	375	0
Martinez – SF	480		49,900	3	480	0	480	0
Hercules – SF	416		43,300	98	416	0	395	21
Redwood City – SF	166		17,300	12	166	0	156	10
Total	18,984	9,738	4,506,300	5,051	14,705	4,279	16,145	2,839

#### Table C.3 Year 2035 Alternative 3 – Constrained Service Scenario Ridership Forecasts

	Weekday Ridership by Time of Day		Weekday by Pu	Ridership rpose	Weekday AM Peak Ridership by Direction			
Ferry Route	Peak	Off-Peak	HB-Work	Nonwork	Both Directions	To SF/SSF	From SF/SSF	
Vallejo – SF	1,833	421	2,176	78	929	892	37	
Oakland – SF	980	458	1,053	385	437	420	17	
Alameda – SF	574	442	857	159	256	246	10	
Harbor Bay – SF	1,133	0	1,025	108	567	544	23	
Sausalito – SF	1,167	611	1,546	232	584	560	23	
Tiburon – SF	572	0	539	33	286	275	11	
Larkspur – SF	3,148	1,351	4,178	321	1,574	1,511	63	
Oakland – South SF	369	0	328	40	184	177	7	
Alameda – South SF	77	0	68	9	39	37	2	
Treasure Island – SF	1,219	996	947	1,269	610	585	24	

Ridership Forecasting Report Appendix

	Weekday Ridership by Time of Day		Weekday by Pu	Ridership rpose	Weekday AM Peak Ridership by Direction		
Ferry Route	Peak	Off-Peak	HB-Work	Nonwork	Both Directions	To SF/SSF	From SF/SSF
Richmond – SF	1,083	0	993	90	542	520	22
Berkeley – SF	1,113	0	1,029	84	557	534	22
Antioch – SF	375	0	375	0	188	180	8
Martinez – SF	480	0	480	0	240	230	10
Hercules – SF	416	0	395	21	208	200	8
Redwood City – SF	166	0	156	10	83	80	3
Total	14,705	4,279	16,145	2,839	7,281	6,990	291

	Daily Ridership			Wee by I	Weekday Ridership by Mode of Access			Weekday Ridership by Mode of Egress	
Ferry Route	Weekday Daily	Weekend Daily	Annual Ridership	Walk Access	Drive Access	Transit Access	Walk Egress	Transit Egress	
Vallejo – SF	1,429	1,372	505,300	80	1,275	74	997	432	
Oakland – SF	1,213	1,856	608,700	214	717	282	751	462	
Alameda – SF	542	287	131,100	207	311	24	249	293	
Harbor Bay – SF	797		82,900	101	647	49	556	241	
Sausalito – SF	1,031	1,588	520,000	557	409	64	591	440	
Tiburon – SF	342		35,600	133	184	25	260	82	
Larkspur – SF	2,598	847	490,400	242	2,228	128	1,643	955	
Oakland – South SF	362		37,700	10	233	119	299	64	
Alameda – South SF	58		6,100	8	45	5	50	9	
Treasure Island – SF	2,215	631	394,500	2,215	0	0	940	1,275	
Richmond – SF	863		89,800	148	676	39	622	241	
Berkeley – SF	833		86,600	16	674	143	651	182	
Antioch – SF	268		27,900	14	251	3	208	60	
Martinez – SF	379		39,400	3	363	13	293	86	
Hercules – SF	335		34,800	72	241	22	247	88	
Redwood City – SF	97		10,100	20	76	1	80	17	
Total	13,363	6,581	3,100,900	4,041	8,331	991	8,436	4,927	

# Table C.4Year 2035 Alternative 4 – Constrained Service Scenario (ABAG Projections<br/>2011) Ridership Forecasts

	Weekday Ridership by Time of Day		Weekday Ridership by Purpose		Weekday AM Peak Ridership by Direction		
Ferry Route	Peak	Off-Peak	HB-Work	Nonwork	Both Directions	To SF/SSF	From SF/SSF
Vallejo – SF	1,154	275	1,350	79	585	561	23
Oakland – SF	773	440	797	416	345	331	14
Alameda – SF	271	271	400	142	121	116	5
Harbor Bay – SF	797	0	688	109	399	383	16
Sausalito – SF	653	378	812	219	327	313	13
Tiburon – SF	342	0	307	35	171	164	7
Larkspur – SF	1,806	792	2,244	354	903	867	36
Oakland – South SF	362	0	307	55	181	174	7
Alameda – South SF	58	0	48	10	29	28	1

Ridership Forecasting Report Appendix

Treasure Island – SF	1,219	996	947	1,269	610	585	24
Richmond – SF	863	0	776	87	432	414	17
Berkeley – SF	833	0	747	86	417	400	17
Antioch – SF	268	0	268	0	134	129	5
Martinez – SF	379	0	379	0	190	182	8
Hercules – SF	335	0	307	28	168	161	7
Redwood City – SF	97	0	93	4	49	47	2
Total	10,211	3,152	10,470	2,893	5,057	4,854	202

	Daily Ridership			Wee by I	ekday Riders Mode of Acco	Weekday Ridership by Mode of Egress		
Ferry Route	Weekday Daily	Weekend Daily	Annual Ridership	Walk Access	Drive Access	Transit Access	Walk Egress	Transit Egress
Vallejo – SF	2,289	2,197	809,400	141	1,980	168	1,614	675
Oakland – SF	3,145	4,812	1,578,200	331	1,655	1,159	2,011	1,134
Alameda – SF	1,741	923	421,000	767	879	95	780	961
Harbor Bay – SF	1,815		188,800	239	1,431	145	1,137	678
Sausalito – SF	1,799	2,770	907,400	991	584	224	1,093	706
Tiburon – SF	836		86,900	318	428	90	570	266
Larkspur – SF	4,634	1,511	874,700	345	3,936	352	3,032	1,602
Oakland – South SF	594		61,800	19	400	175	439	155
Alameda – South SF	143		14,800	34	100	9	98	45
Treasure Island – SF	2,475	722	445,100	2,475	0	0	1,086	1,389
Richmond – SF	1,715		178,400	275	1,349	91	1,117	598
Berkeley – SF	1,589		165,300	41	1,383	166	1,103	486
Antioch – SF	445		46,300	12	420	13	342	103
Martinez – SF	614		63,900	7	584	23	463	151
Hercules – SF	565		58,800	156	386	23	382	183
Redwood City – SF	214		22,300	24	187	3	156	58
Redwood City – Oak	42		4,300	4	31	7	33	9
Total	24,654	12,935	5,927,400	6,179	15,732	2,743	15,454	9,201

## Table C.5 Year 2035 Alternative 5 – Expanded Service Scenario Ridership Forecasts

	Weekday Ridership by Time of Day		Weekday Ridership by Purpose		Weekday AM Peak Ridership by Direction		
Ferry Route	Peak	Off-Peak	HB-Work	Nonwork	Both Directions	To SF/SSF	From SF/SSF
Vallejo – SF	1,865	424	2,196	93	945	907	38
Oakland – SF	2,081	1,064	2,337	808	928	891	37
Alameda – SF	962	779	1,248	493	429	412	17
Harbor Bay – SF	1,398	417	1,485	330	699	671	28
Sausalito – SF	1,181	618	1,479	320	591	567	24
Tiburon – SF	598	238	763	73	299	287	12
Larkspur – SF	3,283	1,351	4,275	359	1,642	1,576	66
Oakland – South SF	423	172	453	141	211	203	8
Alameda – South SF	88	54	108	34	44	42	2

Ridership Forecasting Report Appendix

Troasuro Island SE	1 22/	1 151	1 022	1 /50	660	625	26
Treasure Islanu – Sr	1,324	1,101	1,023	1,452	002	035	20
Richmond – SF	1,294	421	1,393	322	647	621	26
Berkeley – SF	1,270	319	1,340	249	635	610	25
Antioch – SF	385	60	445	0	193	185	8
Martinez – SF	487	127	612	2	244	234	10
Hercules – SF	406	159	518	47	203	195	8
Redwood City – SF	186	28	194	20	93	89	4
Redwood City – Oak	27	15	28	14	13	13	1
Total	10,211	3,152	10,470	2,893	5,057	4,854	202
# D. Year 2015 and 2035 Ridership by Terminal

	Weekday Ridership by Mode of Access			Weekday Ridership by Mode of Egress		Parking
Ferry Terminal	Walk Access	Drive Access	Transit Access	Walk Egress	Transit Egress	Demand <sup>2</sup>
Vallejo	63	1,604	70	73	29	535
Oakland	118	788	342	47	21	263
Alameda	147	369	25	21	16	123
Harbor Bay	69	634	26	25	9	211
Sausalito	800	670	183	70	42	223
Tiburon	193	301	30	18	6	100
Larkspur	156	3,758	107	170	91	1,253
San Francisco <sup>1</sup>	430	0	244	7,323	3,627	0
South SF	0	12	0	361	60	4
Treasure Island	101	57	0	6	6	19
Richmond	62	676	20	26	9	225
Total	2,139	8,870	1,048	8,140	3,916	2,957

## Table D.1 Year 2015 Alternative 1 – Richmond Terminal-Level Forecasts

<sup>1</sup> Includes Pier 41.

	Weekday Ridership by Mode of Access			Weekday Ridership by Mode of Egress		Parking
Ferry Terminal	Walk Access	Drive Access	Transit Access	Walk Egress	Transit Egress	Demand <sup>2</sup>
Vallejo	63	1,604	71	74	29	535
Oakland	113	790	337	47	21	263
Alameda	146	370	25	21	16	123
Harbor Bay	69	634	25	24	10	211
Sausalito	800	668	187	70	42	223
Tiburon	188	301	30	18	6	100
Larkspur	156	3,758	107	171	91	1,253
San Francisco <sup>1</sup>	405	0	270	7,370	3,566	0
South SF	0	12	0	350	61	4
Treasure Island	100	57	0	6	6	19
Berkeley	6	663	78	28	7	221
Total	2,046	8,858	1,130	8,180	3,854	2,953

### Table D.2 Year 2015 Alternative 2 – Berkeley Terminal-Level Forecasts

<sup>1</sup> Includes Pier 41.

	Weekday Ridership by Mode of Access			Weekday Ridership by Mode of Egress		Darking
Ferry Terminal	Walk Access	Drive Access	Transit Access	Walk Egress	Transit Egress	Demand <sup>2</sup>
Vallejo	77	1,984	69	87	36	661
Oakland	167	1,086	456	67	31	362
Alameda	434	550	38	38	33	183
Harbor Bay	107	919	57	36	14	306
Sausalito	903	625	137	67	46	208
Tiburon	194	321	32	19	6	107
Larkspur	181	3,921	123	178	96	1,307
San Francisco <sup>1</sup>	608	0	345	11,443	6,143	0
South SF	0	11	0	363	72	4
Treasure Island	2,145	0	0	32	39	0
Richmond	126	871	38	35	13	290
Berkeley	9	904	151	39	10	301
Antioch	2	362	0	9	2	121
Martinez	1	458	7	11	3	153
Hercules	89	287	28	9	3	96
Redwood City	7	153	1	4	1	51
Total	5,051	12,451	1,482	12,437	6,547	4,150

## Table D.3 Year 2035 Alternative 3 – Constrained Service Scenario Terminal-Level Forecasts

<sup>1</sup> Includes Pier 41.

	V	Veekday Ridersh by Mode of Acces	kday Ridership Mode of Access		Weekday Ridership by Mode of Egress	
Ferry Terminal	Walk Access	Drive Access	Transit Access	Walk Egress	Transit Egress	Demand <sup>2</sup>
Vallejo	39	1,275	36	55	24	425
Oakland	191	942	356	56	31	314
Alameda	180	354	25	20	21	118
Harbor Bay	77	647	38	24	11	216
Sausalito	498	409	57	38	28	136
Tiburon	120	184	23	11	4	61
Larkspur	138	2,228	73	101	59	743
San Francisco <sup>1</sup>	527	0	216	7,641	4,558	0
South SF	0	11	0	339	70	4
Treasure Island	2,051	0	0	70	95	0
Richmond	118	676	31	27	11	225
Berkeley	12	674	110	29	8	225
Antioch	7	251	2	6	2	84
Martinez	1	363	4	9	2	121
Hercules	64	241	20	7	3	80
Redwood City	17	76	1	2	1	25
Total	4,041	8,331	991	8,436	4,927	2,777

## Table D.4Year 2035 Alternative 4 – Constrained Service Scenario Terminal-Level<br/>Forecasts (ABAG Projections 2011)

<sup>1</sup> Includes Pier 41.

	Weekday Ridership by Mode of Access			Weekday Ridership by Mode of Egress		Parking
Ferry Terminal	Walk Access	Drive Access	Transit Access	Walk Egress	Transit Egress	Demand <sup>2</sup>
Vallejo	84	1,980	100	88	37	660
Oakland	306	2,056	1,180	158	81	685
Alameda	695	973	91	57	68	324
Harbor Bay	175	1,431	106	65	39	477
Sausalito	898	584	203	69	45	195
Tiburon	279	428	79	34	16	143
Larkspur	207	3,936	211	183	97	1,312
San Francisco <sup>1</sup>	761	0	578	14,045	8,492	0
South SF	0	25	0	519	194	8
Treasure Island	2,395	0	0	35	45	0
Richmond	200	1,349	67	65	35	450
Berkeley	23	1,383	95	61	27	461
Antioch	3	420	4	14	4	140
Martinez	1	584	2	21	7	195
Hercules	132	386	19	19	9	129
Redwood City	20	198	8	22	8	66
Total	6,179	15,732	2,743	15,454	9,201	5,244

### Table D.5 Year 2035 Alt 5 – Expanded Service Scenario Terminal-Level Forecasts

<sup>1</sup> Includes Pier 41.