



2018 Annual Passenger Counts

Bicycle Advisory Committee
July 19, 2018
Agenda Item #6

Presentation Outline

- **Purpose of Annual Count**
- **Count Methodology**
- **2018 Challenges**
- **2018 Count Results**
 - **Weekday**
 - **Weekend**
- **Summary**
- **Next Steps**

Purpose of Ridership Counts

- **Provide a measurement relative to previous years**
- **Data for evaluating service changes**
 - **Identify trends: station, time, train, direction**
- **Allocate resources to address capacity issues**
- **Validate revenue-based ridership estimates**
- **Data for future capacity planning**

Data Collection Methodology

- **Headcount on every weekday train averaged over 2 mid-weekdays**
- **Headcount on every weekend train for one weekend**
- **Differs from other ridership counts:**
 - **Monthly revenue-based average weekday ridership calculations**
 - **Identify ridership based on randomized samplings for National Transit Database (NTD)**
- **Seventh year for “bikes denied boarding” count**

New Weekday Count Methodology

- Reason: Increasing project costs & budget constraints (~ savings \$400K - \$500K+)
- Good opportunity to revisit methodology
- This year: Average of 2 mid-weekday counts (Tue, Wed, Thur)
 - *“Average Mid-Weekday Ridership” (AMWR)*
 - *“Average Mid-Weekday Bike Ridership” (AMWBR)*
 - Capture true maximum load
 - Mid-Weekday = busier
 - Mon. & Fri. = lighter
(-1% on Mon. and -9% on Fri.)

New Weekday Count Methodology

- **“Apples-to-Apples” Comparison**
 - All data comparisons between:
2018 Average Mid-Weekday Ridership & 2017 Average Mid-Weekday Ridership
 - **2017 Survey: Extract Tues - Thurs data to generate mid-weekday average data**
 - **For year-to-year comparison/trending purposes only**

Challenges

- **New weekday count methodology**
- **New sub-consultant team to conduct, oversee & manage field surveys under Rail Operator Contract**
- **Survey in mixed-fleet environment**
 - **Consist length (5 cars or 6 cars)**
 - **Different # of doors per car (Gallery or Bombardier)**
- **Timetable changes after 2017 Annual Count**
 - **Impacts baseline data used for planning & special event service comparisons**

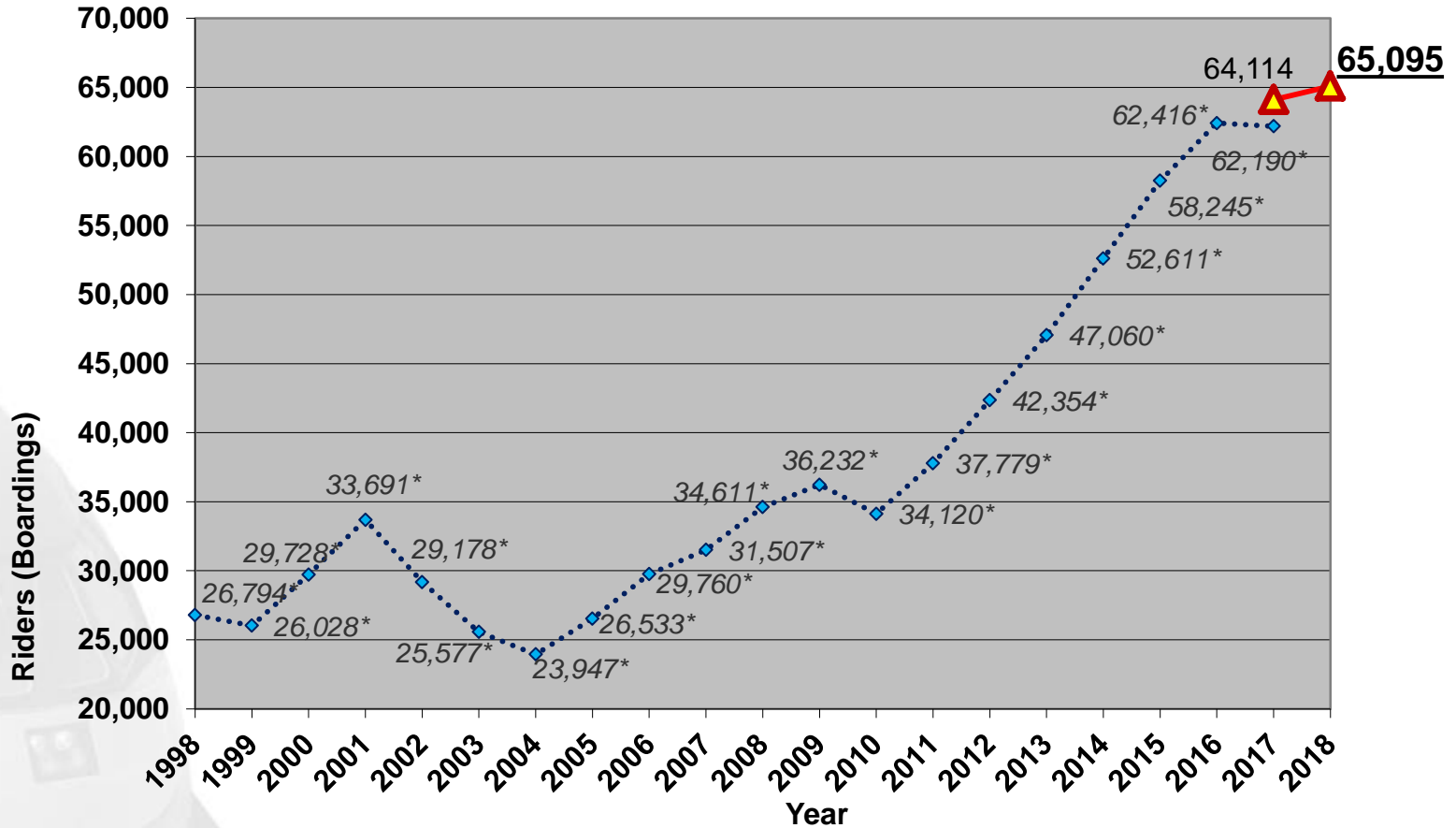
Timetable Changes

- **Weekdays (eff. 4/10/2017)**
 - Adjustments to support the electrification project construction work windows
 - Time adjustments for increased reliability
 - Stops added/reduced to selected trains
 - AM SB trains sequence change
- **Weekends (eff. 7/15/2017)**
 - Service reduction to support the electrification project construction work windows
 - From 60-min frequency to 90-min frequency
- **Weekdays (eff. 10/1/2017)**
 - Adjustments to enhance operations efficiency



Average (Mid-) Weekday Ridership

1.5% AMWR Increase



- ◆ Avg. Weekday Ridership (AWR: until 2017)
- ▲ Avg. Mid-Weekday Ridership (AMWR: 2017 and later)

Riders by Time Period: 2017 vs. 2018

	2017 92 Trains (AMWR)	2018 92 Trains (AMWR)	Difference	% Change
Traditional Peak	33,548	34,373	825	2.5%
Midday	7,316	6,642	-674	-9.2%
Reverse Peak	19,736	20,745	1,009	5.1%
Night	3,514	3,335	-179	-5.8%
TOTAL	64,114	65,095	981	1.5%



2018 Station Ridership (AMWR)

Weekday ridership increased at 18 stations ('17 vs. '18)

Hayward Park	51.2% (197)	College Park	34.1% (28)	Belmont	30.1% (181)
Gilroy	22.7% (47)	Capitol	19.4% (13)	Blossom Hill	14.1% (18)
22nd Street	11.5% (205)	Morgan Hill	11.3% (24)	San Martin	7.4% (6)
San Mateo	7.0% (149)	Redwood City	6.9% (270)	Santa Clara	6.1% (63)
Hillsdale	6.1% (185)	San Bruno	1.9% (13)	Palo Alto	1.6% (123)
Burlingame	1.4% (15)	San Jose Diridon	1.3% (61)	Mountain View	0.8% (37)

Weekday ridership decreased at 11 stations ('17 vs. '18)

So. San Francisco	-8.9% (-46)	Menlo Park	-4.1% (-73)	California Ave.	-3.7% (-65)
Tamien	-3.0% (-40)	Millbrae	-2.9% (-102)	Lawrence	-1.9% (-18)
Sunnyvale	-1.6% (-55)	San Francisco	-1.5% (-239)	San Antonio	-1.2% (-12)
Bayshore	-0.5% (-1)	San Carlos	-0.2% (-3)		

Note: Stations listed in descending order (increased) or ascending order (decreased) by percentage increased/decreased, from left to right.



Top 10 Stations (Weekday Boardings)

Station	2017		2018		Change in AMWR 2017 to 2018	
	Rank	AMWR	Rank	AMWR	Numeric	Percent
San Francisco	1	15,666	1	15,427	-239	-1.5%
Palo Alto	2	7,640	2	7,763	123	1.6%
San Jose Diridon	3	4,815	3	4,876	61	1.3%
Mountain View	4	4,773	4	4,810	37	0.8%
Redwood City	5	3,941	5	4,211	270	6.9%
Sunnyvale	7	3,419	6	3,364	-55	-1.6%
Millbrae	6	3,441	7	3,340	-102	-2.9%
Hillsdale	8	3,044	8	3,229	185	6.1%
San Mateo	9	2,141	9	2,291	149	7.0%
22nd Street	11	1,772	10	1,977	205	11.5%

Note: Menlo Park was the 10th busiest station by average mid-weekday boarding volume in 2017.

County-by-county Comparison

Ridership change vary by county

County	2017 AMWR	2018 AMWR	Difference '17 vs. '18	% Change '17 vs. '18
San Francisco	17,686 (27.6%)	17,651 (27.1%)	-36	-0.2%
San Mateo	18,970 (29.6%)	19,757 (30.4%)	787	4.1%
Santa Clara	27,458 (42.8%)	27,688 (42.5%)	229	0.8%
TOTAL	64,114	65,095	980	1.5%

Percentage in parentheses = percentage of boardings in each county over total boardings

2018 Busiest NB Trains: Max Load

11 trains at $\geq 95\%$ of seated capacity at max. load point

Northbound						
	Train Number	Depart SJ	As Leaving:	Max Load (Based on AMWR)	Train Capacity	Percent of Seated Capacity
g	221	7:23 AM	Mountain View	845	650	130%
b	329	8:04 AM	Sunnyvale	968	760	127%
g	217	6:59 AM	Hillsdale	950	760	125%
	215	6:54 AM	San Bruno	810	650	125%
	225	7:54 AM	San Bruno	943	760	124%
b	319	7:04 AM	Sunnyvale	936	760	123%
	227	7:59 AM	Hillsdale	790	650	121%
b	323	7:49 AM	Mountain View	894	760	118%
b	313	6:49 AM	Hillsdale	822	760	108%
	269	4:40 PM	Redwood City	773	760	102%
	233	8:39 AM	San Antonio	772	760	102%

b = Baby Bullet; g = Gilroy train;

Light yellow = AM (“traditional peak”); Light blue = PM (“reverse peak”)

2018 Busiest SB Trains: Max Load

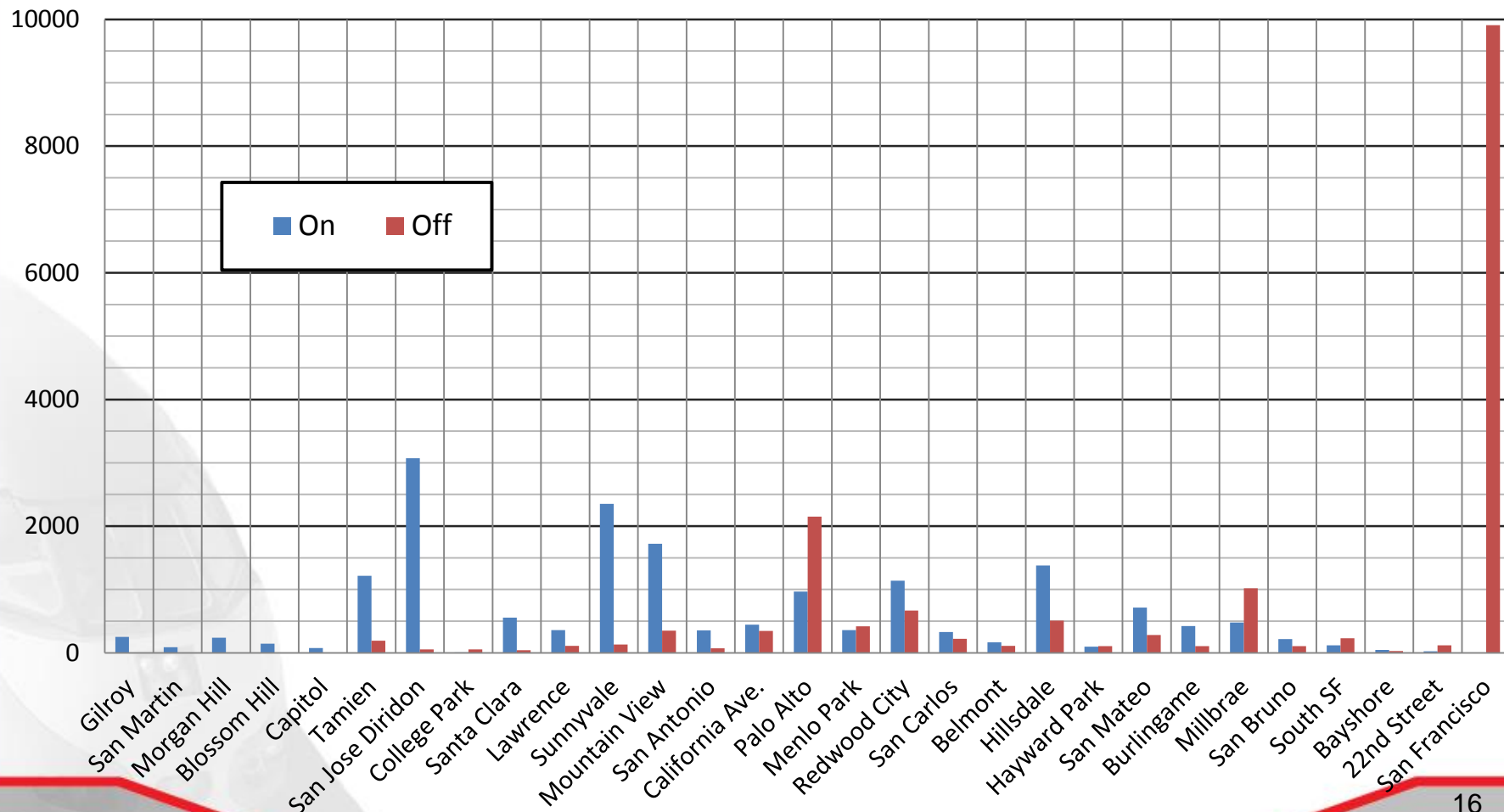
14 trains at $\geq 95\%$ of seated capacity at max. load point

Southbound						
	Train Number	Depart SF	As Leaving:	Max Load (Based on AMWR)	Train Capacity	Percent of Seated Capacity
b	366	4:38 PM	Palo Alto	1,066	760	140%
b	376	5:38 PM	Millbrae	952	760	125%
b	324	7:59 AM	Millbrae	898	760	118%
	360	4:12 PM	Palo Alto	767	650	118%
	278	5:58 PM	Millbrae	885	760	116%
g	268	4:58 PM	California Ave.	853	760	112%
	330	8:35 AM	Millbrae	712	650	110%
b	370	5:16 PM	Millbrae	823	760	108%
	272	5:27 PM	San Francisco	822	760	108%
	262	4:23 PM	California Ave.	692	650	106%
	258	3:34 PM	California Ave.	679	650	104%
b	380	6:16 PM	San Francisco	678	650	104%
	222	7:45 AM	Redwood City	633	650	97%
b	314	6:59 AM	Hillsdale	632	650	97%

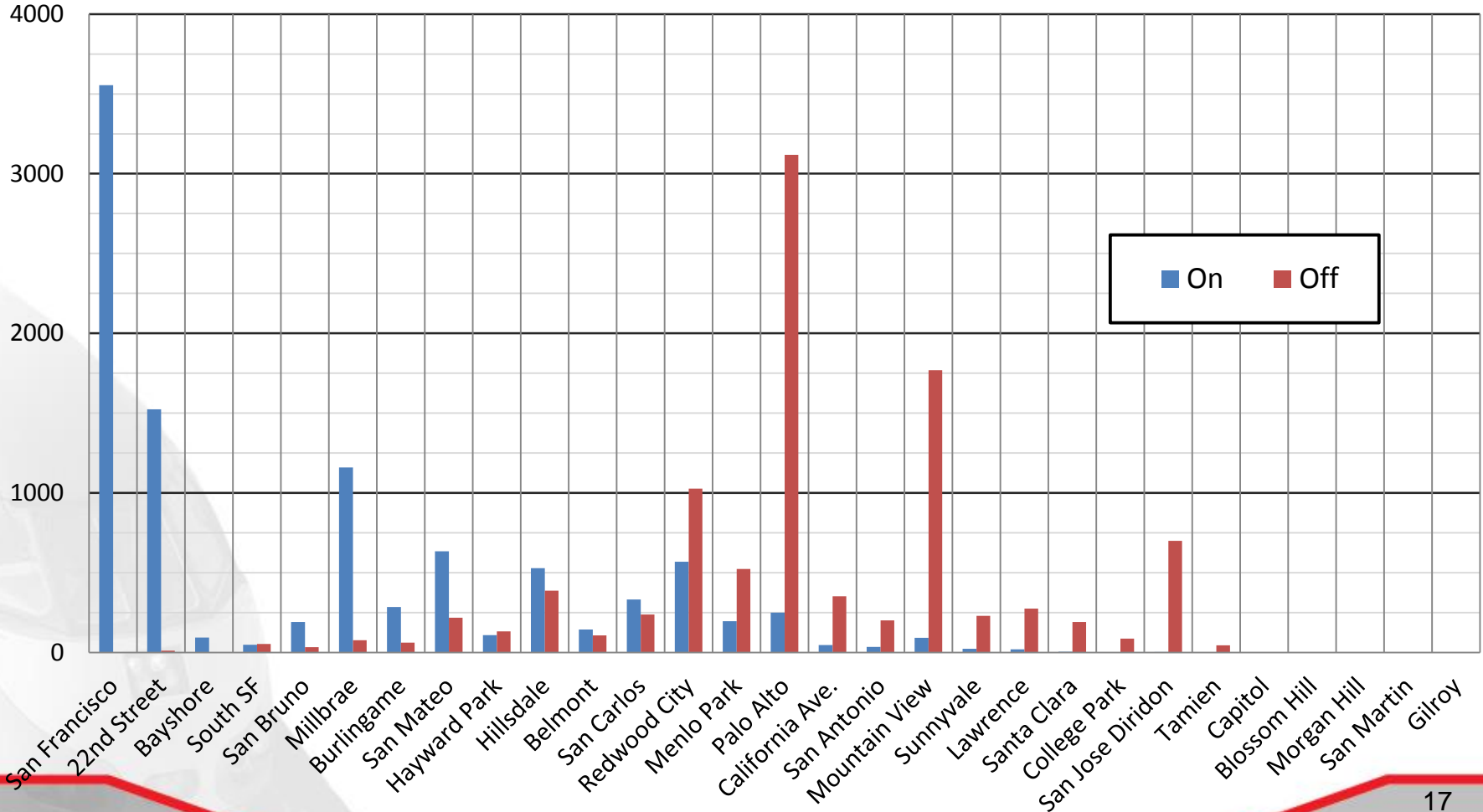
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Light yellow = AM (“reverse peak”); Light blue = PM (“traditional peak”)

Peak Period Boarding/Alighting Traditional Peak Direction (AM NB)

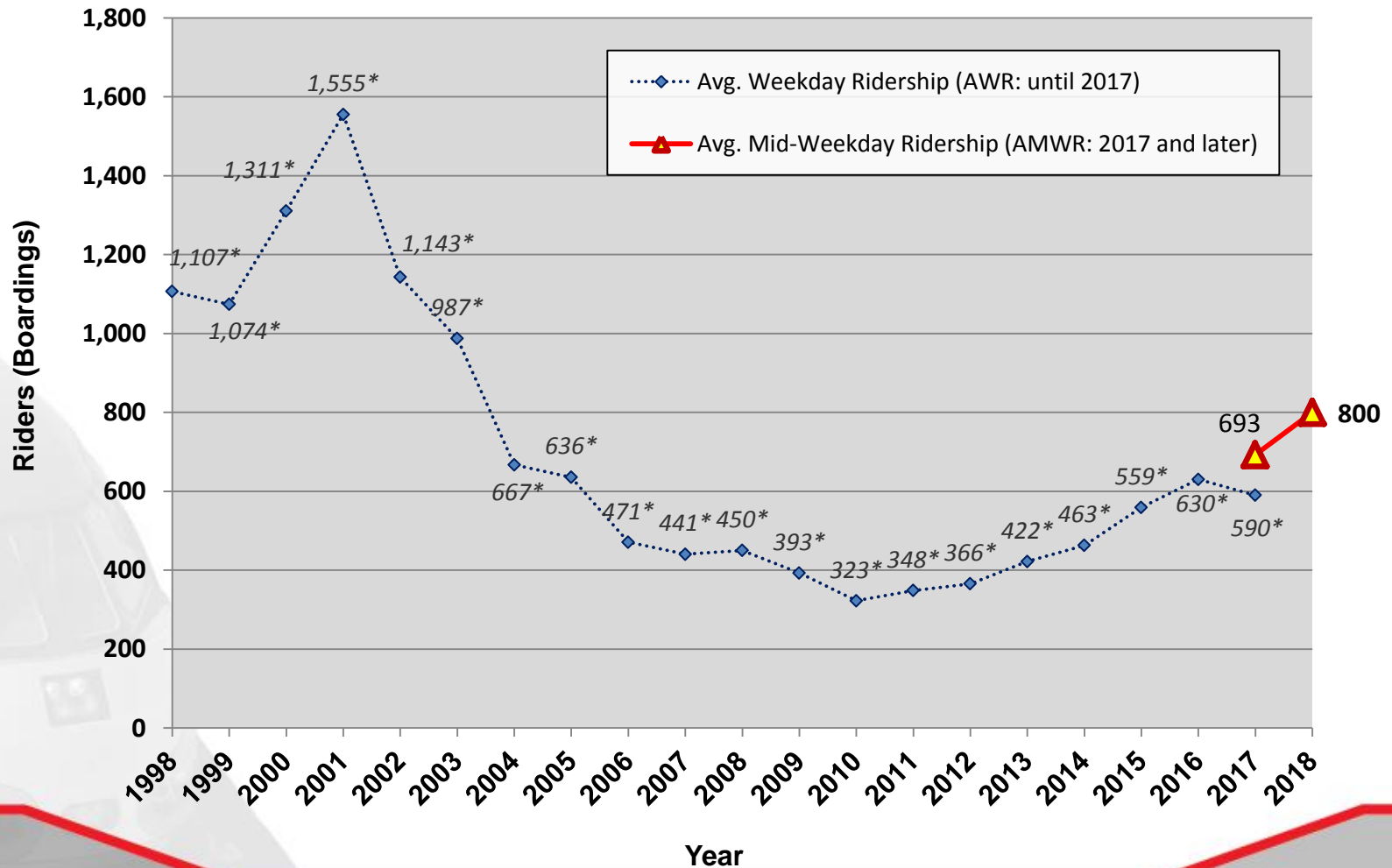


Peak Period Boarding/Alighting Reverse Peak Direction (AM SB)



Gilroy Avg. (Mid-) Weekday Ridership

15.4% AMWR increase



Gilroy Extension Ridership

- **2001: Highest ridership (1,555 AWR)**
 - Increased during Dot-Com Boom
- **2010: Lowest ridership (323 AWR)**
 - Ridership declined sharply after Dot-Com bust and US 101 Fwy. Widening
- **2011-2017: Ridership steadily increased**
- **2018: 15.4% AMWR increase**
 - Begin planning with VTA in concert with the business plan

2018 Riders per Train Type

Peak-period (AM + PM) average ridership per train type

Train Type	2017 (AMWR)	2018 (AMWR)	Percent Change
Baby Bullet	904	914	1.1%
Limited	814	856	5.1%
Local	351	412	17.5%

- **Growth on all train types**
- **More growth on slower train types**

Average Passenger Trip Length

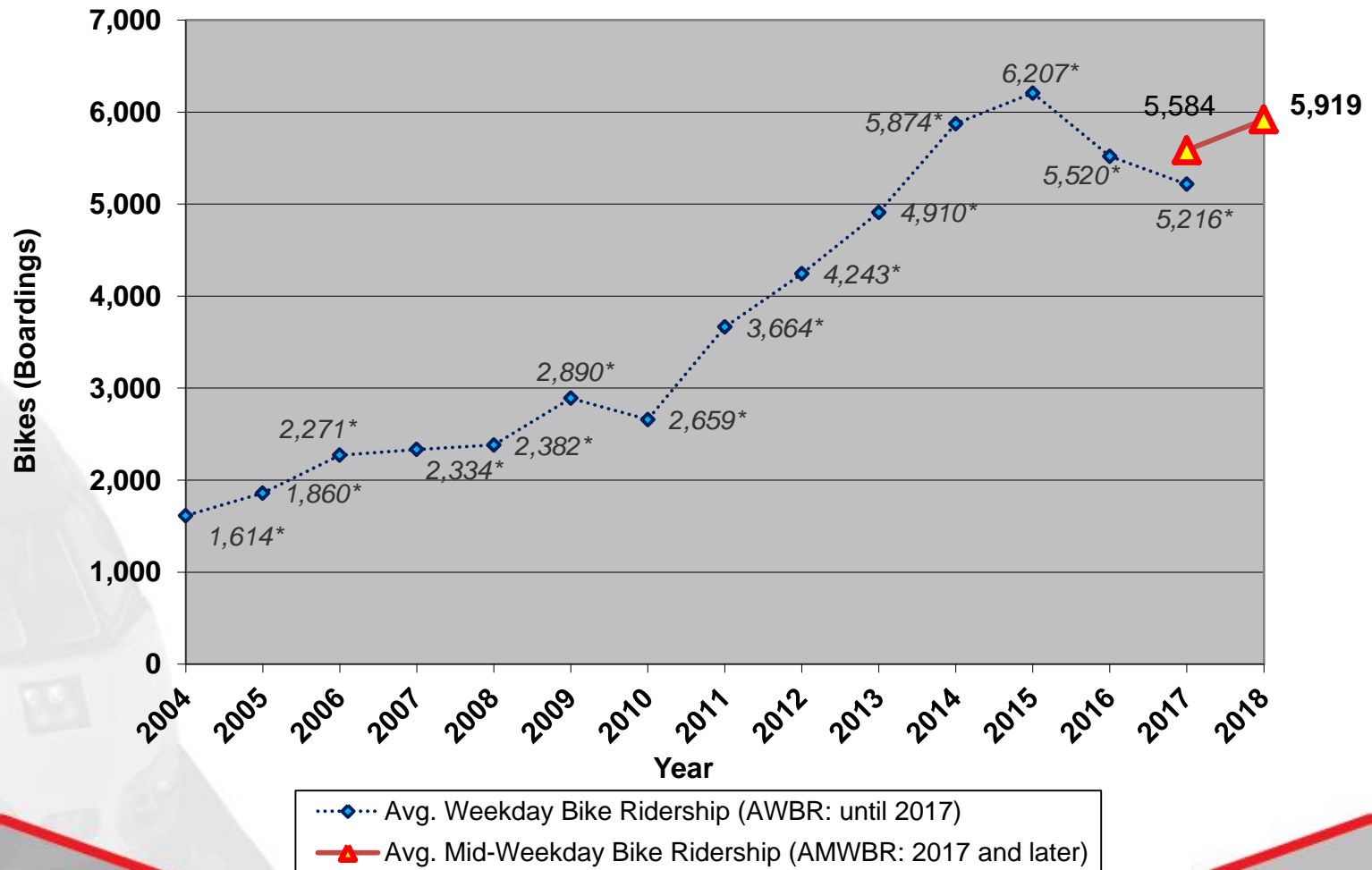
Weekday average trip length for 2018 is slightly lower than 2017

Train Type	Average Trip Length (mi)	
	2017 (AMWR-Based)	2018 (AMWR-Based)
Weekday	23.4	22.9
Baby Bullet	28.3	27.5
Peak Limited & Locals	20.9	20.8
Off Peak	21.9	21.5
All Locals	21.6	21.0



Avg. (Mid-) Weekday Bike Ridership

6.0% AMWBR increase



Weekday Bicycle Boardings: Top 10 Stations

Station	2017		2018		Change (2017 to 2018)	
	Rank	AMWBR	Rank	AMWBR	Numeric	Percent
San Francisco	1	1,240	1	1,442	202	16.3%
Palo Alto	2	765	2	796	31	4.0%
Mountain View	3	470	3	551	81	17.2%
Redwood City	4	341	4	407	66	19.2%
San Jose Diridon	5	324	5	359	35	10.8%
Sunnyvale	6	275	6	303	29	10.5%
Hillsdale	7	247	7	257	10	4.0%
22nd Street	8	218	8	251	33	15.0%
California Ave.	9	212	9	225	13	6.0%
San Mateo	10	164	10	218	54	33.2%

Bikes Denied Boardings

- **Seventh year counted with annual count**
- **21 bumps (2018) vs. 87 (2017)**
- **2018: 21 bikes denied on 236 trains counted**
- **2017: 87 bikes denied on 527 trains counted**
- **Equiv. comparison: Bumps observed per 1,000 bikes boarded decreased to 1.6 (3.2 in 2017)**
- **Observed at 6 stations, 2 trains (all NB; no SB)**
- **No bumps observed on weekend trains**

Passenger Needing Assistance (PNA) Boardings: Weekdays

- **2018 Survey**
 - **69 PNA boardings**
 - **35 PNA boardings per mid-weekday**
- **PNA boardings on 45 trains of 92 scheduled trains during count**

Weekend Service

- **First passenger count after reduced weekend local service:
from 60-min to 90-min frequency**
- **Saturday: from 36 trains to 28 trains
(22% reduction)**
- **Sunday: from 32 trains to 24 trains
(25% reduction)**

Weekend Service Passenger Boardings

Corridor-Wide Boardings

<i>Passenger</i>	2017	2018	Numeric Difference	Percent Change
Saturday	15,612	13,954	-1,658	-10.6%
Sunday	11,274	9,636	-1,638	-14.5%
TOTAL	26,886	23,590	-3,296	-12.3%

Weekend-Only Station Boardings (Sat. + Sun.)

	2017	2018	Change
Broadway	166	114	-31.3%
Atherton	154	114	-26.0%

Weekend Service

5 Busiest Trains (Northbound)

By Passenger Boardings:

Saturday				Sunday		
Train Number	Depart SJ	Passenger Boardings	Train Number	Depart SJ	Passenger Boardings	
427	11:38 AM	828	427	11:38 AM	602	
429	1:08 PM	816	b 801	9:51 AM	584	
b 801	9:51 AM	758	429	1:08 PM	529	
431	2:38 PM	723	431	2:38 PM	479	
433	4:08 PM	623	425	10:08 AM	450	

b = Baby Bullet Express

By Maximum Passenger Load:

Saturday				Sunday			
Train Number	Depart SJ	As Leaving:	Max Load	Train Number	Depart SJ	As Leaving:	Max Load
b 801	9:51 AM	San Mateo	668	b 801	9:51 AM	San Mateo	492
427	11:38 AM	Broadway	608	427	11:38 AM	Burlingame	420
429	1:08 PM	San Mateo	519	429	1:08 PM	San Mateo	384
431	2:38 PM	San Mateo	496	431	2:38 PM	Belmont	332
b 803	5:21 PM	San Mateo	457	423	8:38 AM	San Mateo	311

Weekend Service

5 Busiest Trains (Southbound)

By Passenger Boardings:

Saturday				Sunday		
Train Number	Depart SF	Passenger Boardings	Train Number	Depart SF	Passenger Boardings	
434	5:07 PM	954	434	5:07 PM	678	
432	3:37 PM	785	432	3:37 PM	581	
436	6:37 PM	653	430	2:07 PM	566	
430	2:07 PM	580	428	12:37 PM	478	
440	9:37 PM	489	436	6:37 PM	477	

b = Baby Bullet Express

By Maximum Passenger Load:

Saturday				Sunday			
Train Number	Depart SF	As Leaving:	Max Load	Train Number	Depart SF	As Leaving:	Max Load
434	5:07 PM	Burlingame	679	434	5:07 PM	Millbrae	494
432	3:37 PM	Hayward Park	507	430	2:07 PM	Burlingame	408
436	6:37 PM	Burlingame	483	432	3:37 PM	Burlingame	397
b 804	7:34 PM	Millbrae	414	436	6:37 PM	Millbrae	370
440	9:37 PM	Millbrae	391	b 804	7:34 PM	San Mateo	354

Summary

- **Change of Weekday Count Methodology**
 - **AWR to AMWR**
 - **AWBR to AMWBR**
- **Average (Mid-) Weekday Ridership increased during peak periods**
- **Gilroy (Mid-) Weekday Passenger Ridership increased**
- **Average (Mid-) Weekday Bike Ridership increased BUT “bumps” observed significantly decreased**
- **Overall Weekend Passenger Ridership decreased but not proportionally to decreased service level (-10 to -14% boardings from 22 to 25% fewer trains)**

Next Steps

- **Incorporate data with Caltrain Business Plan efforts to strategize for future scheduling and passenger capacity on the new EMU fleet**
- **Planning for future Annual Counts Methodology**
 - **2019 Annual Count:**
 - **SF Tunnels Weekend Construction Shutdown & Bus Bridge: SF - Bayshore Stations**
 - **Remove Hillsdale Station Stops & Replace with Belmont Station Stops**
 - **Using AMWR & AMWBR for all counts moving forward**
 - **Automatic Passenger Counters (APCs) on EMUs**

Questions?

For additional information

Key Findings Report & raw data (excel) posted by September to:

<http://www.caltrain.com/about/statsandreports/Ridership.html>