

**To:** Board of Directors

**Date:** 12/12/2017

**From:** Sean Hedgpeth, Manager of Planning

**Reviewed by:**

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**SUBJECT: Comprehensive Operations Analysis for Express Routes**

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**Background:**

Staff has completed and presented the Comprehensive Operations Analysis (COA) for all weekday local routes. The next set of routes to be analyzed is the Express Routes (90 series), see attachment.

This document intends to be reference material to inform possible service changes in the future with data driven planning. Ridership, route alignments, and service distribution are all covered in the COA. The majority of the Express Routes cover large segments of our service with limited stops and at faster speeds than the Local Routes.

The next phase of the COA is to look at weekend (300 series) and school (600 series) routes, which will be referred to the board in January.

**Recommendation:**

For information only.

**Financial Implications:**

To be determined.

# *County Connection*



## **Central Contra Costa County Transit Authority Comprehensive Operations Analysis**

**Weekday Express Routes, FY 2016/17**



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# How to Use This Document (Key Performance Indicators)

This is a GPS derived number that also includes mid route layover, or time the bus sits at a stop. In Route 1's case it's seen as slower because the bus isn't moving at BART, yet is still in service.

## Route Alignment, Speed, and Labor Statistics

Route 1: Rossmoor to Shadelands

FY17 On Time	Length (mi)	Scheduled Speed	Actual Speed
89%	16.0	9.4	6.2
3%	0%	-27%	-57%

# Stops	Stop Spacing	# of Rights	# of Lefts
52	0.31	26	26
84%	-52%	85%	83%

In-Service Time	Layover	Deadhead	Total Hours
79%	16%	6%	27.9
15%	-26%	-45%	-11%

Stops per mile. Eg. 0.33 is a stop every 1/3 mile on average for the route

This indicator bar represents the difference from the route averages for all local routes. For example in this case, Route 1 has 84% more stops than an average local route.

In-service time is time when the bus is in revenue service or when passengers are allowed in the bus with a set schedule.

Layover is time when the bus is parked for either a required operator break or for recovery time for the bus to get back on schedule.

Deadhead is time when the bus is pulling out of the bus yard to make its first or last trip or when its not in service and starting another route.

Data derived from Remix transit planning software. This is not the ridership demographics, but rather the census derived demographics for residents with 1/4 mile of a transit stop.

## Census Population, Jobs, and Demographics by Route

Jobs	Population	Jobs+Pop	J+P/mile
30,379	14,370	44,749	2,793
52%	-24%	16%	-9%

Poverty	Limited English	Minority	Senior
8%	9%	32%	21%
-35%	-6%	-30%	63%

Disabled	No Car	Youth	(Legend)
11%	7%	18%	(route value)
1%	-13%	-13%	(% diff from AVG)

This number represents the total number of jobs and population per route mile. This is an indicator of density along the route.

Like the indicator bars above, this represents a difference from the route averages. In this case, Route 1 has 63% more Seniors within 1/4 mile of a stop than an average CCCTA local route.

These numbers are important when comparing demographics for Title VI civil rights compliance. If service changes occur these numbers are used to determine if there are disparate impacts to protected populations. The numbers are also a good indication of transit dependent populations within 1/4 mile of a stop.

## Express Route Averages: A Typical CCCTA Route

### Route Alignment, Speed, and Labor Statistics

Express Avg

FY17 On Time	Length (mi)	Scheduled Speed	Actual Speed
81%	29.4	21.4	20.8
0%	0%	0%	0%

# Stops	Stop Spacing (mi)	# of Rights	# of Lefts
16	1.79	10	8
0%	0%	0%	0%

In-Service Time	Layover	Deadhead	Total Hours
67%	13%	20%	20.7
0%	0%	0%	0%

### Census Population, Jobs, and Demographics by Route

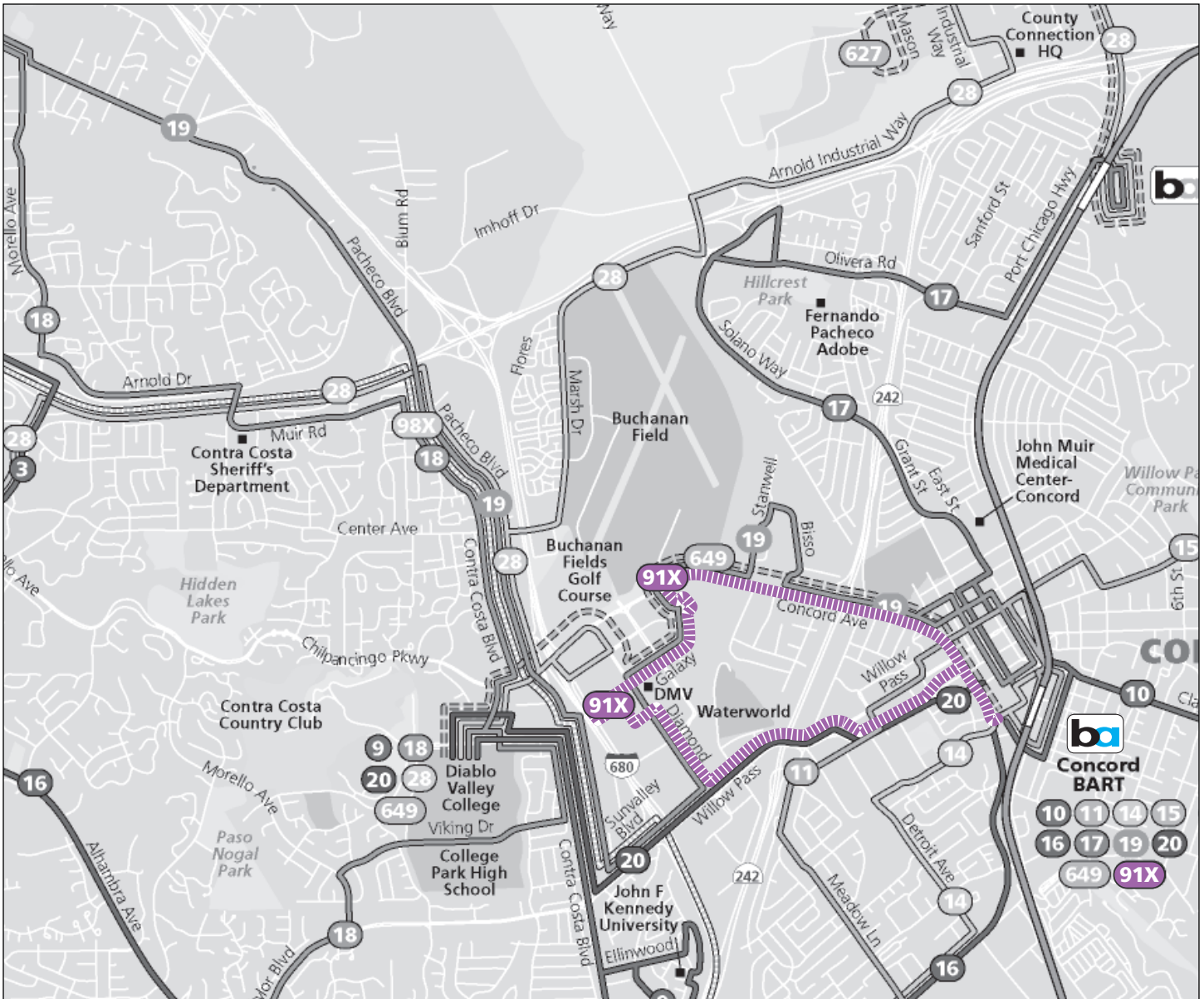
Jobs	Population	Jobs+Pop	J+P/mile
16,666	9,105	25,771	1,326
0%	0%	0%	0%

Poverty	Limited English	Minority	Senior
11%	11%	48%	14%
0%	0%	0%	0%

Disabled	No Car	Youth	(Legend)
10%	7%	21%	(route value)
0%	0%	0%	(% diff from AVG)

# Route 91X: Concord Commuter Express

About Every 30 Minutes, 6:21am to 8:43am, 3:22pm to 6:15pm



## Origin and Recent Service Changes

Route 91 was created in 2009 from a long running Route 991. Since 2009, two new morning trips and one evening trip was added in Fall 2014. In the Summer of 2016 there was a minor routing change to serve UFCW after Chevron moved away from the area.

## Alignment Statistics and Connections

Route 91X's terminus is at the Concord BART Station, with regional connections to the Pittsburg Bay Point BART line, Tri Delta (201), as well as CCCTA routes (10, 11, 14, 15, 16, 17, 19, 20, 260, 611, 612, 613, 614, 615, 616). This Route is a Partnership with 1200 Concord (formerly Airport Plaza) and UFCW (formerly Galaxy Office Park) to provide service from Concord BART for their employees. In April of 2016, Chevron (Concord) closed and pulled out of the partnership. The route travels on Concord Ave, John Glenn Dr, Galaxy Way, Diamond Blvd, Gateway, Clayton Rd, Galindo, and Oak St back to Concord BART.

In 2014, additional trips were added to accommodate the UFCW joining the partnership.

# Route 91X: Key Performance Indicators

## Route Alignment, Speed, and Labor Statistics

Route 91X: Concord Commuter Shuttle

FY17 On Time	Length (mi)	Scheduled Speed	Actual Speed
89%	5.1	11.6	12.4
9%	-83%	-46%	-40%

# Stops	Stop Spacing (mi)	# of Rights	# of Lefts
17	0.30	6	7
3%	-83%	-42%	-8%

In-Service Time	Layover	Deadhead	Total Hours
75%	15%	10%	5.8
13%	12%	-50%	-72%

## Census Population, Jobs, and Demographics by Route

Jobs	Population	Jobs+Pop	J+P/mile
11,567	9,218	20,785	4,451
-31%	1%	-19%	236%

Poverty	Limited English	Minority	Senior
23%	20%	78%	11%
98%	81%	62%	-22%

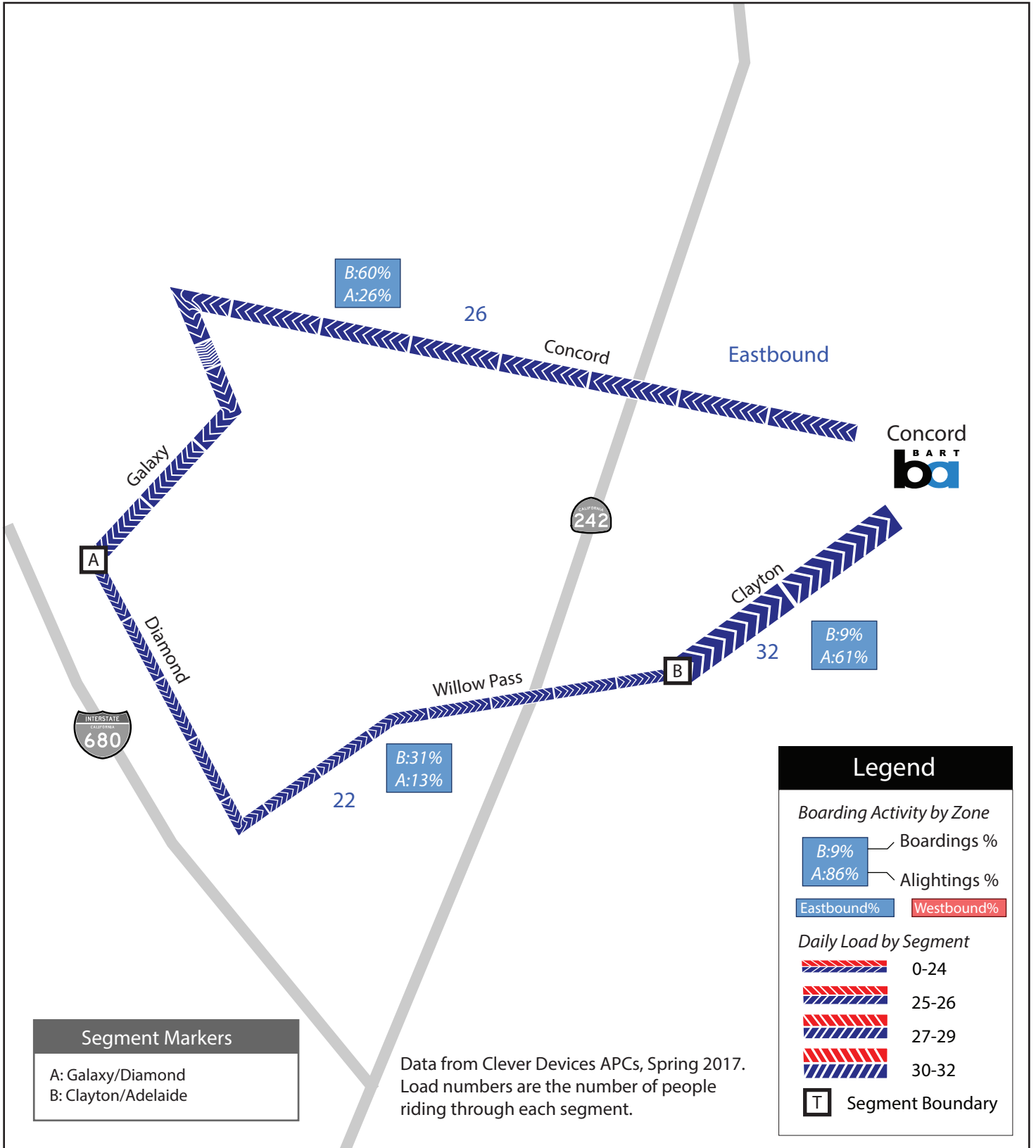
Disabled	No Car	Youth	(Legend)
15%	15%	22%	(route value)
45%	116%	3%	(% diff from AVG)





# Route 91X Segment Map

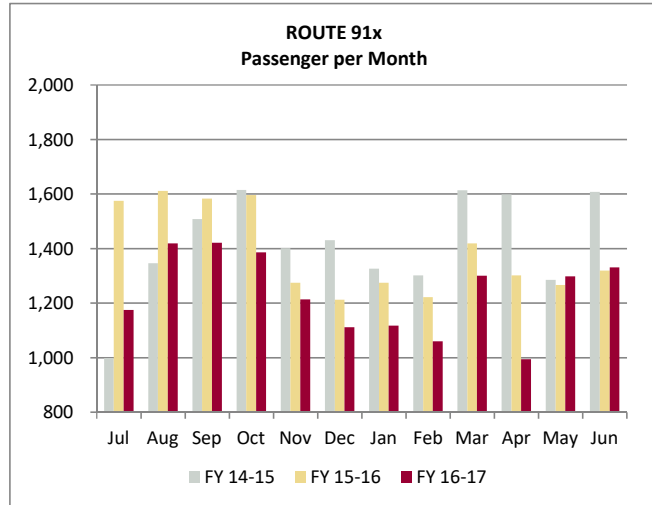
## Average Ridership % and Load by Segment and Direction



### ROUTE 91X

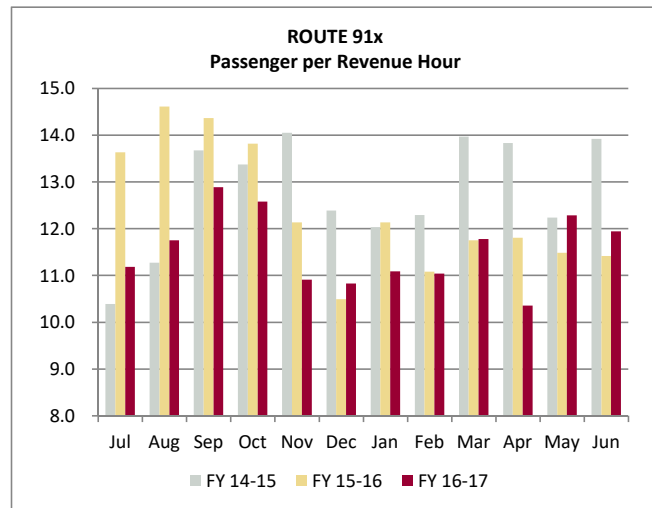
#### Passenger per Month

	FY 14-15	FY 15-16	FY 16-17
Jul	998	1,574	1,174
Aug	1,346	1,611	1,419
Sep	1,508	1,583	1,420
Oct	1,615	1,596	1,386
Nov	1,401	1,274	1,213
Dec	1,431	1,212	1,111
Jan	1,326	1,274	1,118
Feb	1,302	1,222	1,060
Mar	1,613	1,419	1,300
Apr	1,597	1,302	994
May	1,284	1,266	1,297
Jun	1,608	1,319	1,331
<b>FY TOTAL</b>	<b>17,029</b>	<b>16,650</b>	<b>14,824</b>



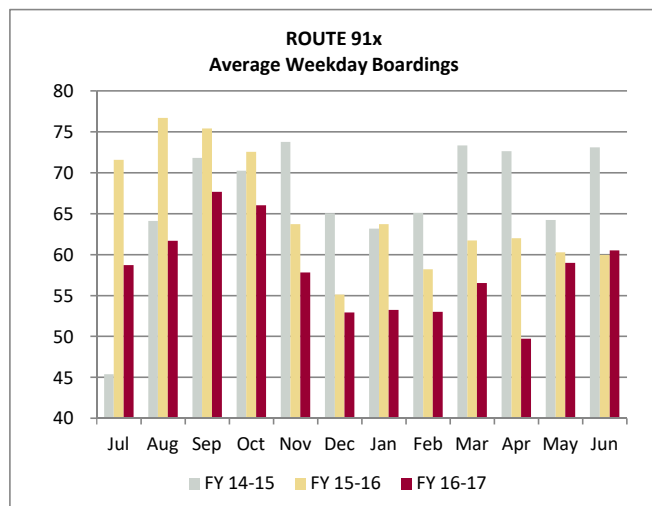
#### Passenger per Revenue Hour

	FY 14-15	FY 15-16	FY 16-17
Jul	10.4	13.6	11.2
Aug	11.3	14.6	11.7
Sep	13.7	14.4	12.9
Oct	13.4	13.8	12.6
Nov	14.0	12.1	10.9
Dec	12.4	10.5	10.8
Jan	12.0	12.1	11.1
Feb	12.3	11.1	11.0
Mar	14.0	11.8	11.8
Apr	13.8	11.8	10.4
May	12.2	11.5	12.3
Jun	13.9	11.4	11.9
<b>FY AVG</b>	<b>12.8</b>	<b>12.4</b>	<b>11.6</b>

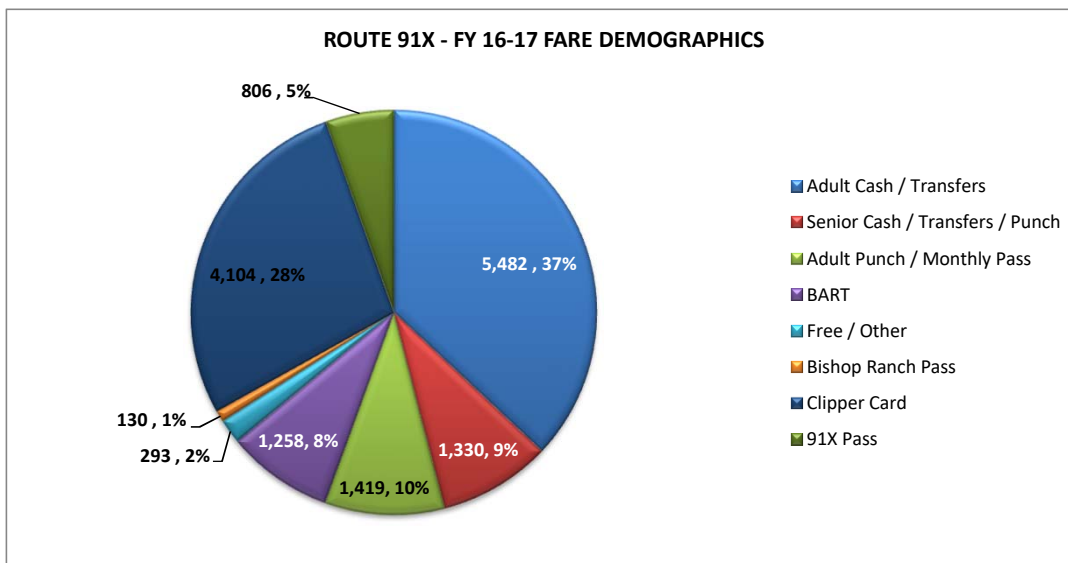
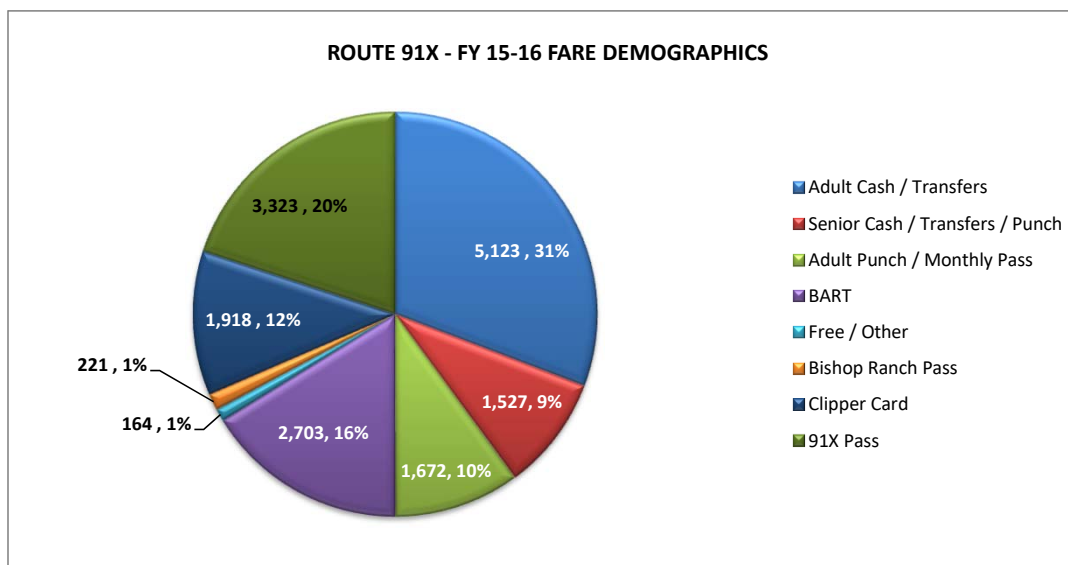
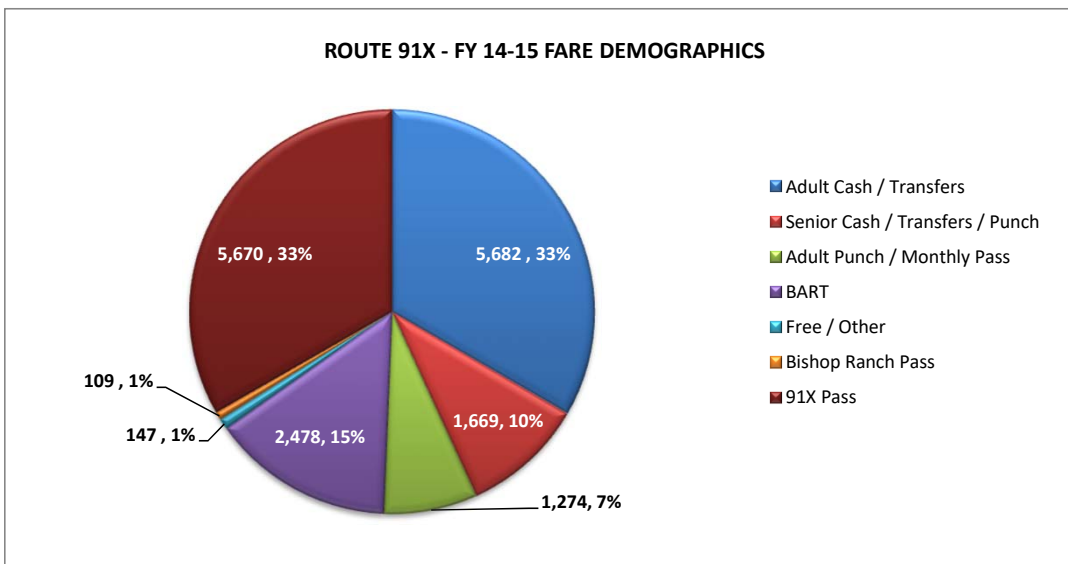


#### Avg Wkdy Boardings

	FY 14-15	FY 15-16	FY 16-17
Jul	45	72	59
Aug	64	77	62
Sep	72	75	68
Oct	70	73	66
Nov	74	64	58
Dec	65	55	53
Jan	63	64	53
Feb	65	58	53
Mar	73	62	57
Apr	73	62	50
May	64	60	59
Jun	73	60	60
<b>FY AVG</b>	<b>67</b>	<b>65</b>	<b>58</b>

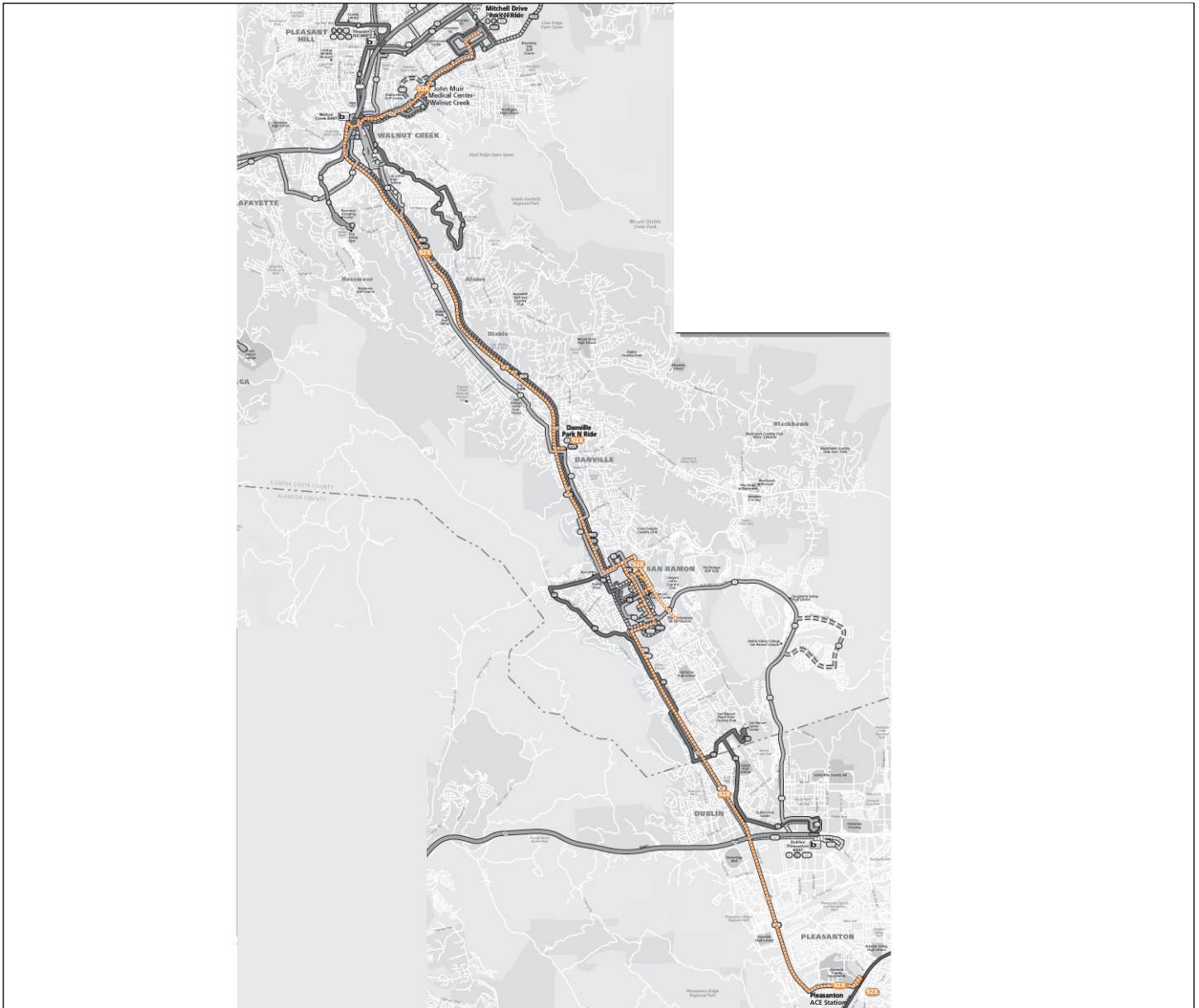


**FARE DEMOGRAPHIC CHART by Fiscal Year**



# Route 92X: ACE Train Express

3 AM and 3 PM trips, 5:35 am to 8:05 am, 3:24 pm to 6:14 pm



## Origin and Recent Service Changes

Route 92X was created from the old Route 920 ACE Express in 2009. The route meets three trains. Since 2009, four trips were added in the winter of 2012. Two morning trips were then subsequent removed two years later in the winter of 2014. In Summer 2016, the route was rerouted to Danville Park and ride instead of Crow Canyon Rd/ Crow Canyon PL, and minor running times changed in Spring 2017.

## Alignment Statistics and Connections

Route 92X's northern terminus is Mitchell Dr P&R with connections to CCCTA routes (1, 7, 93X). This route is a partnership with the Altamont Corridor Express (ACE Train) to provide a regional connection to the ACE Train station in Pleasanton. The route travels in the AM from the Mitchell Dr P&R, Ygnacio Valley Rd, Highway 680, Danville P&R (Private shuttles), San Ramon, Bishop Ranch, Chevron, San Ramon Transit Center, with connections to CCCTA routes (21, 35, 36, 95X, 96X, 97X). 92X then continues to the Pleasanton ACE train station, and then travels back to the Danville P&R. In the PM, 92X travels from the Danville Park & Ride thru San Ramon, Bishop Ranch, Chevron, San Ramon Transit Center to the Pleasanton ACE train station, then back to the Mitchell Dr P&R thru the San Ramon area, Danville P&R, Highway 680, and Ygnacio Valley Rd.



# Route 92X: Key Performance Indicators

## Route Alignment, Speed, and Labor Statistics

Route 92X: ACE Train Express

FY17 On Time	Length (mi)	Scheduled Speed	Actual Speed
75%	54.3	26.5	26.0
-8%	84%	24%	25%

# Stops	Stop Spacing (mi)	# of Rights	# of Lefts
17	3.19	17	7
3%	78%	63%	-8%

In-Service Time	Layover	Deadhead	Total Hours
59%	11%	31%	18.3
-12%	-20%	52%	-12%

## Census Population, Jobs, and Demographics by Route

Jobs	Population	Jobs+Pop	J+P/mile
23,781	10,092	33,873	615
43%	11%	31%	-54%

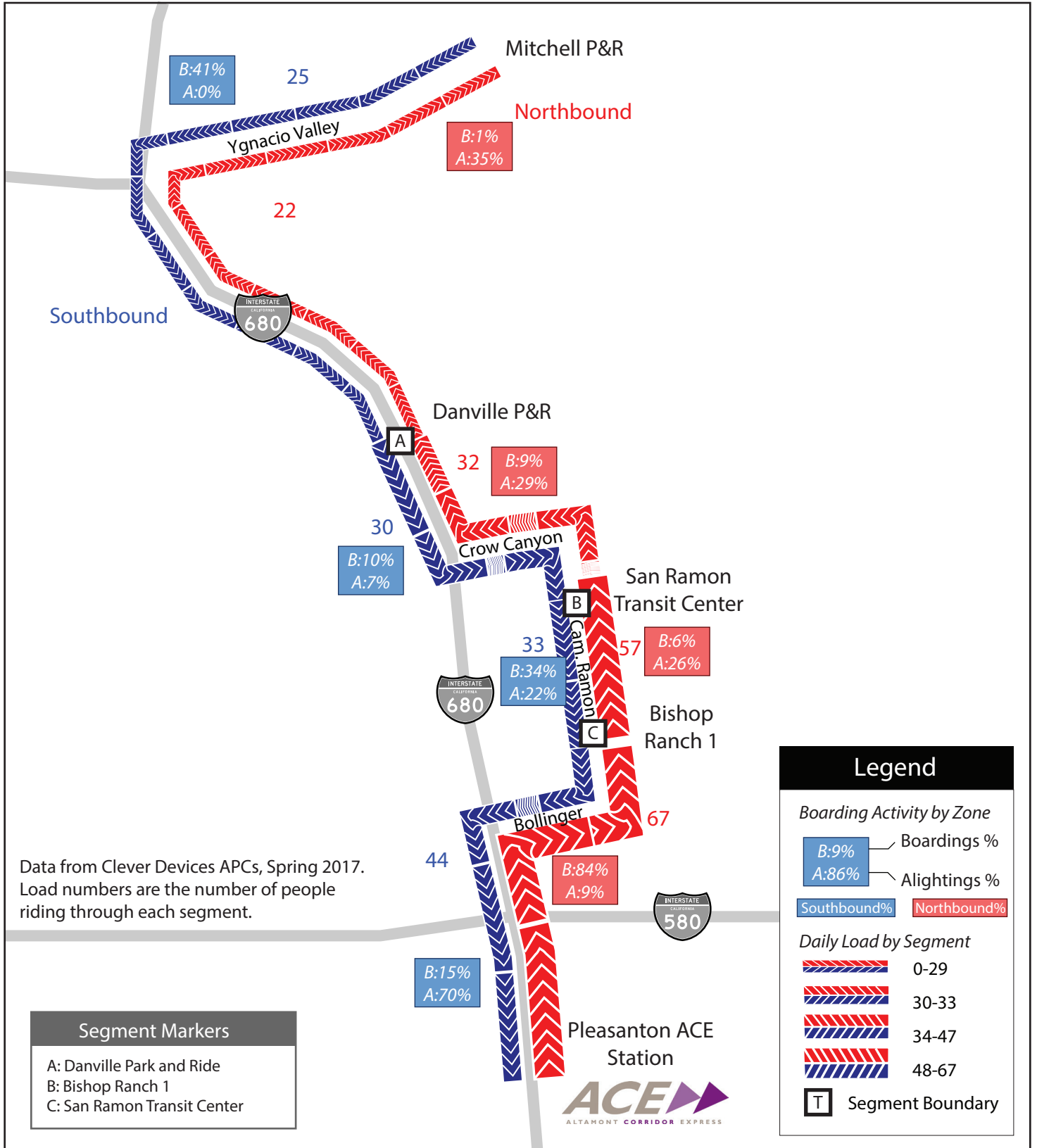
Poverty	Limited English	Minority	Senior
8%	9%	35%	19%
-30%	-22%	-28%	30%

Disabled	No Car	Youth	(Legend)
9%	5%	20%	(route value)
-11%	-26%	-5%	(% diff from AVG)



# Route 92X Segment Map

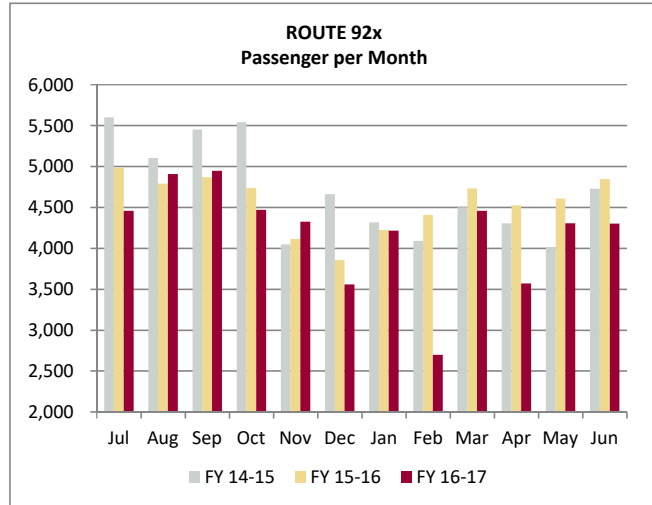
## Average Ridership % and Load by Segment and Direction



### Route 92X

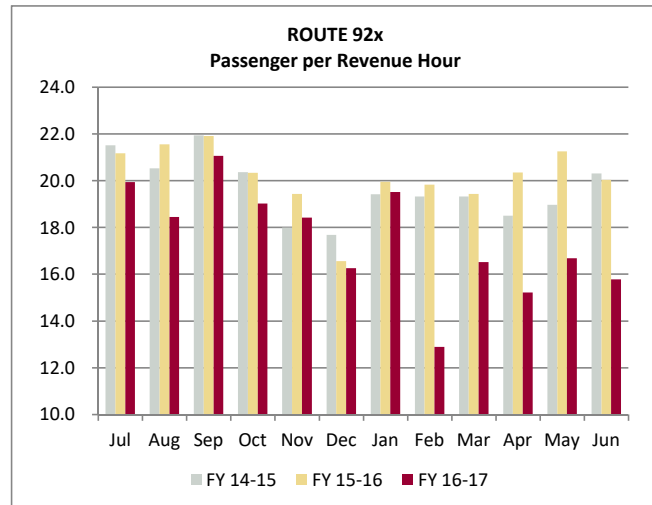
#### Passenger per Month

	FY 14-15	FY 15-16	FY 16-17
Jul	5,600	4,987	4,459
Aug	5,101	4,788	4,906
Sep	5,449	4,869	4,946
Oct	5,541	4,735	4,467
Nov	4,046	4,111	4,325
Dec	4,659	3,855	3,557
Jan	4,315	4,222	4,213
Feb	4,088	4,407	2,697
Mar	4,498	4,729	4,457
Apr	4,305	4,522	3,570
May	4,014	4,607	4,305
Jun	4,727	4,845	4,301
<b>FY TOTAL</b>	<b>56,343</b>	<b>54,678</b>	<b>50,203</b>



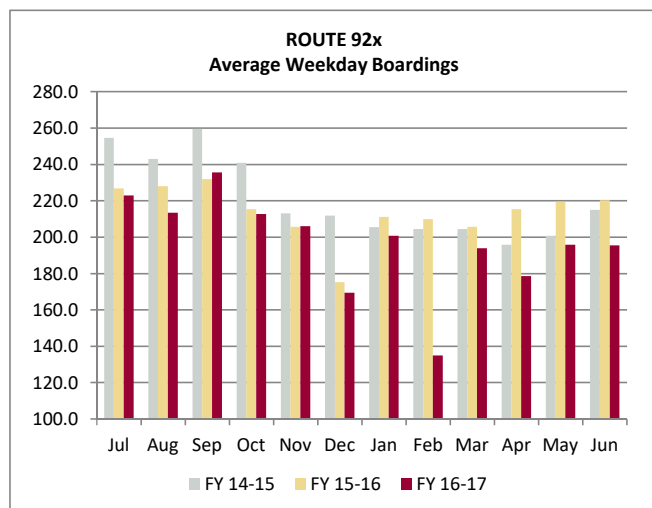
#### Passenger per Revenue Hour

	FY 14-15	FY 15-16	FY 16-17
Jul	21.5	21.2	19.9
Aug	20.5	21.5	18.4
Sep	21.9	21.9	21.1
Oct	20.4	20.3	19.0
Nov	18.0	19.4	18.4
Dec	17.7	16.6	16.3
Jan	19.4	19.9	19.5
Feb	19.3	19.8	12.9
Mar	19.3	19.4	16.5
Apr	18.5	20.3	15.2
May	19.0	21.2	16.7
Jun	20.3	20.0	15.8
<b>FY AVG</b>	<b>19.7</b>	<b>20.1</b>	<b>17.5</b>



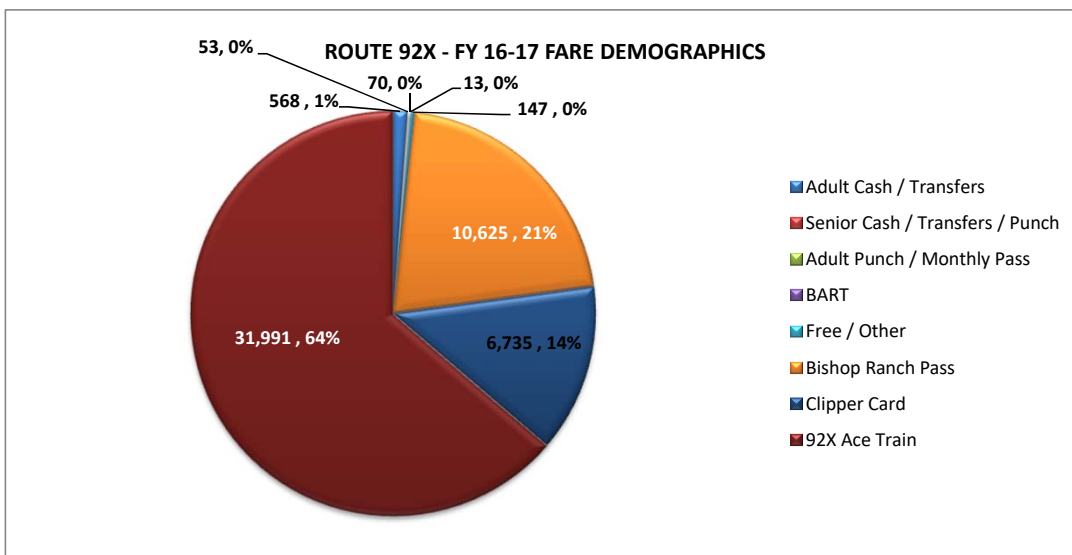
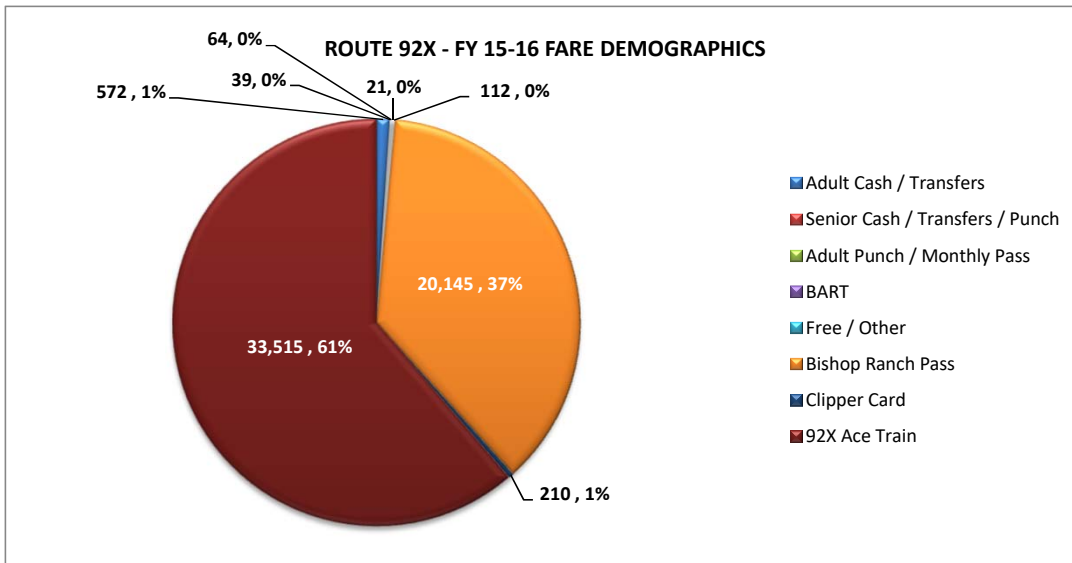
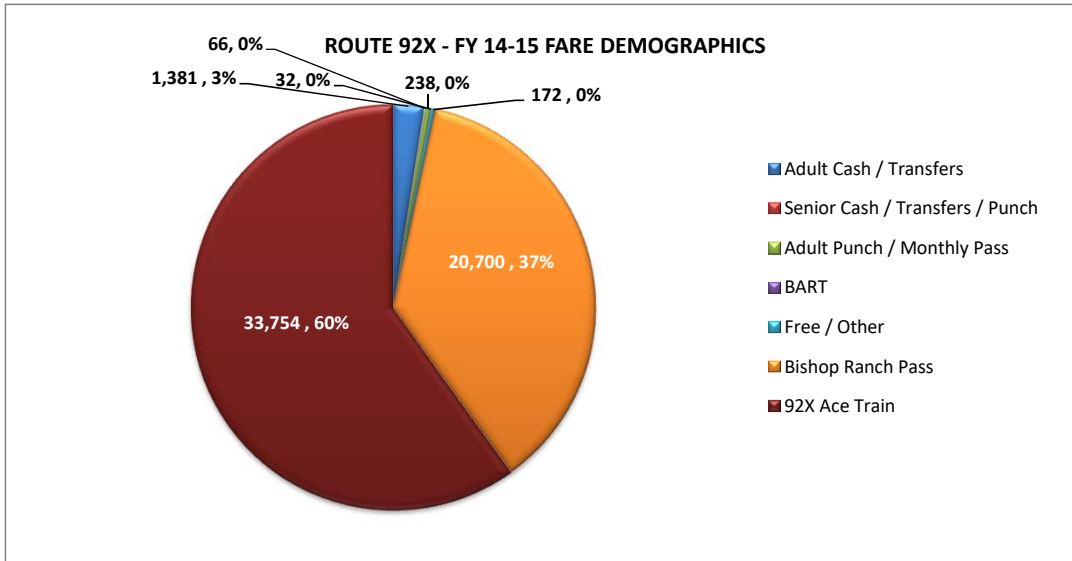
#### Avg Wkdy Boardings

	FY 14-15	FY 15-16	FY 16-17
Jul	255	227	223
Aug	243	228	213
Sep	259	232	236
Oct	241	215	213
Nov	213	206	206
Dec	212	175	169
Jan	205	211	201
Feb	204	210	135
Mar	204	206	194
Apr	196	215	179
May	201	219	196
Jun	215	220	195
<b>FY AVG</b>	<b>221</b>	<b>214</b>	<b>197</b>



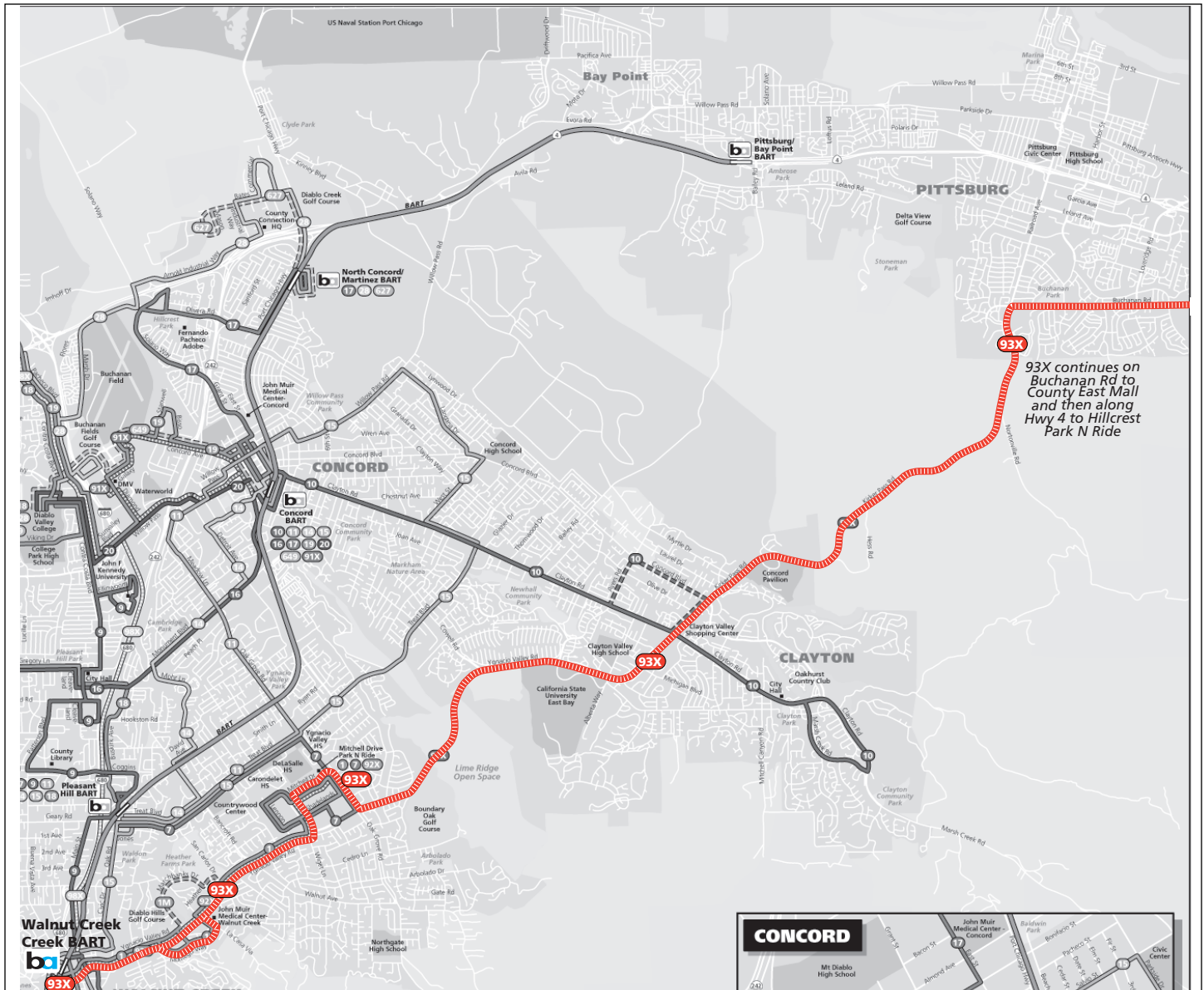


### FARE DEMOGRAPHIC CHART by Fiscal Year



# Route 93X: Kirker Pass Express

About Every 20 Minutes 4:37am to 8:40am, then 3:06pm to 7:50pm



## Origin and Recent Service Changes

Route 93X was created in 2009 from the old Route 930. Since 2009, the route added a stop at John Muir Medical Center in the summer of 2011, a new 'limited stop' stop variant was added with one trip in the winter of 2012. Minor running time adjustments have occurred since 2012.

## Alignment Statistics and Connections

Route 93X's western terminus is at the Walnut Creek BART Station, with regional connections to the Pittsburg Bay Point BART line, SolTrans (78), Solano (40), Wheels (70X) as well as CCCTA routes (1, 1M, 2, 4, 5, 9, 15, 21, 25, 95X, 96X, 98X, 601, 602). Private shuttle connections to the Rossmore Green Line. The route then travels on Ygnacio Valley Rd, John Muir Medical Center (PM only) Shadelands Business Park, Ygnacio Valley Rd, Kirker Pass Rd, Buchanan, Somersville Rd, Delta Fair, Highway 4 to the EBART Hillcrest (formerly Hillcrest Park & Ride) with regional connections Tri Delta (300, 379, 380, 383, 385, 388, 390, 391). The Route 93X travels only in the Westbound Direction in the AM and in the Eastbound Direction in the PM.

# Route 93X: Key Performance Indicators

## Route Alignment, Speed, and Labor Statistics

Route 93X: Kirker Pass Express

FY17 On Time	Length (mi)	Scheduled Speed	Actual Speed
74%	42.6	20.5	21.4
-10%	45%	-4%	3%

# Stops	Stop Spacing (mi)	# of Rights	# of Lefts
32	1.33	14	11
95%	-26%	34%	45%

In-Service Time	Layover	Deadhead	Total Hours
68%	4%	28%	22.0
1%	-70%	42%	6%

## Census Population, Jobs, and Demographics by Route

Jobs	Population	Jobs+Pop	J+P/mile
18,034	21,296	39,330	922
8%	134%	53%	-30%

Poverty	Limited English	Minority	Senior
14%	9%	50%	16%
18%	-20%	3%	11%

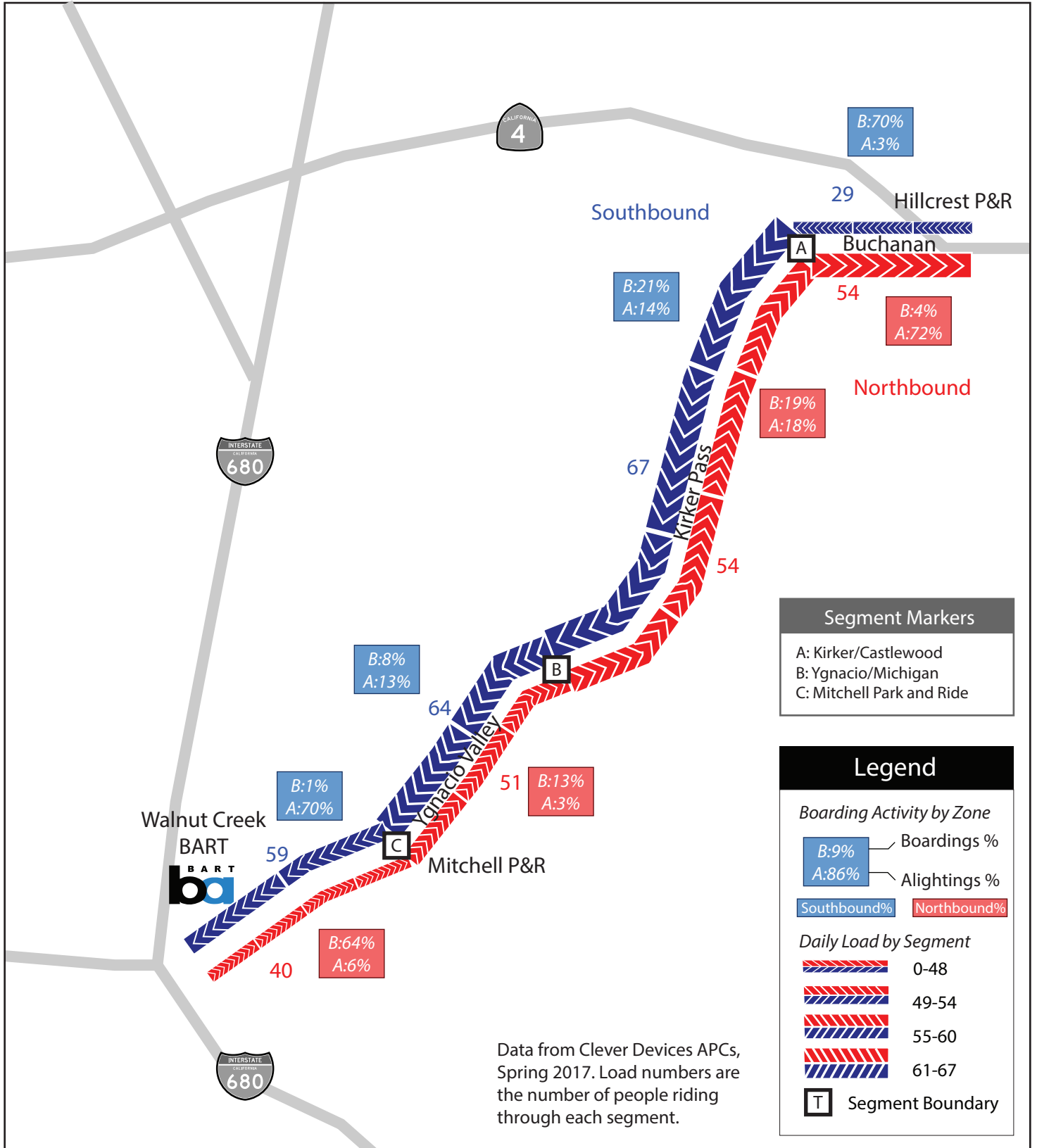
Disabled	No Car	Youth	(Legend)
13%	8%	22%	(route value)
29%	15%	2%	(% diff from AVG)





# Route 93X Segment Map

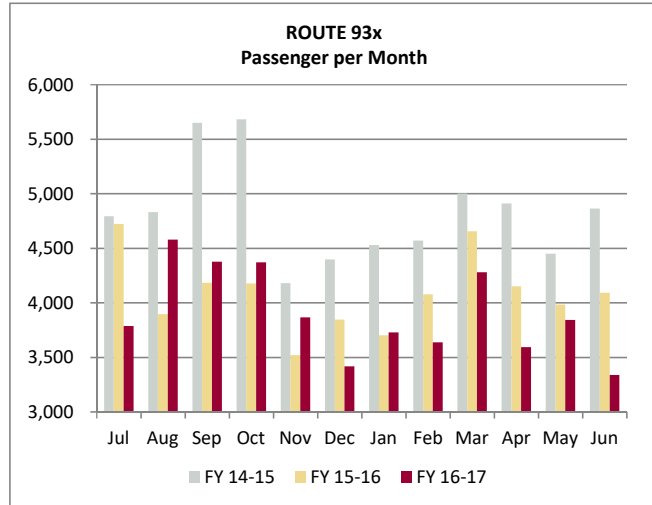
## Average Ridership % and Load by Segment and Direction



### Route 93X

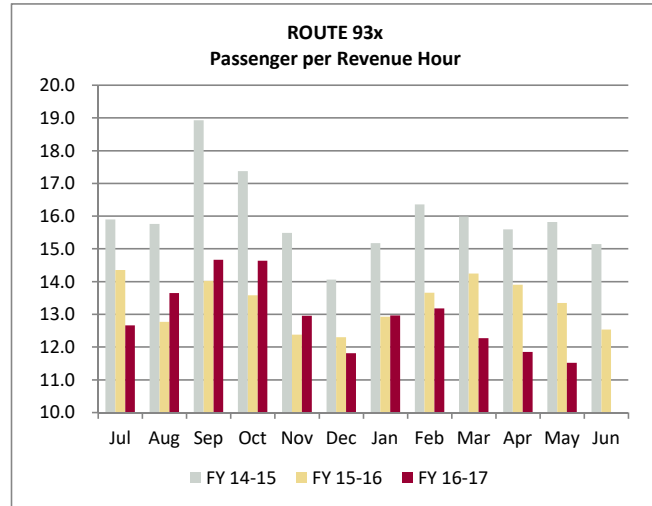
#### Passenger per Month

	FY 14-15	FY 15-16	FY 16-17
Jul	4,793	4,724	3,788
Aug	4,830	3,895	4,578
Sep	5,648	4,183	4,376
Oct	5,680	4,178	4,370
Nov	4,181	3,519	3,866
Dec	4,396	3,845	3,416
Jan	4,528	3,701	3,729
Feb	4,571	4,076	3,637
Mar	5,000	4,656	4,280
Apr	4,910	4,150	3,592
May	4,448	3,984	3,841
Jun	4,862	4,091	3,338
<b>FY TOTAL</b>	<b>57,847</b>	<b>49,003</b>	<b>46,813</b>



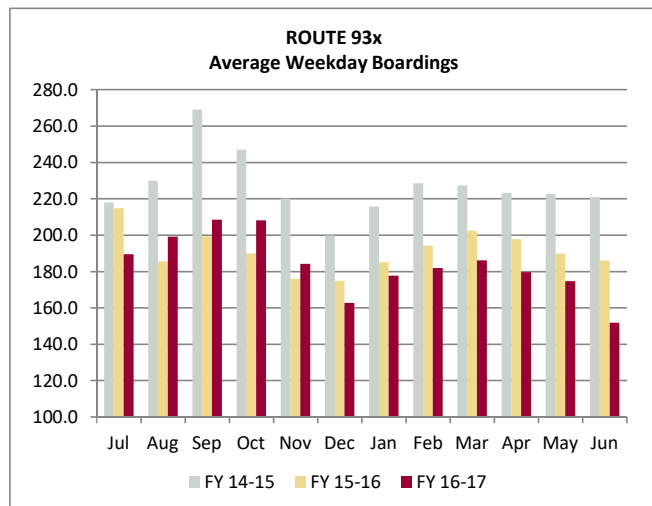
#### Passenger per Revenue Hour

	FY 14-15	FY 15-16	FY 16-17
Jul	15.9	14.3	12.7
Aug	15.8	12.8	13.6
Sep	18.9	14.0	14.7
Oct	17.4	13.6	14.6
Nov	15.5	12.4	12.9
Dec	14.1	12.3	11.8
Jan	15.2	12.9	13.0
Feb	16.4	13.7	13.2
Mar	16.0	14.2	12.3
Apr	15.6	13.9	11.8
May	15.8	13.3	11.5
Jun	15.1	12.5	9.7
<b>FY AVG</b>	<b>16.0</b>	<b>13.3</b>	<b>12.6</b>

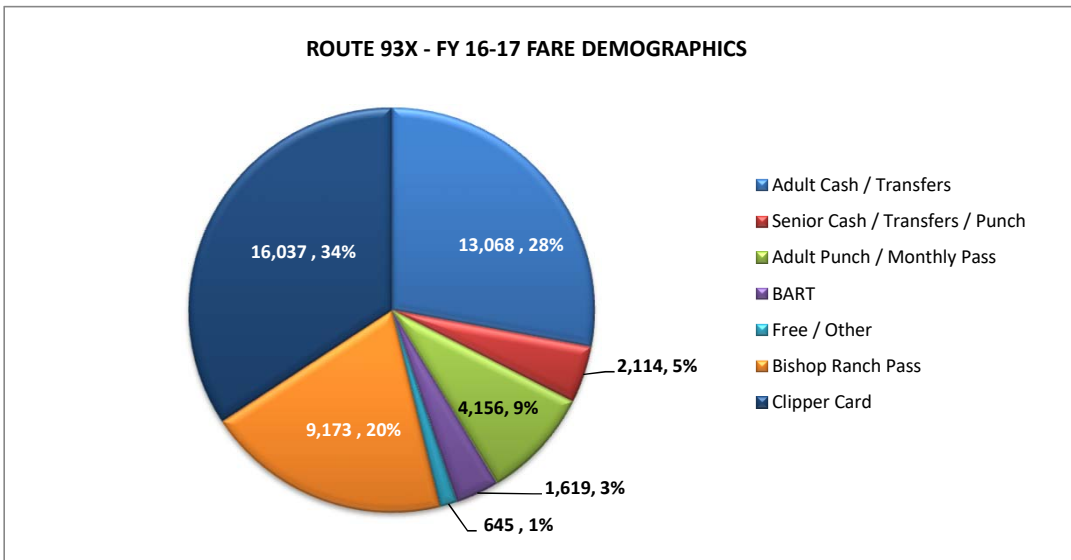
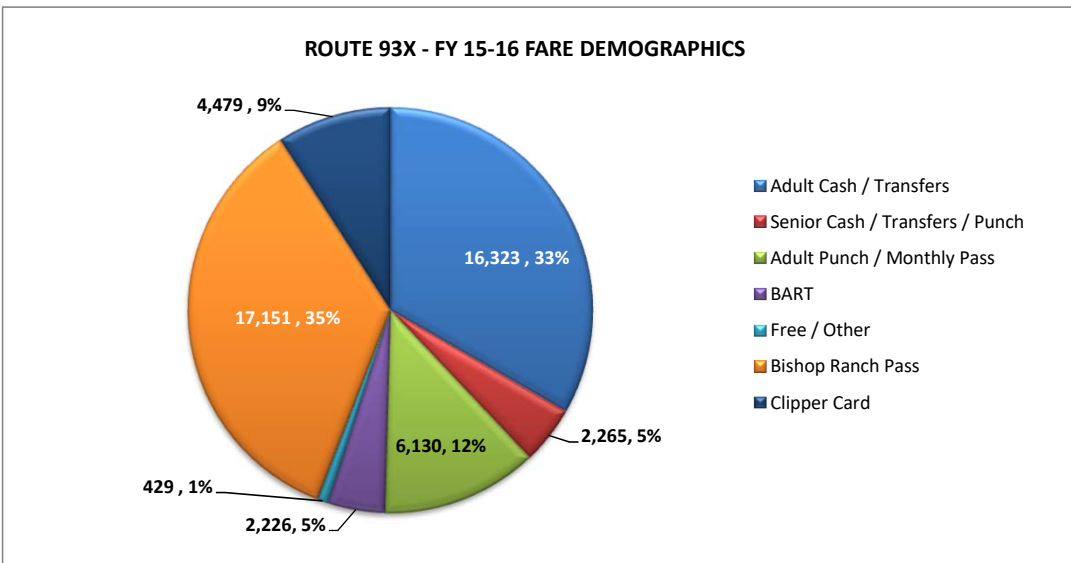
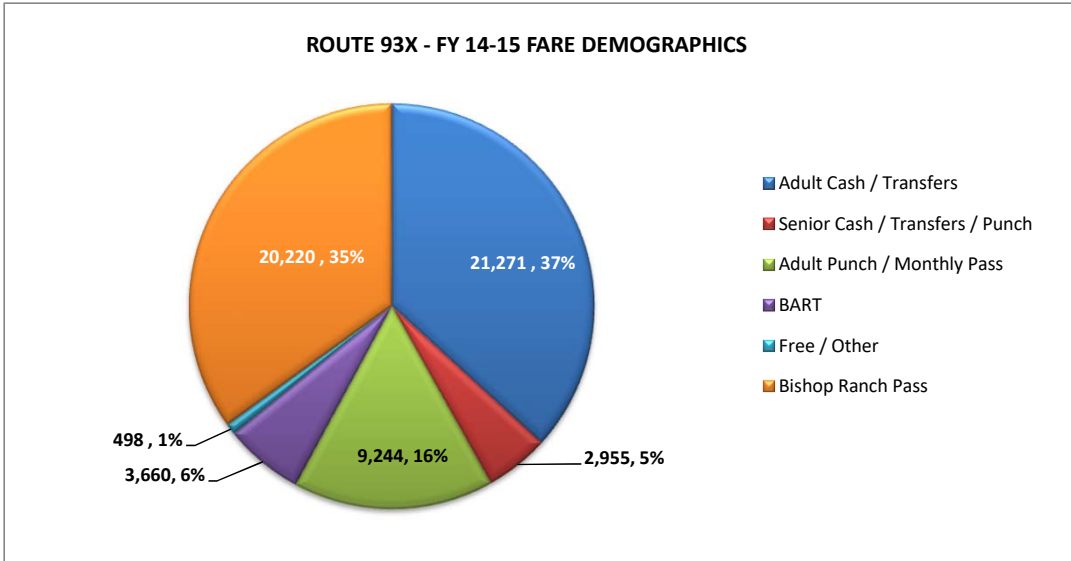


#### Avg Wkdy Boardings

	FY 14-15	FY 15-16	FY 16-17
Jul	218	215	189
Aug	230	185	199
Sep	269	199	208
Oct	247	190	208
Nov	220	176	184
Dec	200	175	163
Jan	216	185	178
Feb	229	194	182
Mar	227	202	186
Apr	223	198	180
May	222	190	175
Jun	221	186	152
<b>FY AVG</b>	<b>227</b>	<b>191</b>	<b>184</b>

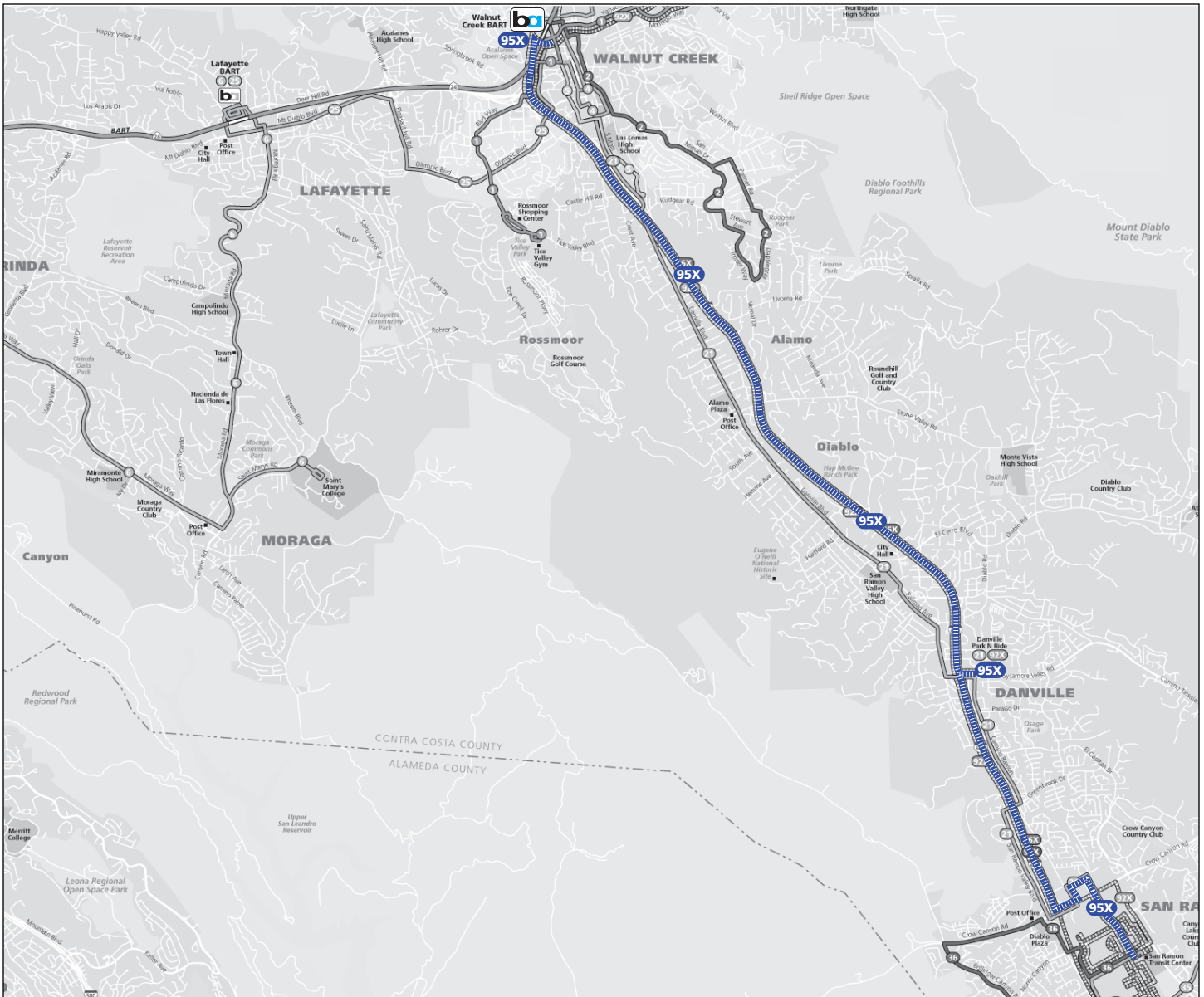


## FARE DEMOGRAPHIC CHART by Fiscal Year



# Route 95X: San Ramon Express

Every 40 Minutes from 6:30am to 9:04am, then 4:00pm to 7:15pm



## Origin and Recent Service Changes

Route 95X was created out of portions of the old Route 960, but with no deviations into Bishop Ranch and direct service to the San Ramon Transit Center. The route has stayed the same since 2009.

## Alignment Statistics and Connections

Route 95X's northern terminus is at the Walnut Creek BART Station, with regional connections to the Pittsburg Bay Point BART line, SolTrans (78), Solano (40), Wheels (70X) as well as CCCTA routes (1, 1M, 2, 4, 5, 9, 15, 21, 25, 93X, 96X, 98X, 601, 602). Private shuttle connections to the Rossmoor Green Line. The route then travels on Highway 680 to the Danville Park & Ride (Private shuttle connections), Highway 680 to Crow Canyon Rd. Crow Canyon Pl, Fostoria, and Camino Ramon to the San Ramon Transit Center. Connections with CCCTA routes (21, 35, 36, 92X, 96X, 97X).



# Route 95X: Key Performance Indicators

## Route Alignment, Speed, and Labor Statistics

Route 95X: San Ramon Express

FY17 On Time	Length (mi)	Scheduled Speed	Actual Speed
80%	27.0	26.7	27.9
-2%	-8%	25%	34%

# Stops	Stop Spacing (mi)	# of Rights	# of Lefts
9	3.00	8	5
-45%	67%	-23%	-34%

In-Service Time	Layover	Deadhead	Total Hours
61%	16%	23%	13.0
-8%	20%	13%	-37%

## Census Population, Jobs, and Demographics by Route

Jobs	Population	Jobs+Pop	J+P/mile
12,236	4,063	16,299	616
-27%	-55%	-37%	-54%

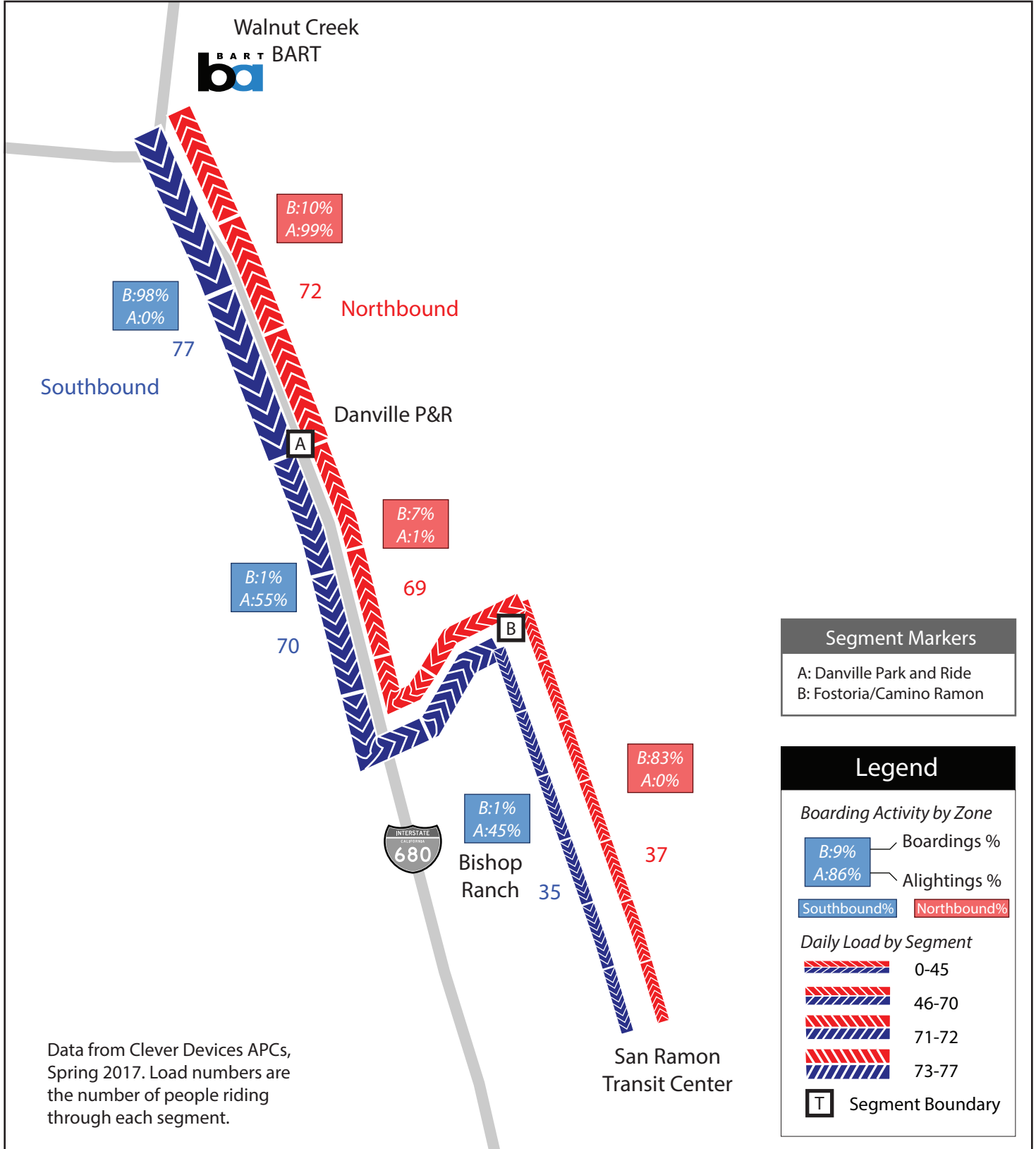
Poverty	Limited English	Minority	Senior
9%	11%	36%	17%
-18%	-3%	-26%	19%

Disabled	No Car	Youth	(Legend)
9%	5%	23%	(route value)
-7%	-29%	9%	(% diff from AVG)



# Route 95X Segment Map

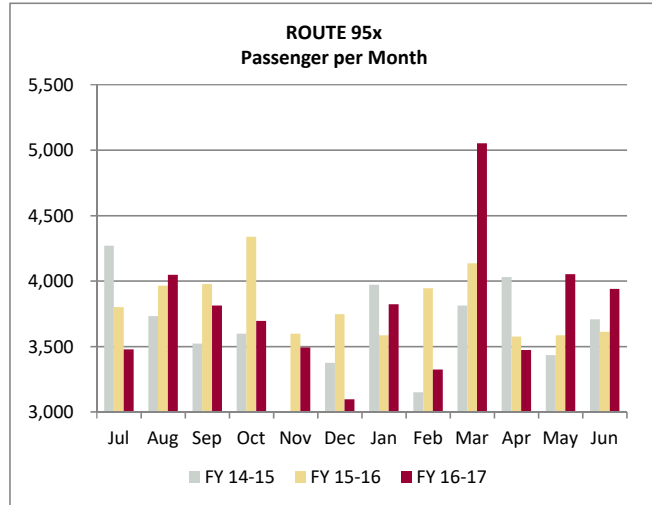
## Average Ridership % and Load by Segment and Direction



### Route 95X

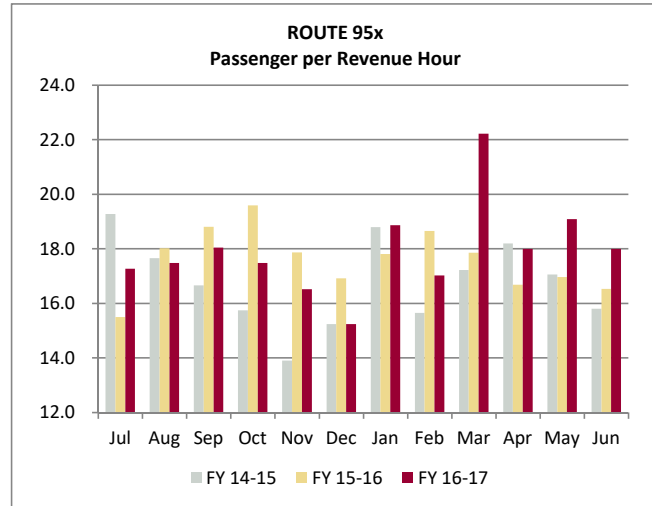
#### Passenger per Month

	FY 14-15	FY 15-16	FY 16-17
Jul	4,268	3,800	3,477
Aug	3,731	3,964	4,048
Sep	3,522	3,975	3,813
Oct	3,597	4,338	3,694
Nov	2,658	3,596	3,492
Dec	3,374	3,746	3,095
Jan	3,971	3,585	3,823
Feb	3,151	3,944	3,323
Mar	3,813	4,134	5,052
Apr	4,029	3,575	3,472
May	3,434	3,584	4,052
Jun	3,707	3,613	3,939
<b>FY TOTAL</b>	<b>43,255</b>	<b>45,854</b>	<b>45,279</b>



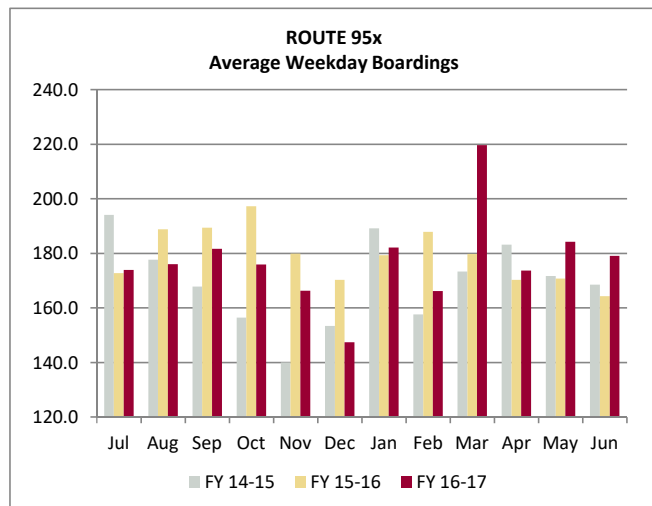
#### Passenger per Revenue Hour

	FY 14-15	FY 15-16	FY 16-17
Jul	19.3	15.5	17.3
Aug	17.6	18.0	17.5
Sep	16.7	18.8	18.0
Oct	15.7	19.6	17.5
Nov	13.9	17.9	16.5
Dec	15.2	16.9	15.2
Jan	18.8	17.8	18.9
Feb	15.6	18.7	17.0
Mar	17.2	17.9	22.2
Apr	18.2	16.7	18.0
May	17.1	17.0	19.1
Jun	15.8	16.5	18.0
<b>FY AVG</b>	<b>16.8</b>	<b>17.6</b>	<b>18.0</b>

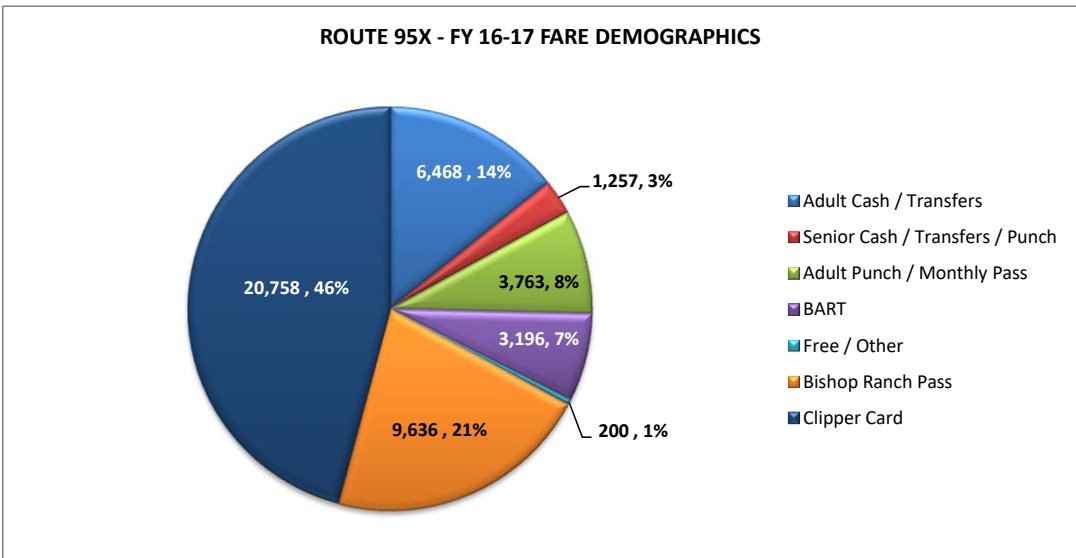
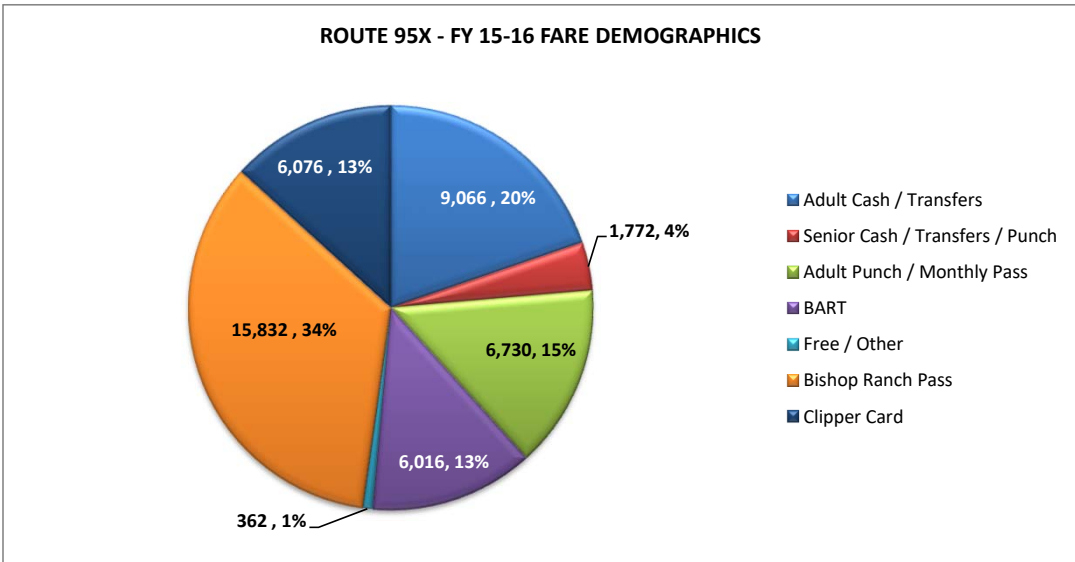
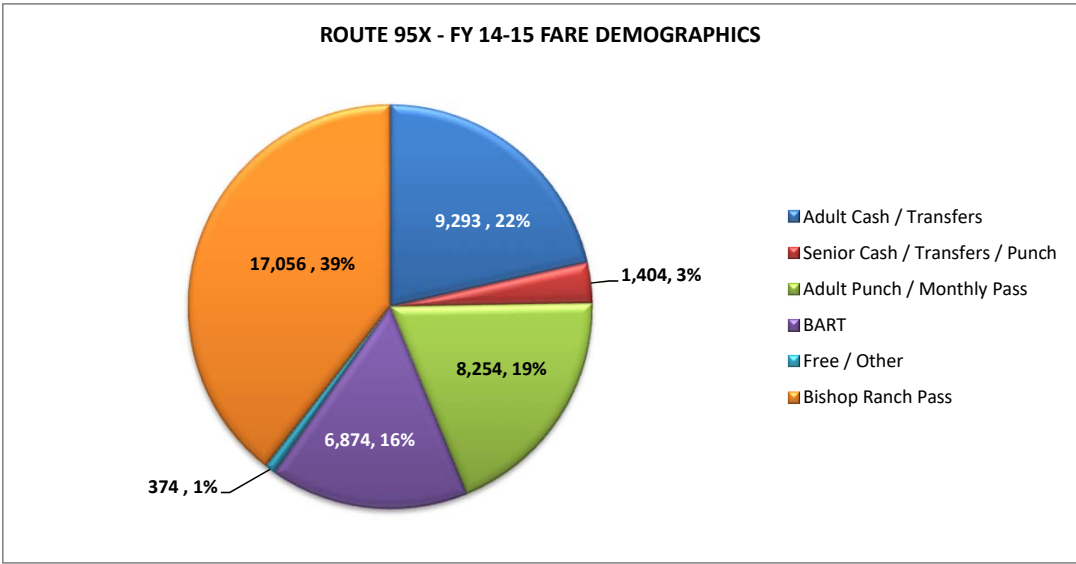


#### Avg Wkdy Boardings

	FY 14-15	FY 15-16	FY 16-17
Jul	194	173	174
Aug	178	189	176
Sep	168	189	182
Oct	156	197	176
Nov	140	180	166
Dec	153	170	147
Jan	189	179	182
Feb	158	188	166
Mar	173	180	220
Apr	183	170	174
May	172	171	184
Jun	168	164	179
<b>FY AVG</b>	<b>170</b>	<b>179</b>	<b>178</b>

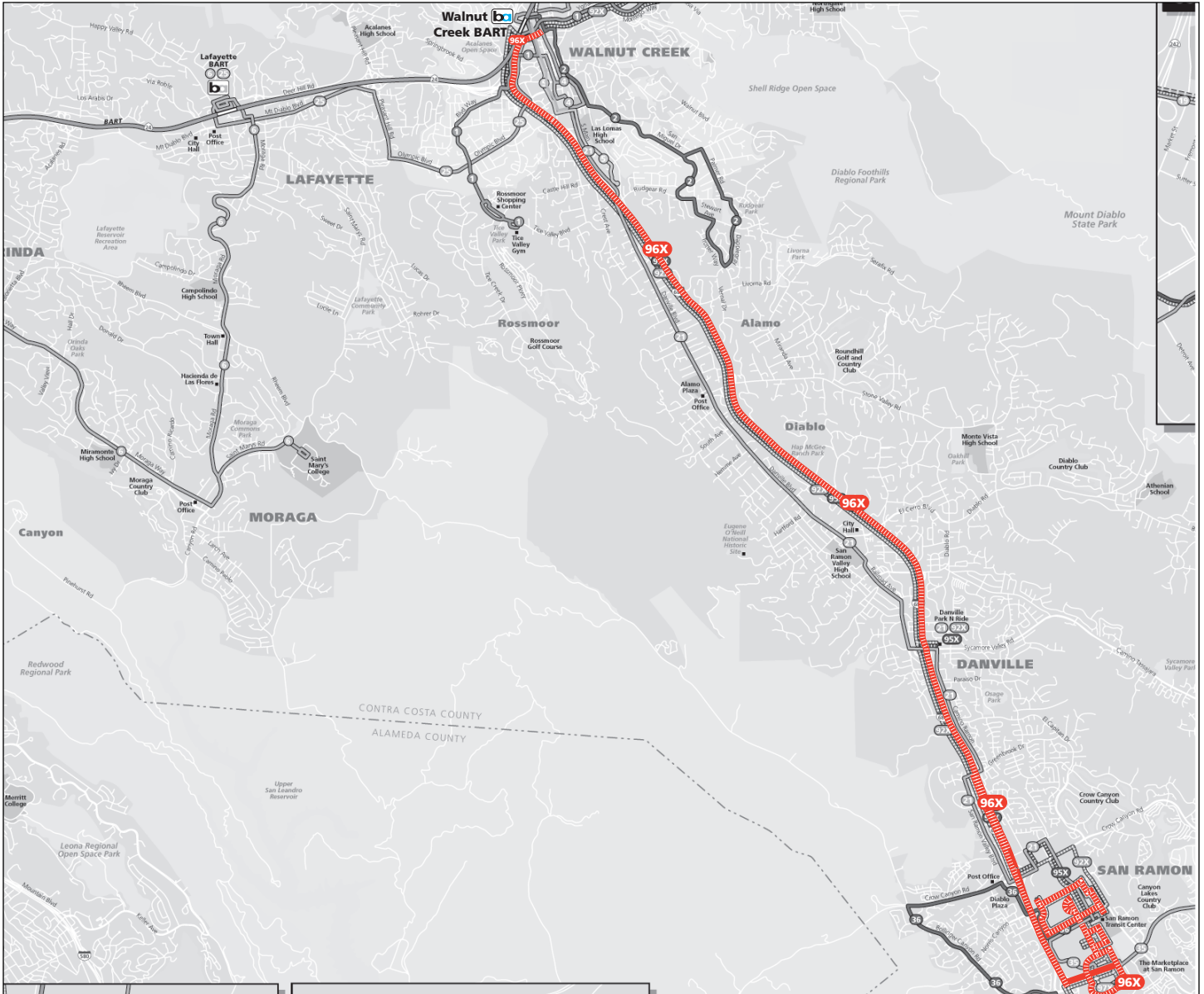


## FARE DEMOGRAPHIC CHART by Fiscal Year



# Route 96X: BART Walnut Creek/Bishop Ranch

Every 10-20 Minutes 5:37am to 10:00am, 3:00pm to 7:39. ~Hourly Midday.



## Origin and Recent Service Changes

Route 96X was created in 2009 from the old Route 960. Since 2009, a few new trips were added or deleted, with two added in Summer 2011, and three added in Winter 2013. Two PM trips were removed in and two AM trips were added in Summer 2014. The schedule and routing was redone in Spring 2015 when some timepoints were modified.

## Alignment Statistics and Connections

Route 96X's northern terminus is at the Walnut Creek BART Station, with regional connections to the Pittsburg Bay Point BART line, SolTrans (78), Solano (40), Wheels (70X) as well as CCCTA routes (1, 1M, 2, 4, 5, 9, 15, 21, 25, 93X, 95X, 98X, 601, 602). Private shuttle connections to the Rossmoor Green Line. The route then travels on Highway 680 to Chevron, Bishop Ranch and the San Ramon Transit Center. Connections with CCCTA routes (21, 35, 36, 92X, 95X, 97X). This Route is a Partnership with Sunset Development (Bishop Ranch) and Chevron to provide service from the BART Walnut Creek station to the Bishop Ranch Business Park and Chevron San Ramon Facility.



# Route 96X: Key Performance Indicators

## Route Alignment, Speed, and Labor Statistics

Route 96X: BART Walnut Creek/Bishop Ranch

FY17 On Time	Length (mi)	Scheduled Speed	Actual Speed
79%	30.9	24.6	23.3
-3%	5%	15%	12%

# Stops	Stop Spacing (mi)	# of Rights	# of Lefts
10	3.09	12	7
-39%	72%	15%	-8%

In-Service Time	Layover	Deadhead	Total Hours
70%	12%	18%	43.3
5%	-12%	-9%	109%

## Census Population, Jobs, and Demographics by Route

Jobs	Population	Jobs+Pop	J+P/mile
19,079	3,416	22,495	692
14%	-62%	-13%	-48%

Poverty	Limited English	Minority	Senior
8%	15%	47%	15%
-30%	32%	-3%	1%

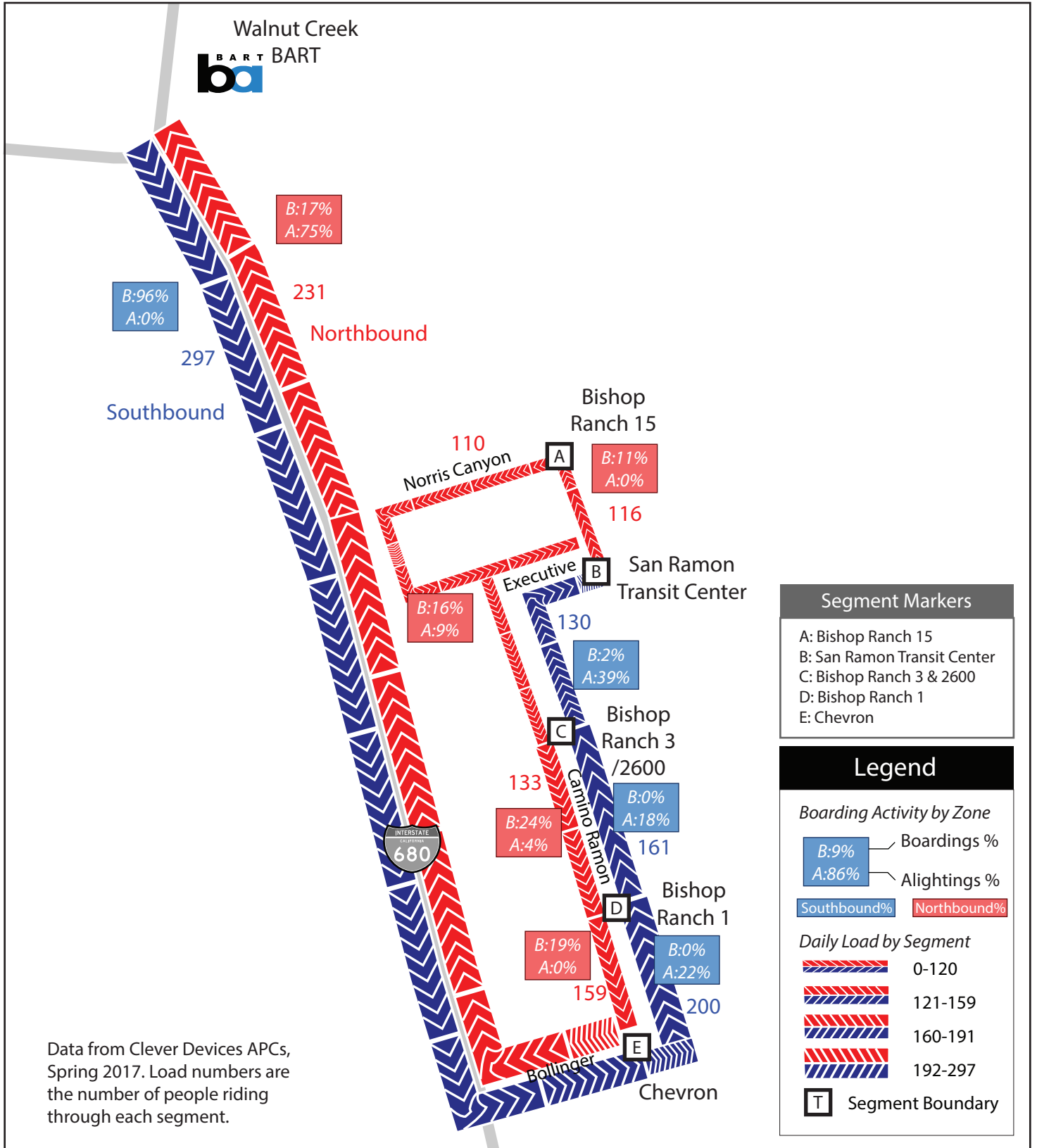
Disabled	No Car	Youth	(Legend)
7%	5%	21%	(route value)
-34%	-31%	1%	(% diff from AVG)





# Route 96X Segment Map

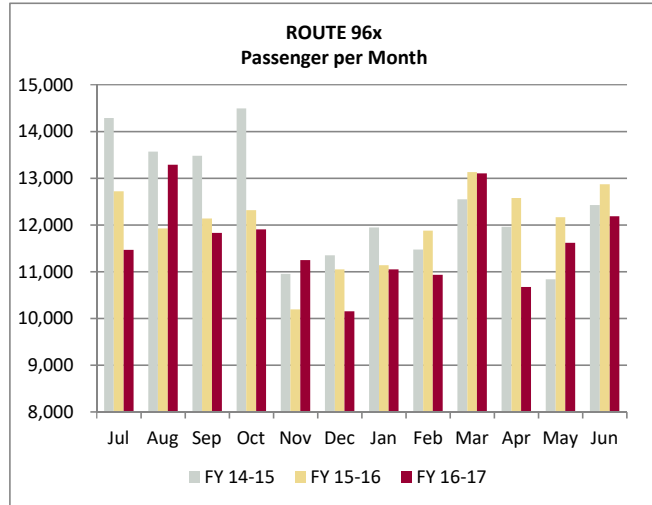
## Average Ridership % and Load by Segment and Direction



### Route 96X

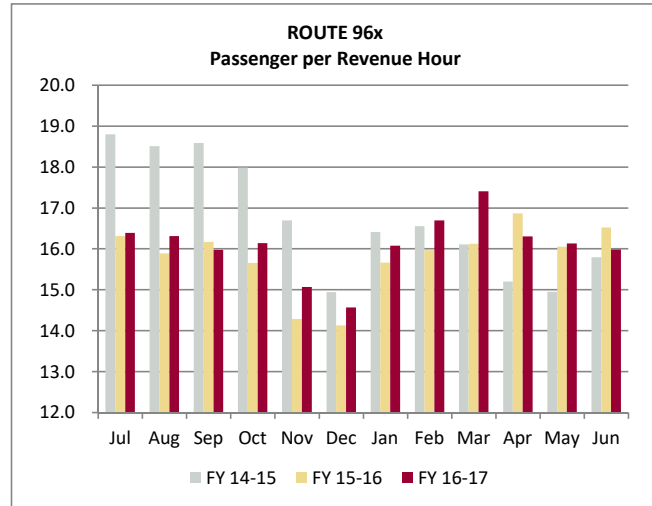
#### Passenger per Month

	FY 14-15	FY 15-16	FY 16-17
Jul	14,287	12,720	11,465
Aug	13,566	11,926	13,286
Sep	13,478	12,138	11,826
Oct	14,491	12,311	11,900
Nov	10,954	10,190	11,248
Dec	11,348	11,049	10,152
Jan	11,947	11,137	11,049
Feb	11,471	11,872	10,929
Mar	12,545	13,131	13,101
Apr	11,956	12,574	10,671
May	10,837	12,162	11,617
Jun	12,422	12,869	12,181
<b>FY TOTAL</b>	<b>149,302</b>	<b>144,078</b>	<b>139,424</b>



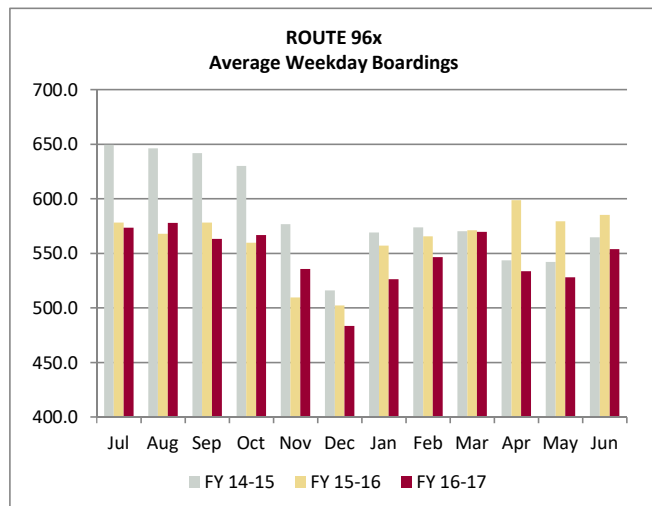
#### Passenger per Revenue Hour

	FY 14-15	FY 15-16	FY 16-17
Jul	18.8	16.3	16.4
Aug	18.5	15.9	16.3
Sep	18.6	16.2	16.0
Oct	18.0	15.7	16.1
Nov	16.7	14.3	15.1
Dec	14.9	14.1	14.6
Jan	16.4	15.7	16.1
Feb	16.5	16.0	16.7
Mar	16.1	16.1	17.4
Apr	15.2	16.9	16.3
May	14.9	16.0	16.1
Jun	15.8	16.5	16.0
<b>FY AVG</b>	<b>16.7</b>	<b>15.8</b>	<b>16.1</b>

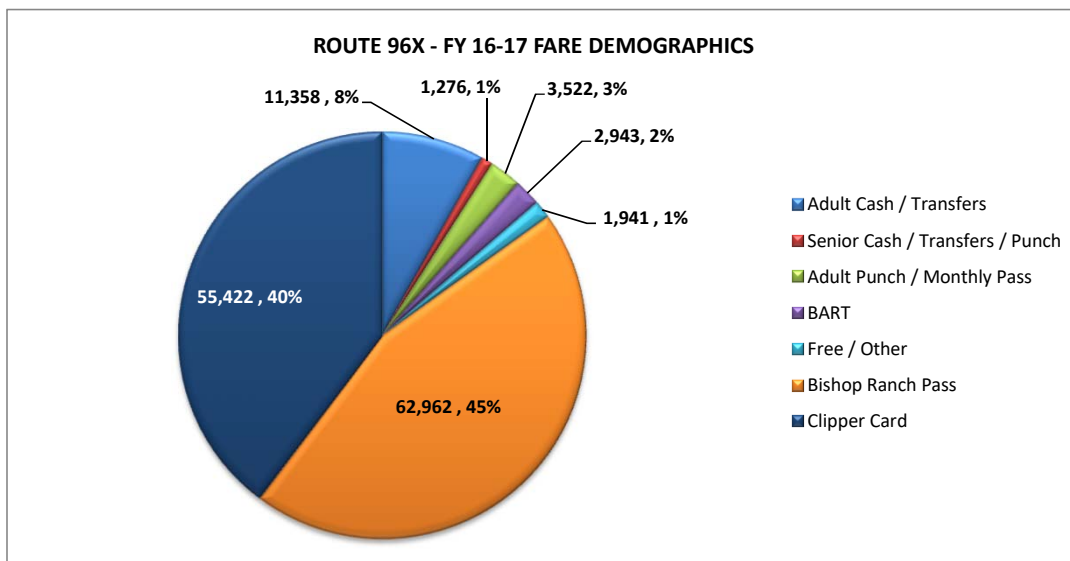
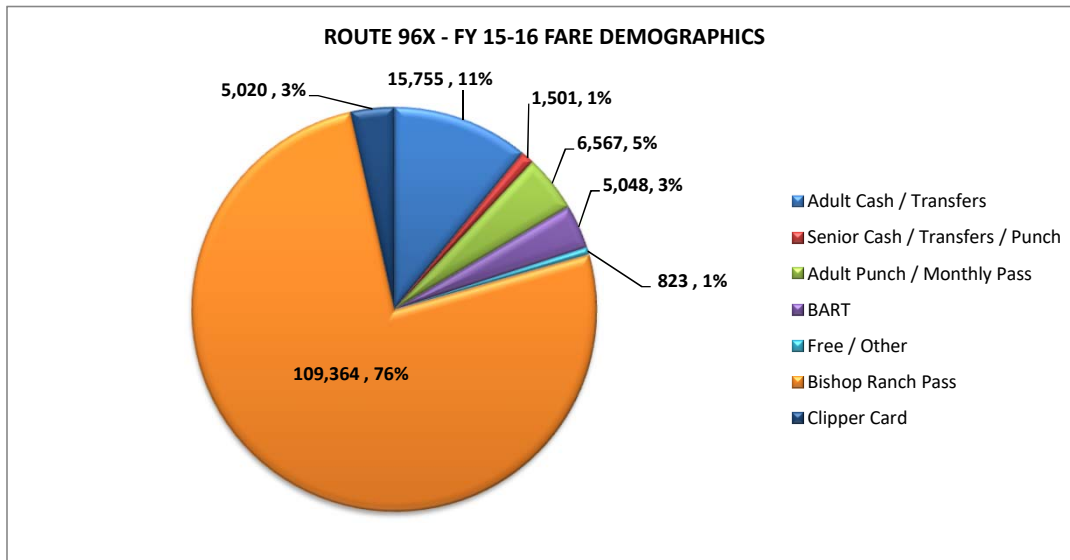
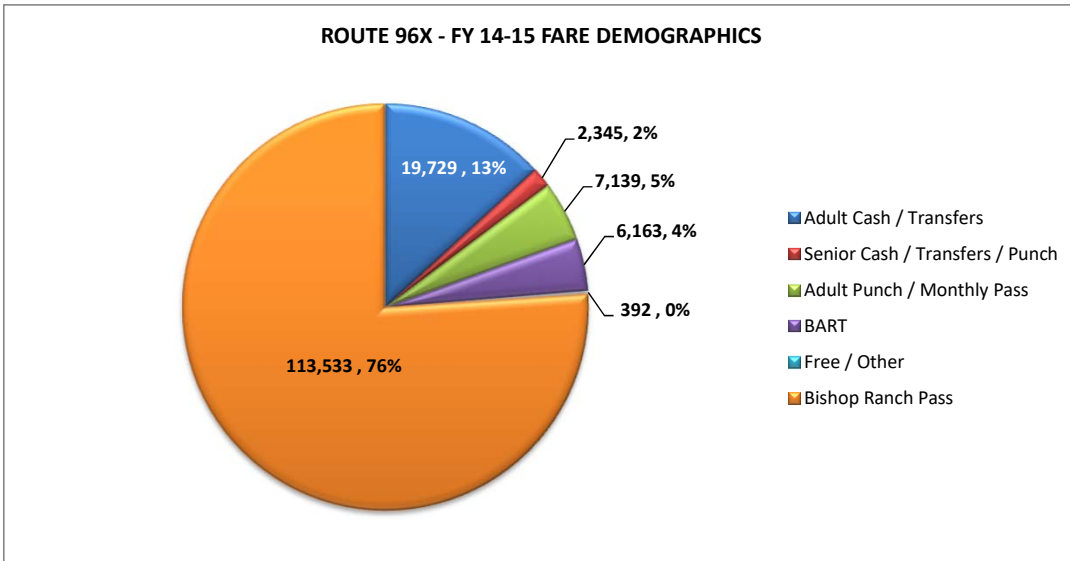


#### Avg Wkdy Boardings

	FY 14-15	FY 15-16	FY 16-17
Jul	649	578	573
Aug	646	568	578
Sep	642	578	563
Oct	630	560	567
Nov	577	509	536
Dec	516	502	483
Jan	569	557	526
Feb	574	565	546
Mar	570	571	570
Apr	543	599	534
May	542	579	528
Jun	565	585	554
<b>FY AVG</b>	<b>585</b>	<b>563</b>	<b>547</b>



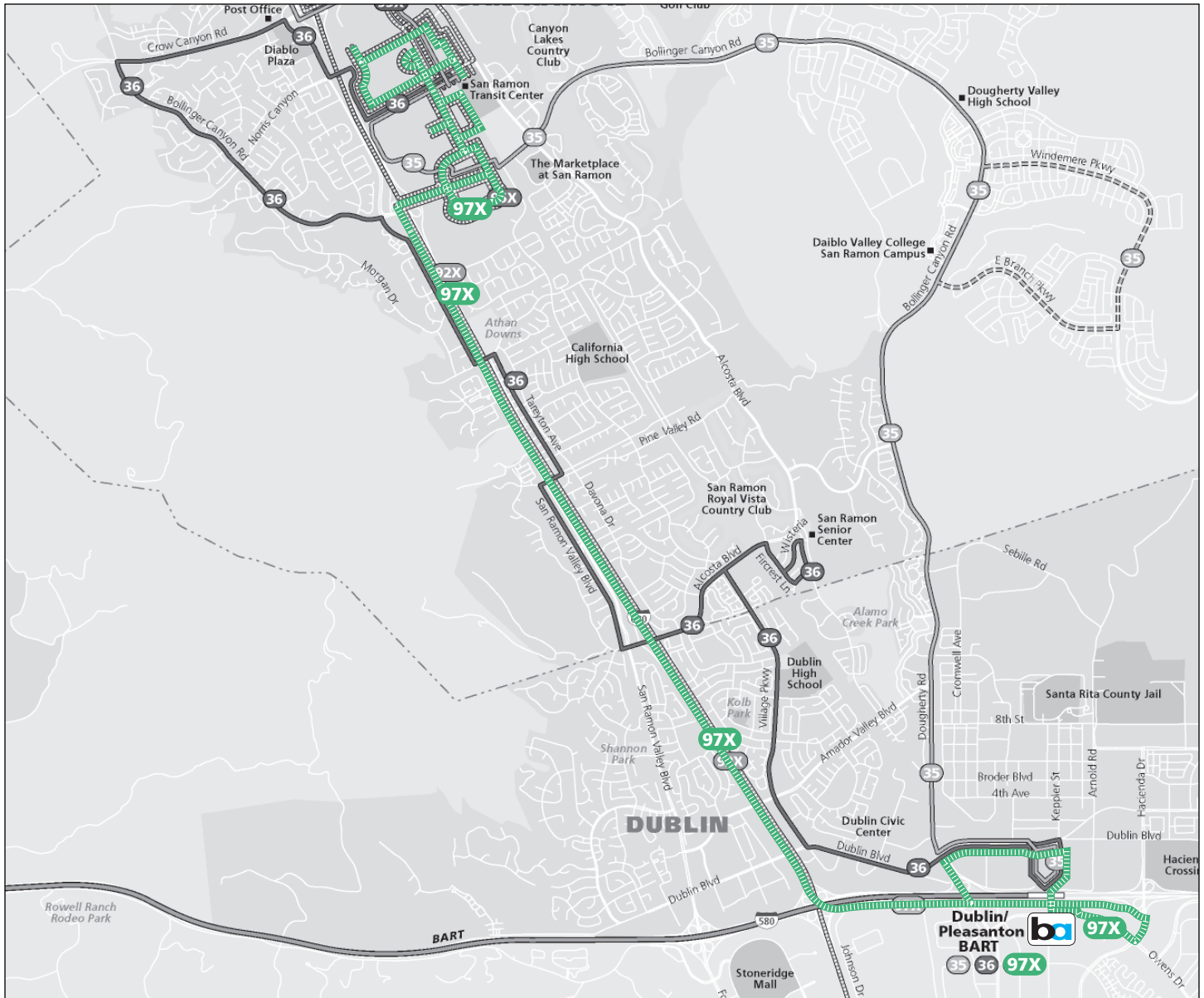
**FARE DEMOGRAPHIC CHART by Fiscal Year**





# Route 97X: San Ramon Transit Center to BART Dublin/Pleasanton

About Every 30 Minutes Peak, 6:30am to 9:50am, 3:54pm to 6:14pm



## Origin and Recent Service Changes

Route 97X was created in 2009 from the old 970 route. The patterns have been modified to roughly follow the 96X in Winter 2012. Four trips were deleted in 2014 Summer. In 2015 the schedule was redone with new routing and timepoints.

## Alignment Statistics and Connections

Route 97X's southern terminus is at the Dublin/Pleasanton BART Station, with regional connections to the Dublin/Pleasanton BART Line, Wheels routes (R, 1, 2, 3, 8A, 8B, 9, 10, 12, 12X, 20, 54, 70X, 503), San Joaquin RTD (150), Modesto Max (BART Express), Amtrak Thruway (San Joaquins), StaRT (Stanislaus Regional Transit), as well as CCCTA routes (35, 36). The route then travels on Highway 580 and Highway 680 to Chevron, Bishop Ranch and the San Ramon Transit Center. Connections with CCCTA routes (21, 35, 36, 92X, 95X, 96X). This Route is a Partnership with Sunset Development (Bishop Ranch) and Chevron to provide service from the BART Dublin/Pleasanton station to the Bishop Ranch Business Park and Chevron San Ramon Facility.

# Route 97X: Key Performance Indicators

## Route Alignment, Speed, and Labor Statistics

Route 97X: San Ramon Transit Center to BART Dublin/Pleasanton

FY17 On Time	Length (mi)	Scheduled Speed	Actual Speed
87%	19.9	19.1	12.2
7%	-33%	-11%	-41%

# Stops	Stop Spacing (mi)	# of Rights	# of Lefts
7	2.84	7	8
-57%	58%	-33%	6%

In-Service Time	Layover	Deadhead	Total Hours
58%	11%	31%	14.3
-13%	-16%	54%	-31%

## Census Population, Jobs, and Demographics by Route

Jobs	Population	Jobs+Pop	J+P/mile
17,148	3,044	20,192	943
3%	-67%	-22%	-29%

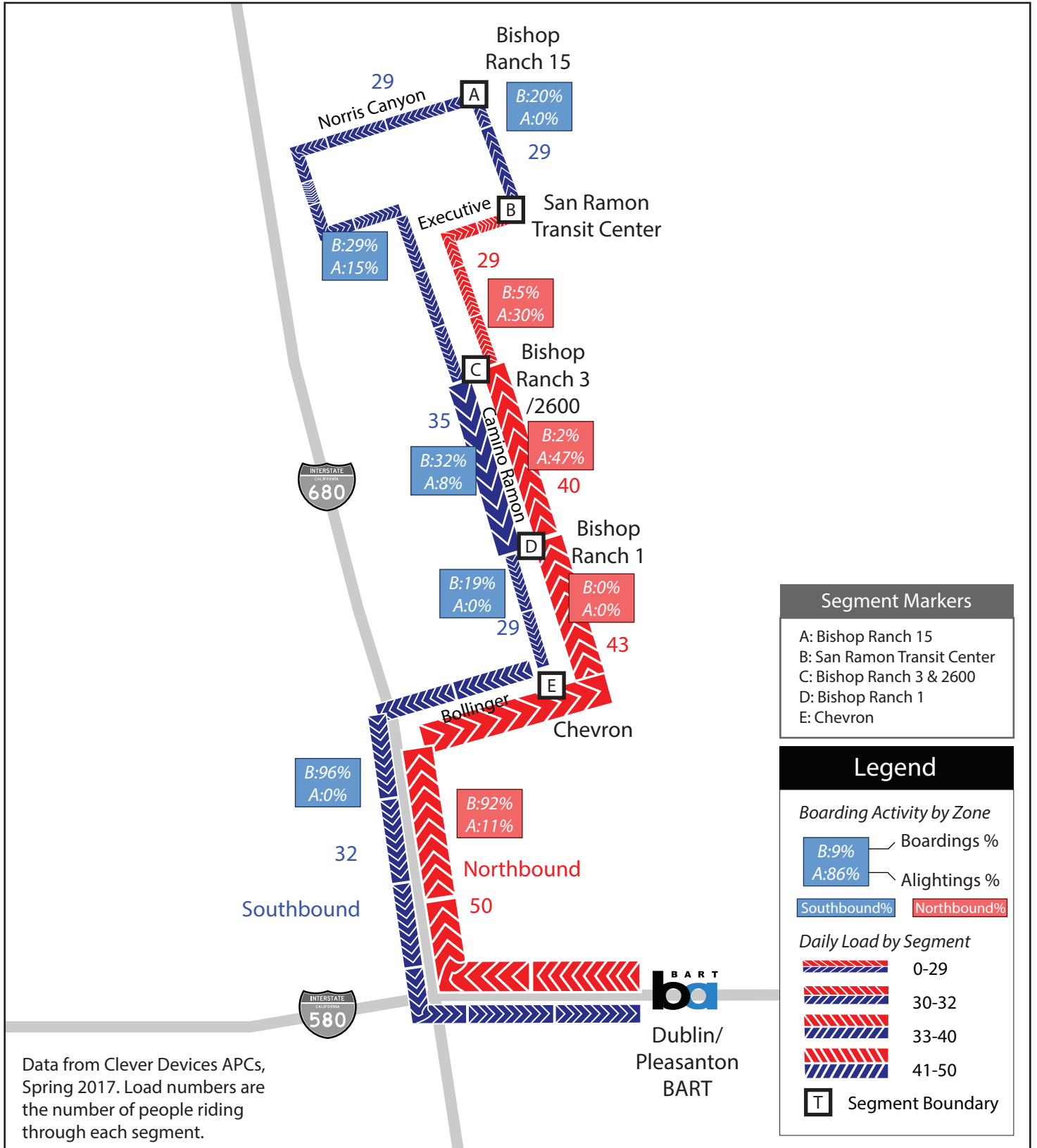
Poverty	Limited English	Minority	Senior
3%	8%	53%	11%
-71%	-32%	10%	-22%

Disabled	No Car	Youth	(Legend)
5%	3%	24%	(route value)
-53%	-59%	12%	(% diff from AVG)



# Route 97X Segment Map

## Average Ridership % and Load by Segment and Direction

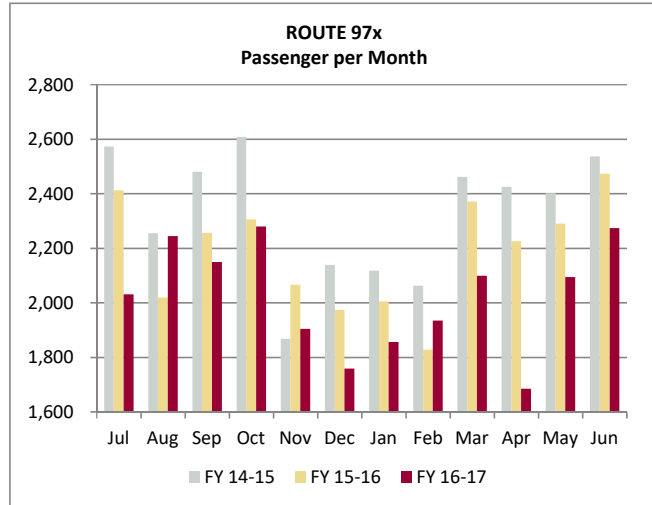


Data from Clever Devices APCs, Spring 2017. Load numbers are the number of people riding through each segment.

### Route 97X

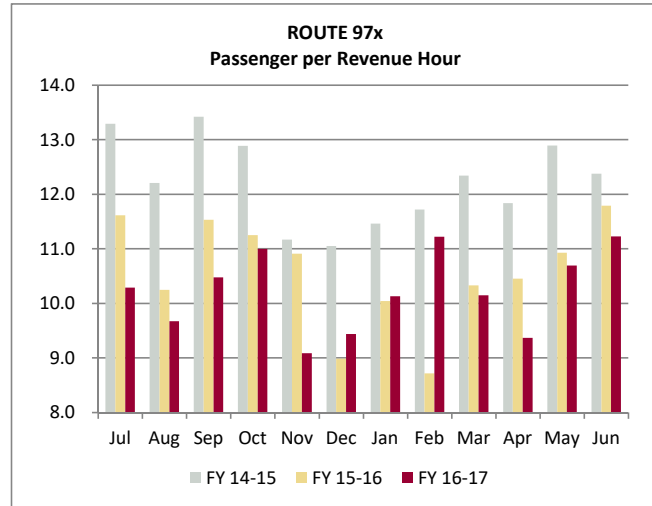
#### Passenger per Month

	FY 14-15	FY 15-16	FY 16-17
Jul	2,573	2,412	2,031
Aug	2,255	2,019	2,244
Sep	2,480	2,256	2,149
Oct	2,608	2,305	2,279
Nov	1,867	2,066	1,904
Dec	2,139	1,973	1,759
Jan	2,117	2,005	1,856
Feb	2,063	1,827	1,934
Mar	2,461	2,371	2,099
Apr	2,426	2,226	1,684
May	2,402	2,290	2,094
Jun	2,536	2,474	2,274
<b>FY TOTAL</b>	<b>27,927</b>	<b>26,224</b>	<b>24,308</b>



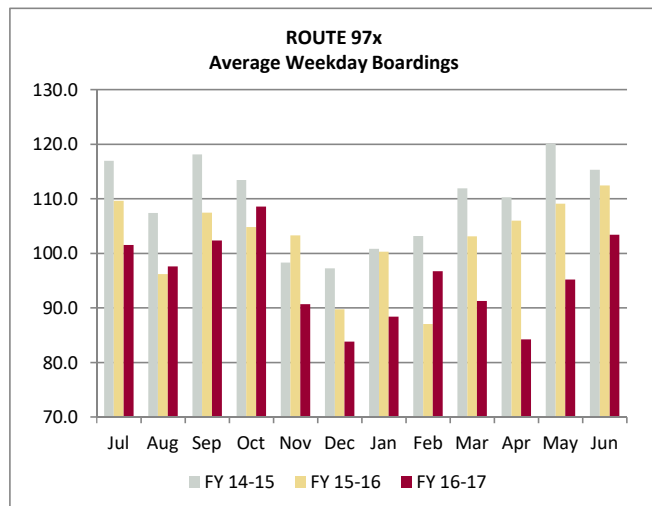
#### Passenger per Revenue Hour

	FY 14-15	FY 15-16	FY 16-17
Jul	13.3	11.6	10.3
Aug	12.2	10.2	9.7
Sep	13.4	11.5	10.5
Oct	12.9	11.2	11.0
Nov	11.2	10.9	9.1
Dec	11.0	9.0	9.4
Jan	11.5	10.0	10.1
Feb	11.7	8.7	11.2
Mar	12.3	10.3	10.1
Apr	11.8	10.5	9.4
May	12.9	10.9	10.7
Jun	12.4	11.8	11.2
<b>FY AVG</b>	<b>12.2</b>	<b>10.5</b>	<b>10.2</b>

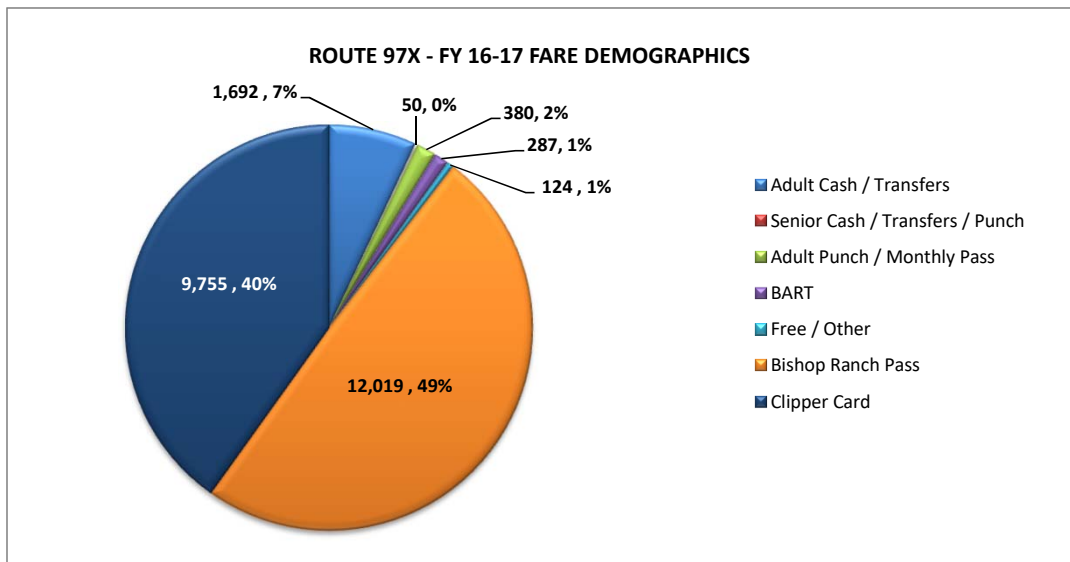
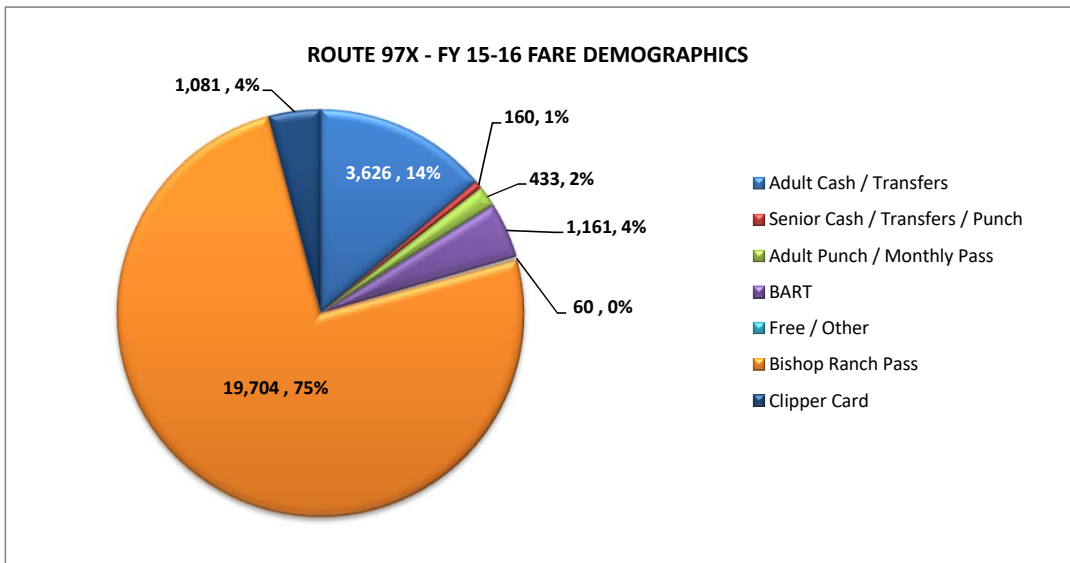
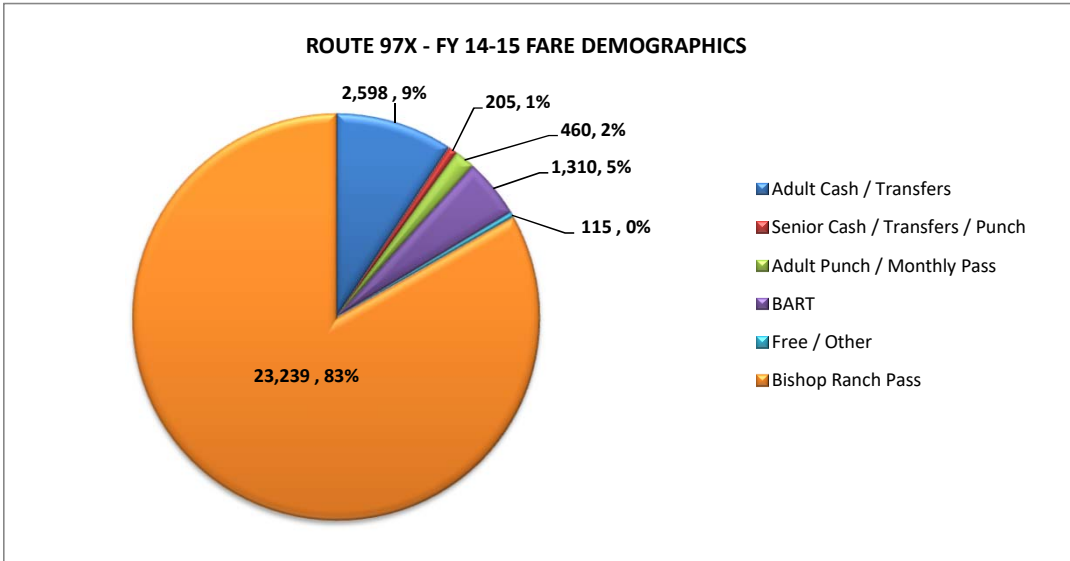


#### Avg Wkdy Boardings

	FY 14-15	FY 15-16	FY 16-17
Jul	117	110	102
Aug	107	96	98
Sep	118	107	102
Oct	113	105	109
Nov	98	103	91
Dec	97	90	84
Jan	101	100	88
Feb	103	87	97
Mar	112	103	91
Apr	110	106	84
May	120	109	95
Jun	115	112	103
<b>FY AVG</b>	<b>110</b>	<b>102</b>	<b>95</b>



## FARE DEMOGRAPHIC CHART by Fiscal Year





# Route 98X: Martinez / BART Walnut Creek

Every 40 Minutes Peak, Every 120 Minutes Off-Peak, 5:38am to 7:41pm



## Origin and Recent Service Changes

Route 98X was created from the old Route 980 in 2009. The schedule has been adjusted a lot since then, mostly to time to BART connections. The schedule was updated in 2010 Fall/winter, 2010 Winter, 2011 Winter, 2016 Fall, and 2016 Winter. The routing changed in 2012 Winter when it was partially pulled off I-680 to serve Pacheco.

## Alignment Statistics and Connections

Route 98X's northern terminus is at the Martinez Amtrak Station. Regional connections to Delta Breeze (200), WestCat (30Z), Amtrak (commuter trains: Capitol Corridor and San Joaquin, and once daily Coast Starlight and California Zephyr), as well as CCCTA routes (3, 16, 18, 19, 28). The route then takes Alhambra, sharing the same corridor as Route 3, 16, 30Z, and 200. It then travels on Highway 4 to Pacheco Blvd, Contra Costa Blvd, Sun Valley Blvd, Highway 680, N Main St to BART Walnut Creek connecting with SolTrans (78), Solano (40), Wheels (70X) and CCCTA routes (1, 1M, 2, 4, 5, 9, 15, 21, 25, 93X, 95X, 96X, 601,602 and the Rossmoor Green Line.

# Route 98X: Key Performance Indicators

## Route Alignment, Speed, and Labor Statistics

Route 98X: Martinez / BART Walnut Creek

FY17 On Time	Length (mi)	Scheduled Speed	Actual Speed
87%	26.3	21.1	22.6

# Stops	Stop Spacing (mi)	# of Rights	# of Lefts
23	1.14	9	8

In-Service Time	Layover	Deadhead	Total Hours
71%	24%	5%	28.3

## Census Population, Jobs, and Demographics by Route

Jobs	Population	Jobs+Pop	J+P/mile
14,816	12,608	27,424	1,046

Poverty	Limited English	Minority	Senior
15%	7%	40%	12%

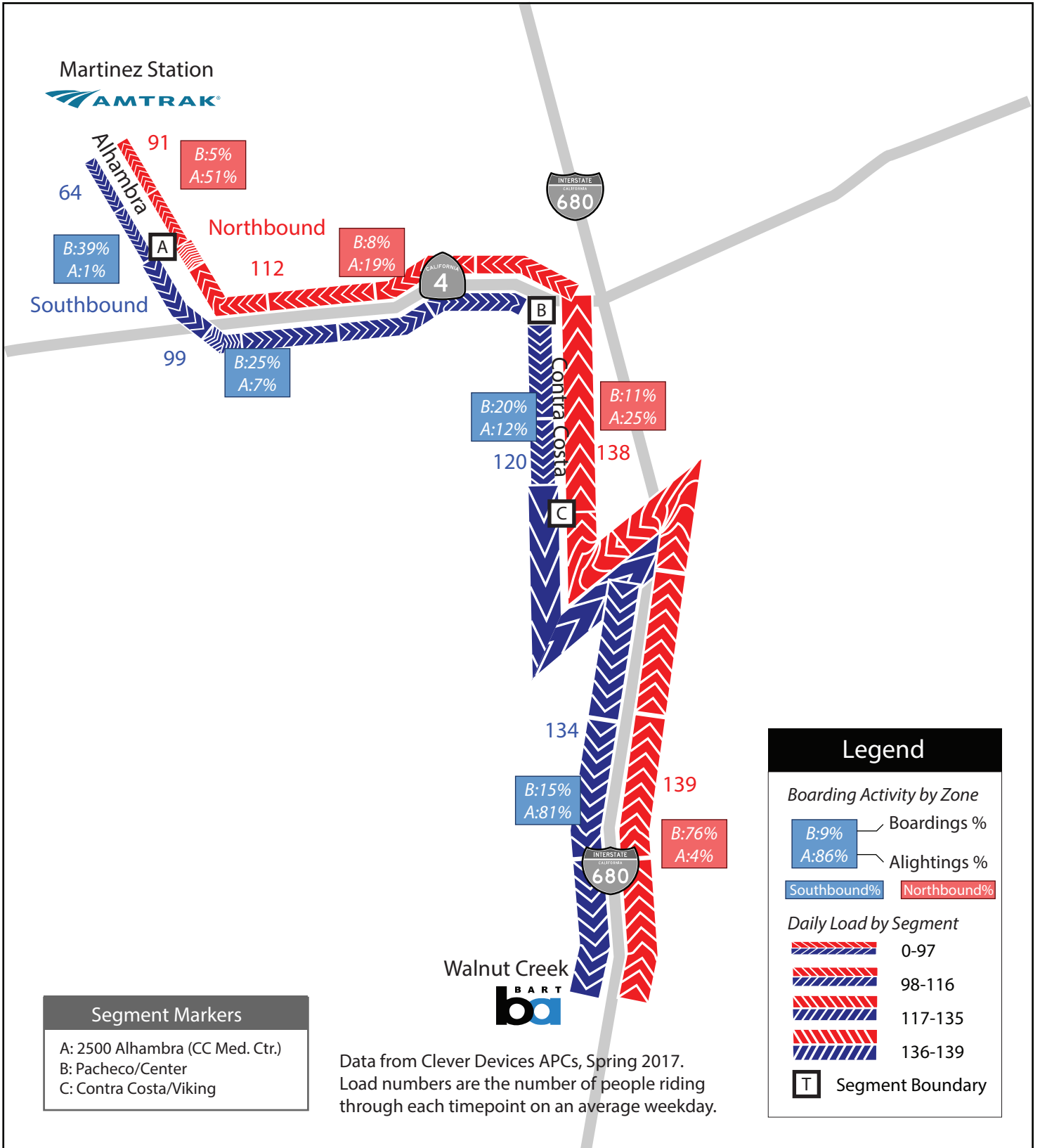
Disabled	No Car	Youth	(Legend)
13%	8%	17%	(route value)
			(% diff from AVG)





# Route 98X Segment Map

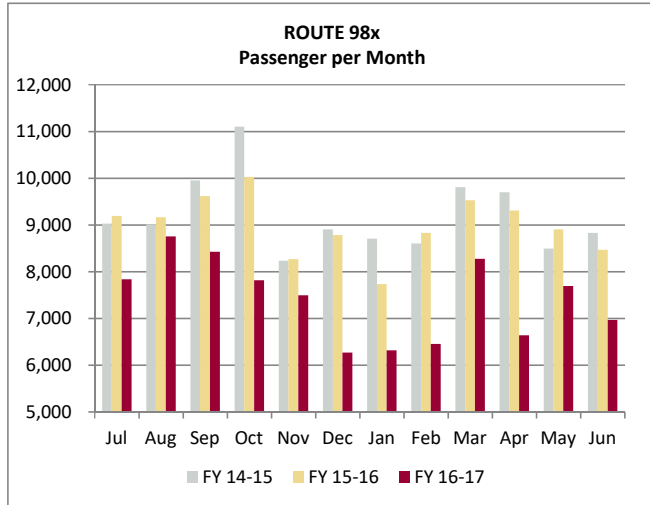
## Average Ridership % and Load by Segment and Direction



### Route 98X

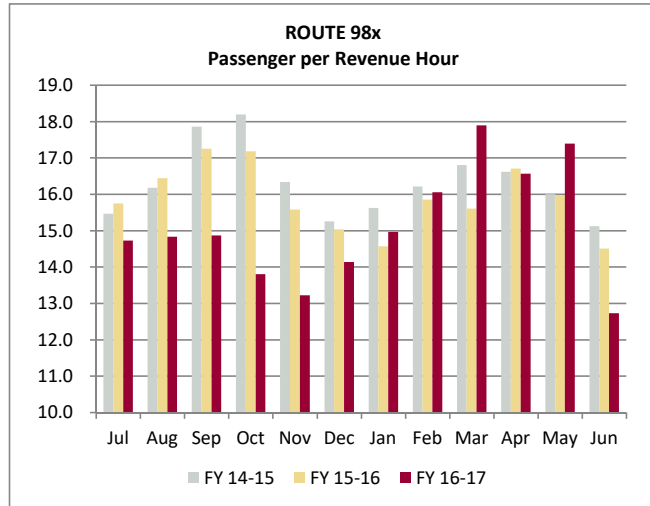
#### Passenger per Month

	FY 14-15	FY 15-16	FY 16-17
Jul	9,026	9,190	7,835
Aug	9,014	9,160	8,749
Sep	9,951	9,612	8,423
Oct	11,101	10,028	7,817
Nov	8,234	8,267	7,491
Dec	8,905	8,776	6,268
Jan	8,705	7,731	6,314
Feb	8,601	8,829	6,454
Mar	9,809	9,525	8,271
Apr	9,699	9,307	6,639
May	8,489	8,900	7,691
Jun	8,824	8,467	6,966
<b>FY TOTAL</b>	<b>110,356</b>	<b>107,791</b>	<b>88,918</b>



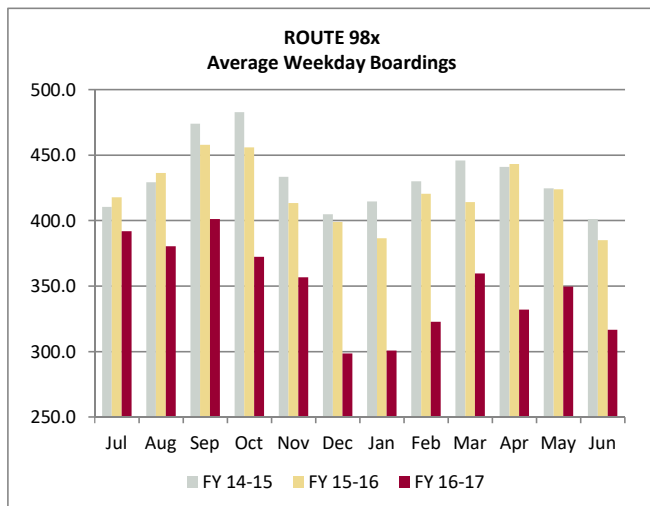
#### Passenger per Revenue Hour

	FY 14-15	FY 15-16	FY 16-17
Jul	15.5	15.7	14.7
Aug	16.2	16.4	14.8
Sep	17.9	17.3	14.9
Oct	18.2	17.2	13.8
Nov	16.3	15.6	13.2
Dec	15.3	15.0	14.1
Jan	15.6	14.6	15.0
Feb	16.2	15.8	16.1
Mar	16.8	15.6	17.9
Apr	16.6	16.7	16.6
May	16.0	16.0	17.4
Jun	15.1	14.5	12.7
<b>FY AVG</b>	<b>16.3</b>	<b>15.9</b>	<b>15.0</b>



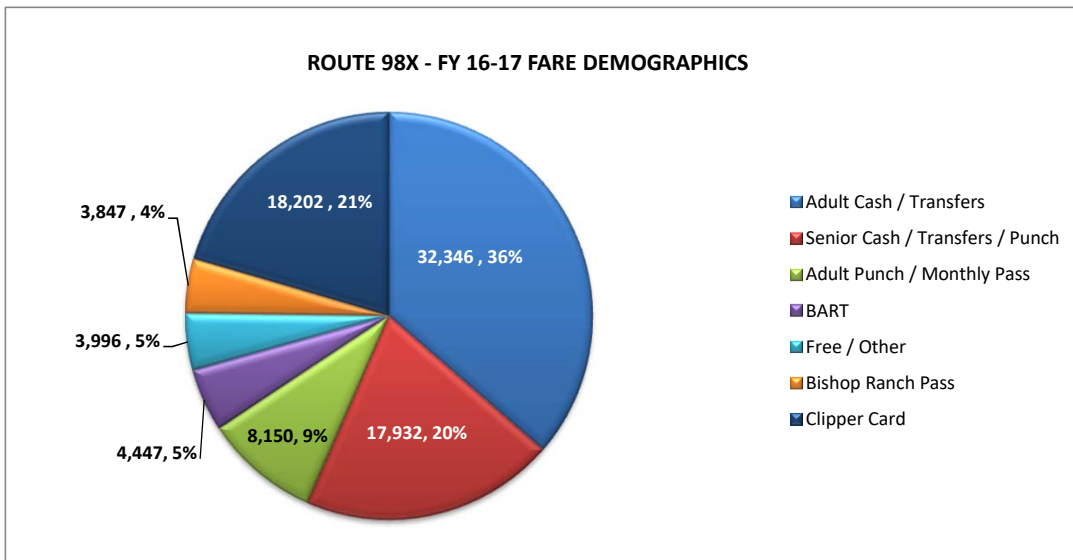
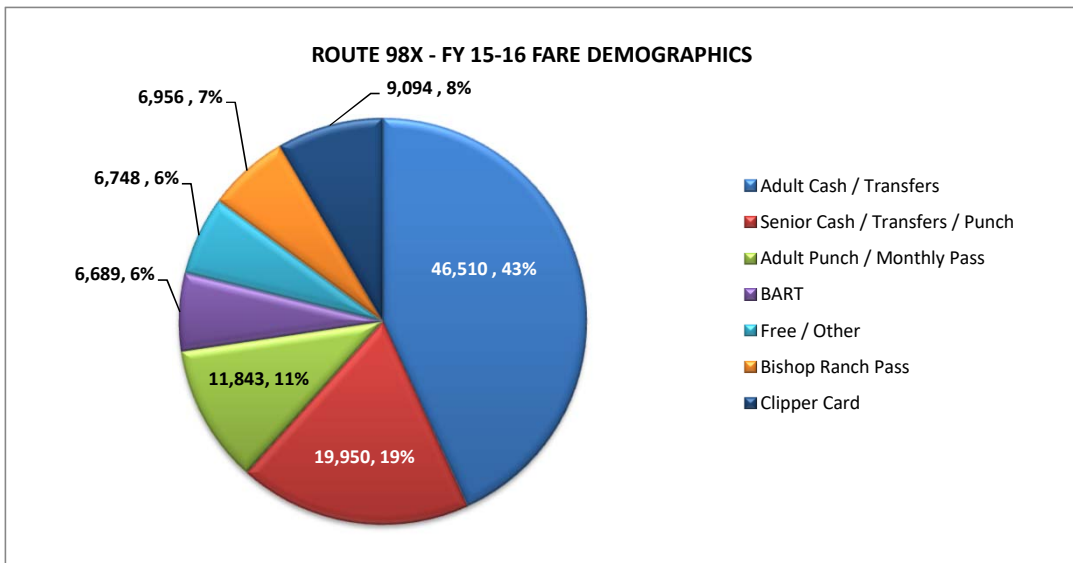
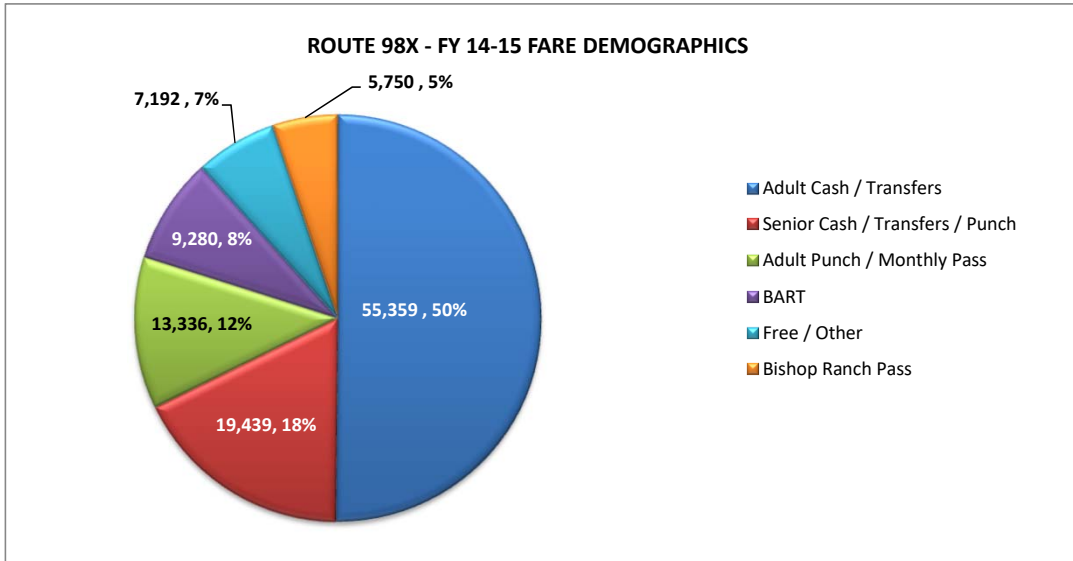
#### Avg Wkdy Boardings

	FY 14-15	FY 15-16	FY 16-17
Jul	410	418	392
Aug	429	436	380
Sep	474	458	401
Oct	483	456	372
Nov	433	413	357
Dec	405	399	298
Jan	415	387	301
Feb	430	420	323
Mar	446	414	360
Apr	441	443	332
May	424	424	350
Jun	401	385	317
<b>FY AVG</b>	<b>433</b>	<b>421</b>	<b>349</b>

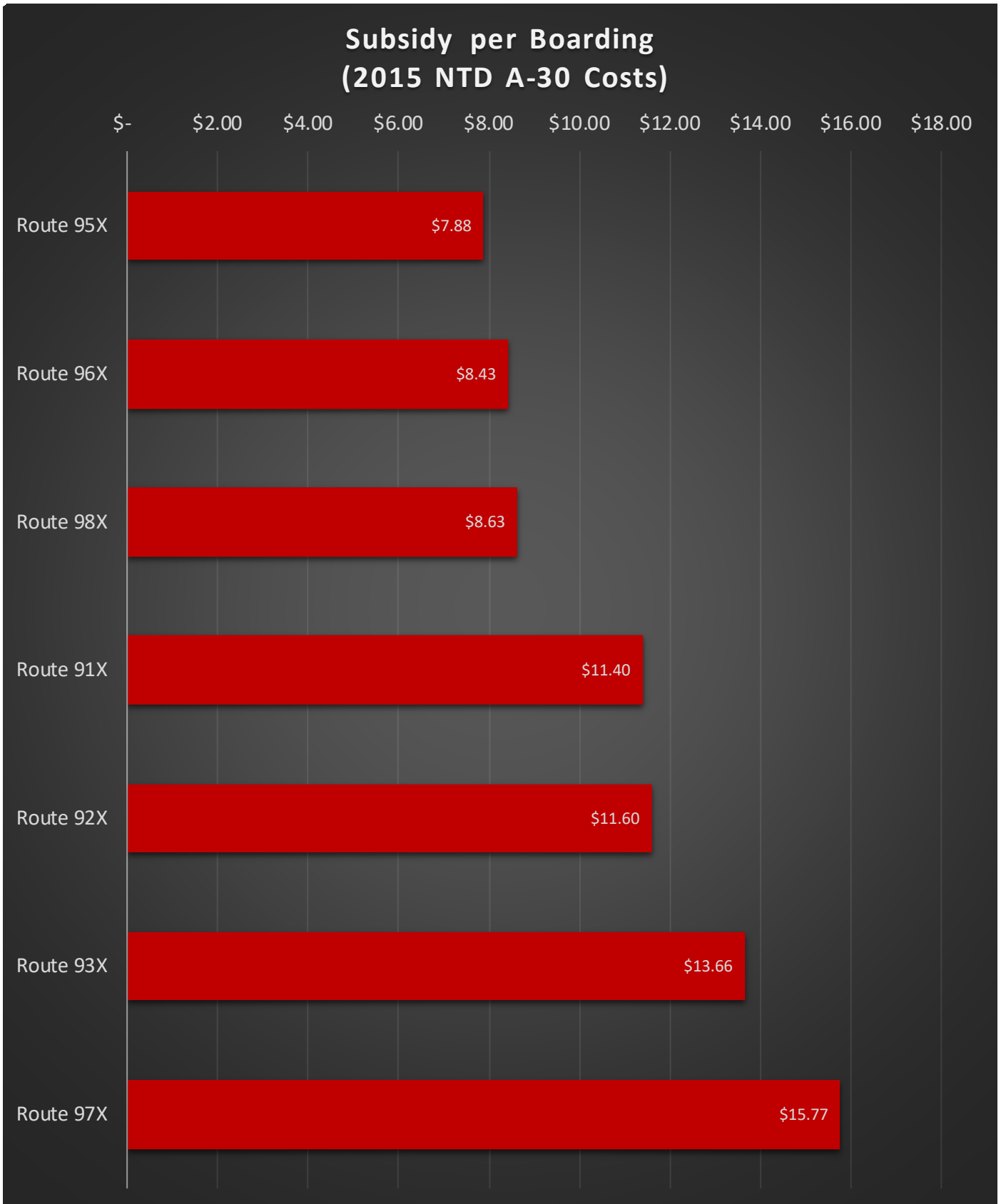




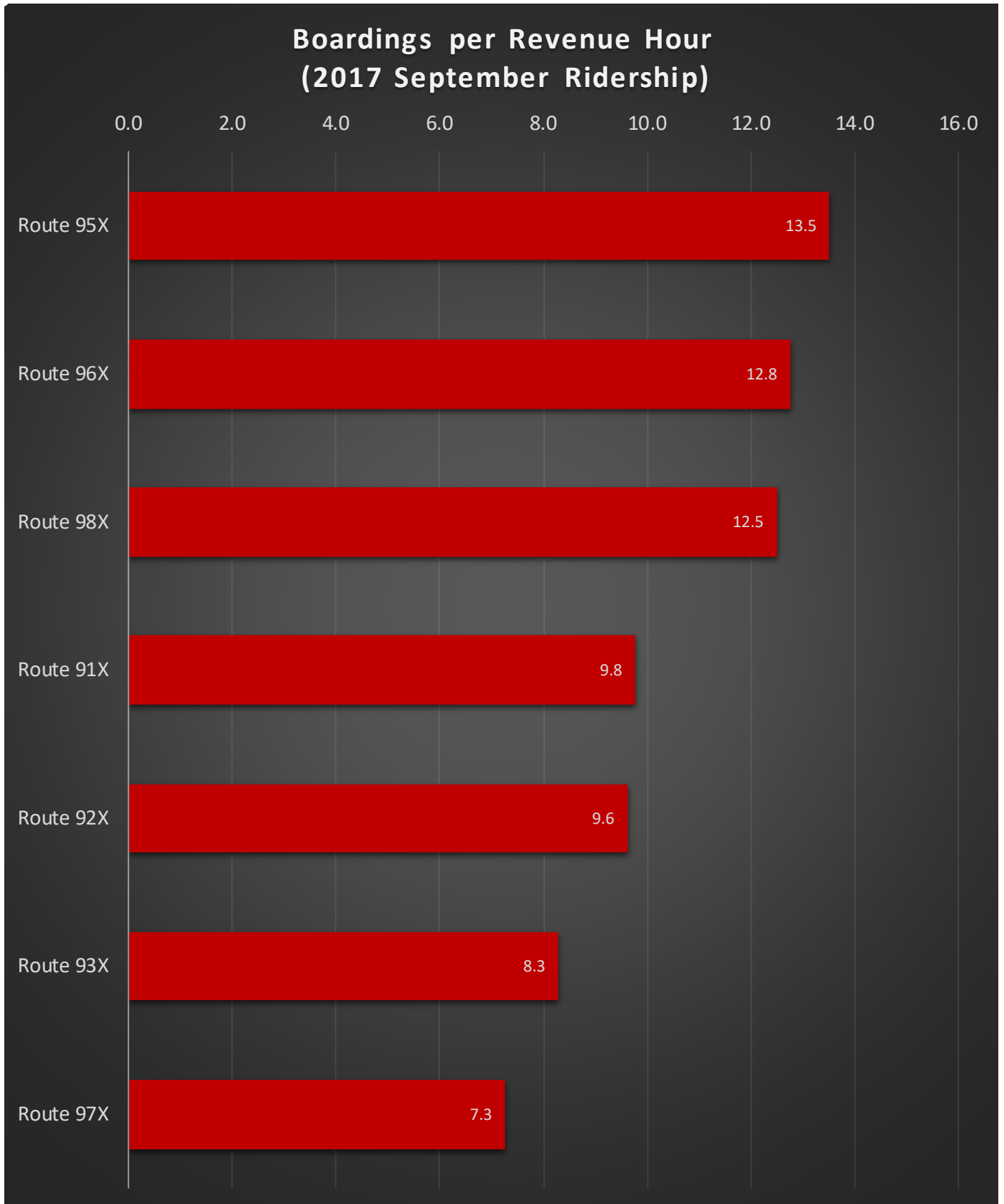
## FARE DEMOGRAPHIC CHART by Fiscal Year



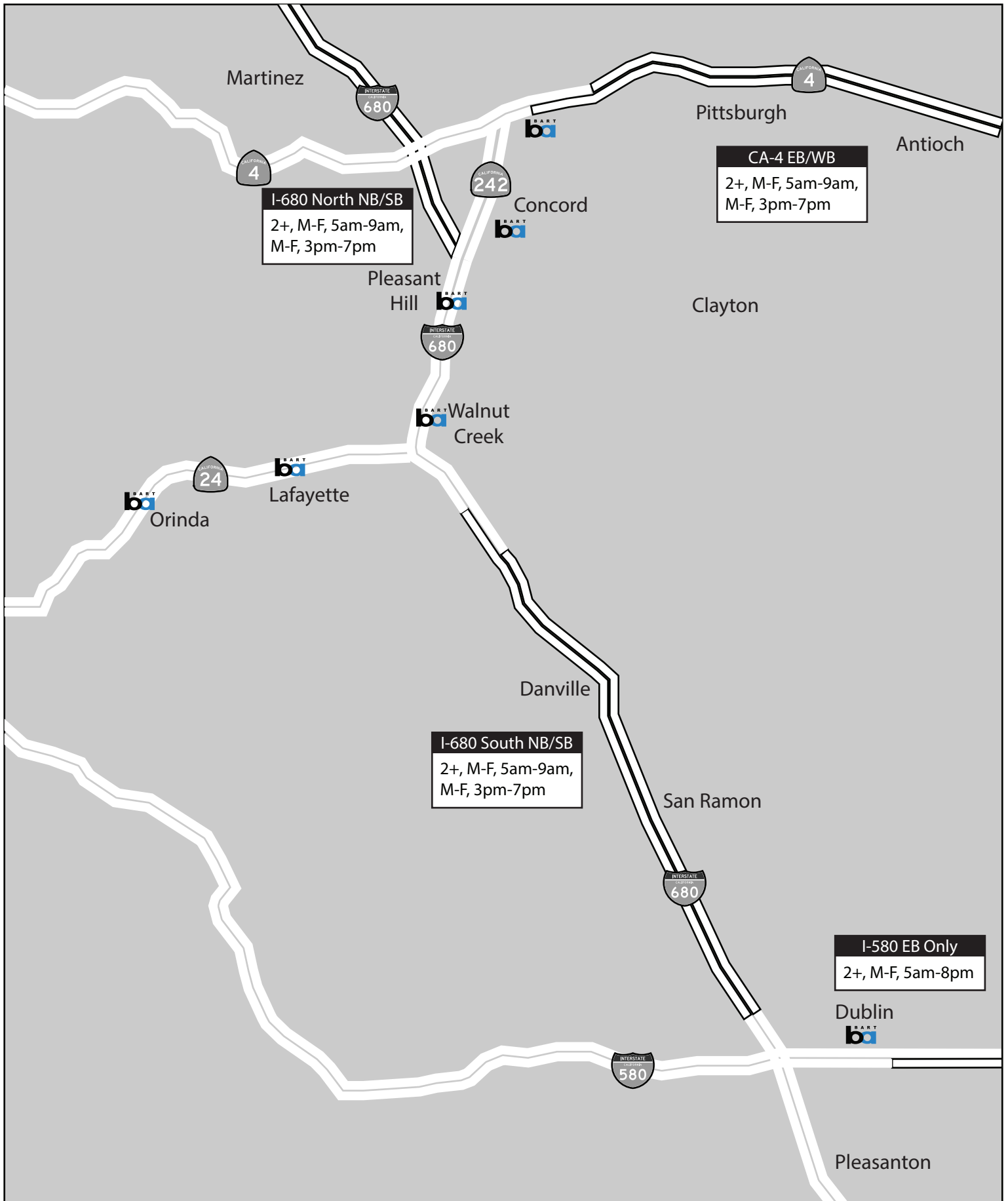
# Subsidy Per Boarding by Route



# Boardings Per Revenue Hour per Route



# HOV Network in Central Contra Costa County



## Travel Time Comparisons for Car Travel vs. Express Bus Travel (in Minutes)

<b>Walnut Creek BART to Bishop Ranch (Chevron)</b>				
Southbound	Car (min)	Car (max)	96x Bus	% from Car AVG
8:00 AM	16	35	19	75%
5:00 PM	16	28	29	132%
Northbound	Car (min)	Car (max)	96x Bus	% from Car AVG
8:00 AM	14	26	22	110%
5:00 PM	24	50	33	89%

<b>Walnut Creek BART to Martinez AMTRAK</b>				
SB	Car (min)	Car (max)	98x Bus	% from Car AVG
8:00 AM	20	35	37	135%
5:00 PM	18	26	40	182%
NB	Car (min)	Car (max)	98x Bus	% from Car AVG
8:00 AM	14	22	37	206%
5:00 PM	18	28	44	191%

<b>Walnut Creek BART to Hilcrest Park &amp; Ride</b>				
EB	Car (min)	Car (max)	93X Bus	% from Car AVG
5:00 PM	40	65	76	145%
WB	Car (min)	Car (max)	93X Bus	% from Car AVG
8:00 AM	40	70	93	169%

<b>Dublin BART to Bishop Ranch (Chevron)</b>				
SB	Car (min)	Car (max)	97x Bus	% from Car AVG
8:00 AM	10	20	18	120%
5:00 PM	12	22	20	118%
NB	Car (min)	Car (max)	97x Bus	% from Car AVG
8:00 AM	10	20	14	93%
5:00 PM	10	16	15	115%

As of Tuesday, December 5th 2017

# Sources

**Reference Maps:** County Connection System Map as of August 2015. Credit: Lohnes+Wright

**Alignment, Speed and Labor Statistics:** Trapeze scheduling software, Fall 2017 Statistics

**Census Population, Jobs, and Demographics by Route:** Remix planning software, derived from 2010 Census tracts divided into a 1/4 buffer from bus stops. Retrieved October 2017

**Trip Level Ridership:** Ridecheck Plus software from Clever Devices Automatic Person Counters, (APCs) Spring service change data FY15-FY17

**Route Segment Maps:** Ridecheck Plus software from Clever Devices Automatic Person Counters, (APCs) Spring service change data FY15-FY17

**Route Level Ridership by Month:** Monthly O&S Board Reports FY15-FY17 (route level worksheets)

**Route Fare Demographics:** Monthly O&S Board Reports FY15-FY17 (route level worksheets), data derived from bus operator input onboard bus. Totals may not equal APC data due to sampling methodology.

**Subsidy per Boarding per Route:** Costs from the 2015 A-30 National Transit Database (NTD) form. Fare revenue is the average fare per boarding as per the 2015 NTD submittal. Data is presented to roll up into total costs and may not represent marginal costs for specific routes.

**Boardings per Revenue Hour:** Hours are derived from a typical Monday in the Fall 2017 booking from Trapeze software. Ridership is the average weekday ridership from September 2017.

**HOV Network Map:** Metropolitan Transportation Commission, 511.org

**Travel Time Comparison Chart:** Drive times from Google Maps, estimated for December 5th, 2017.

# **Central Contra Costa County Transit Authority**

## **Comprehensive Operations Analysis**

**Weekday Express Routes, FY 2016/17**

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**Report prepared in November 2017**