



# 2018 Annual Passenger Counts

Citizens Advisory Committee  
July 18, 2018  
Agenda Item #8

# 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

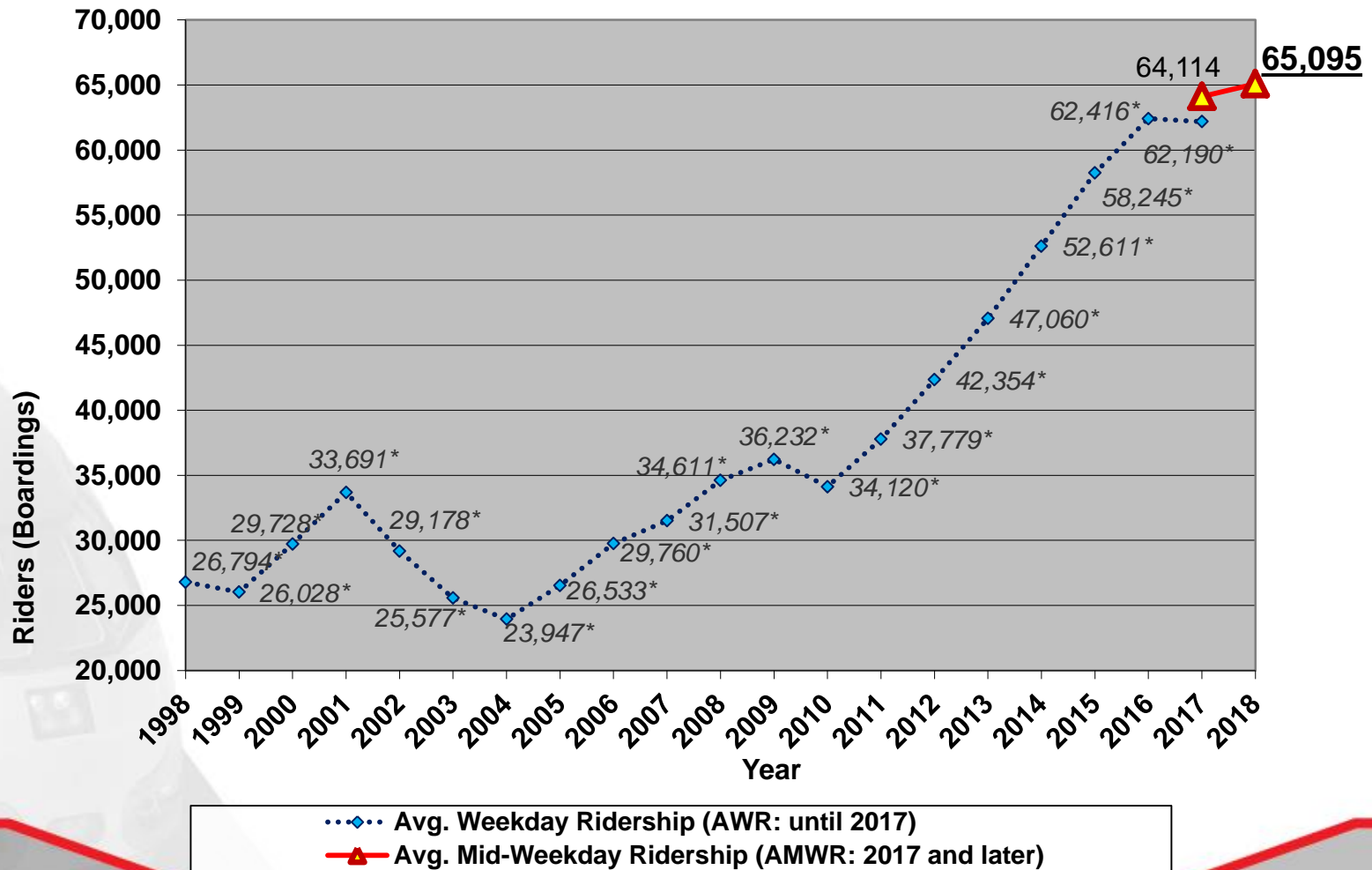
- **Weekdays (eff. 4/10/2017)**
  - Adjustments to support the electrification project construction work windows
  - Time adjustments for increased reliability
  - Stops added/reduced to selected trains
  - AM SB trains sequence change
- **Weekends (eff. 7/15/2017)**
  - Service reduction to support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



# Riders by Time Period: 2017 vs. 2018

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

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

*Note: Menlo Park was the 10<sup>th</sup> 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
<b>San Francisco</b>	17,686 (27.6%)	17,651 (27.1%)	-36	-0.2%
<b>San Mateo</b>	18,970 (29.6%)	19,757 (30.4%)	787	4.1%
<b>Santa Clara</b>	27,458 (42.8%)	27,688 (42.5%)	229	0.8%
<b>TOTAL</b>	<b>64,114</b>	<b>65,095</b>	<b>980</b>	<b>1.5%</b>

*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

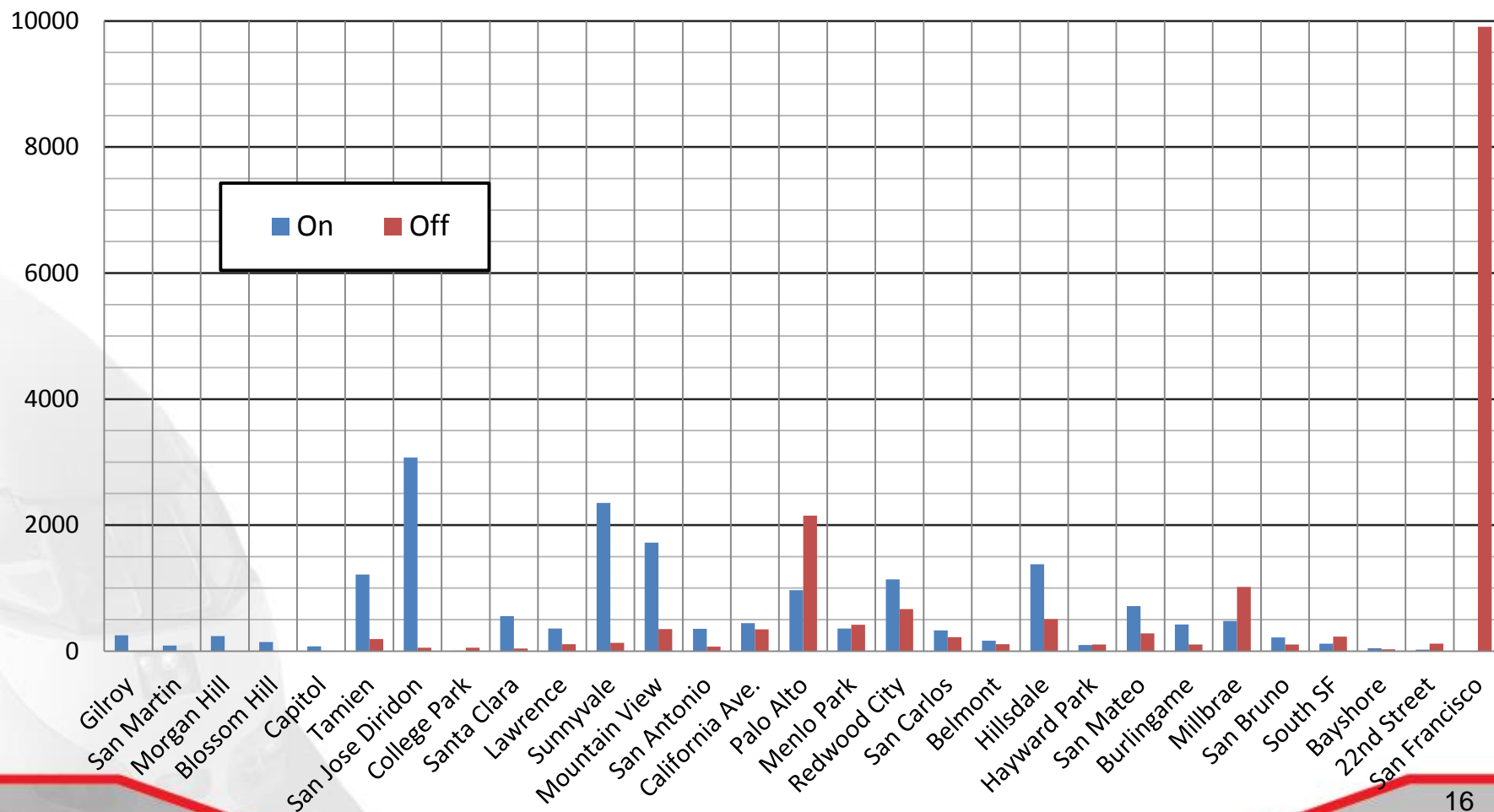
14 trains at  $\geq 95\%$  of seated capacity at max. load point

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%

*b = Baby Bullet; g = Gilroy train;*

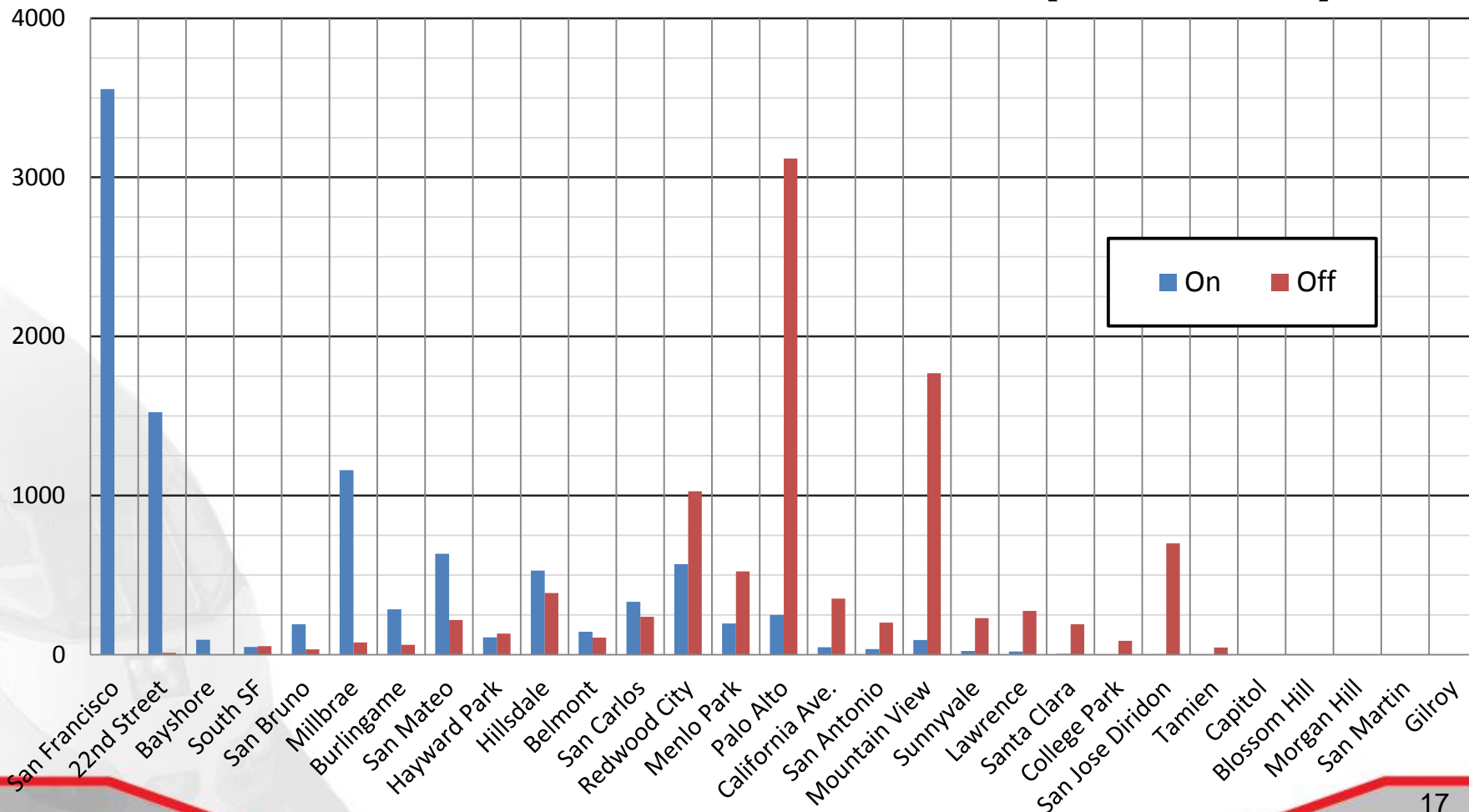
*Light yellow = AM ("reverse peak"); Light blue = PM ("traditional peak")*

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



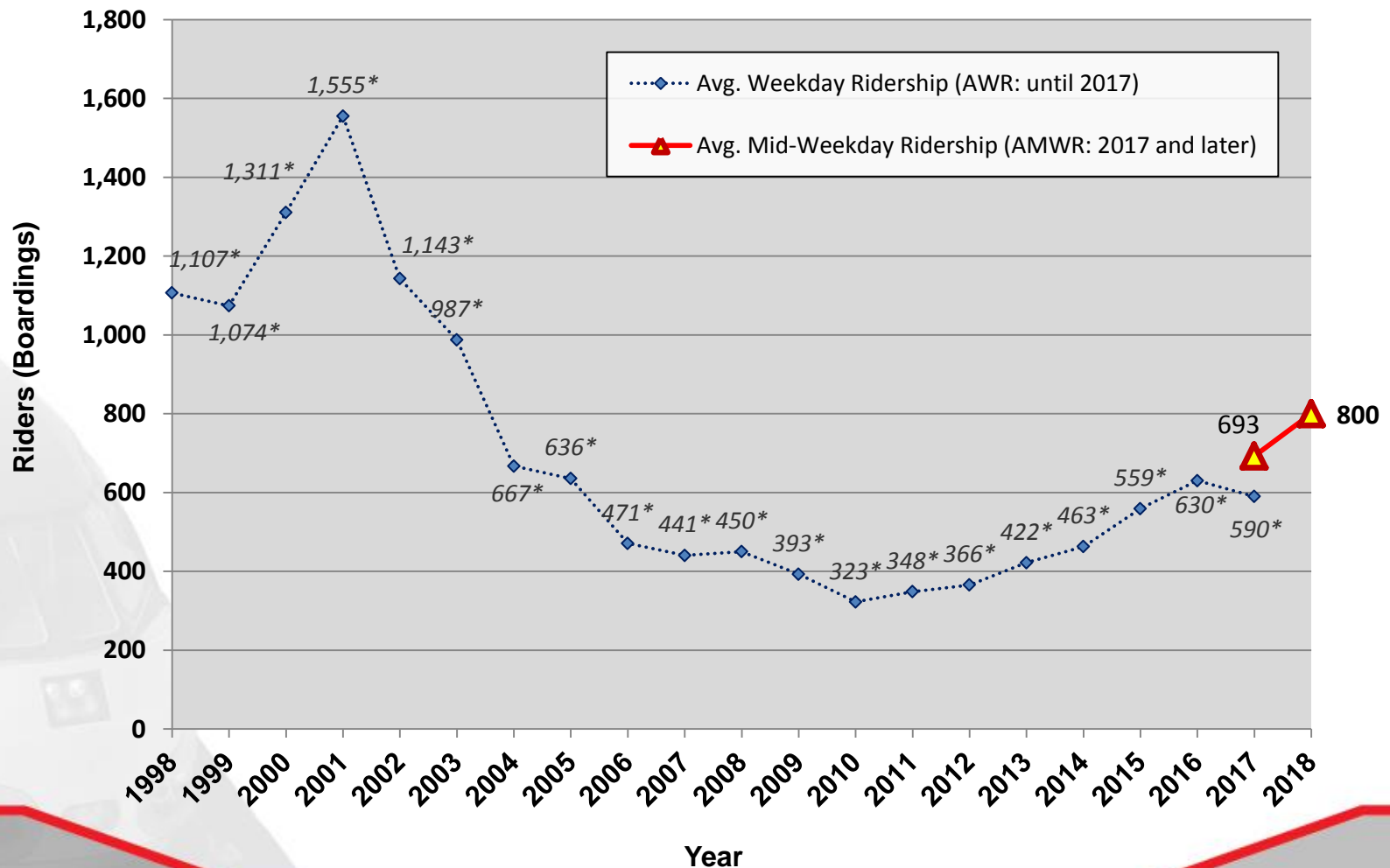


# Peak Period Boarding/Alighting Reverse Peak Direction (AM SB)



# 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**

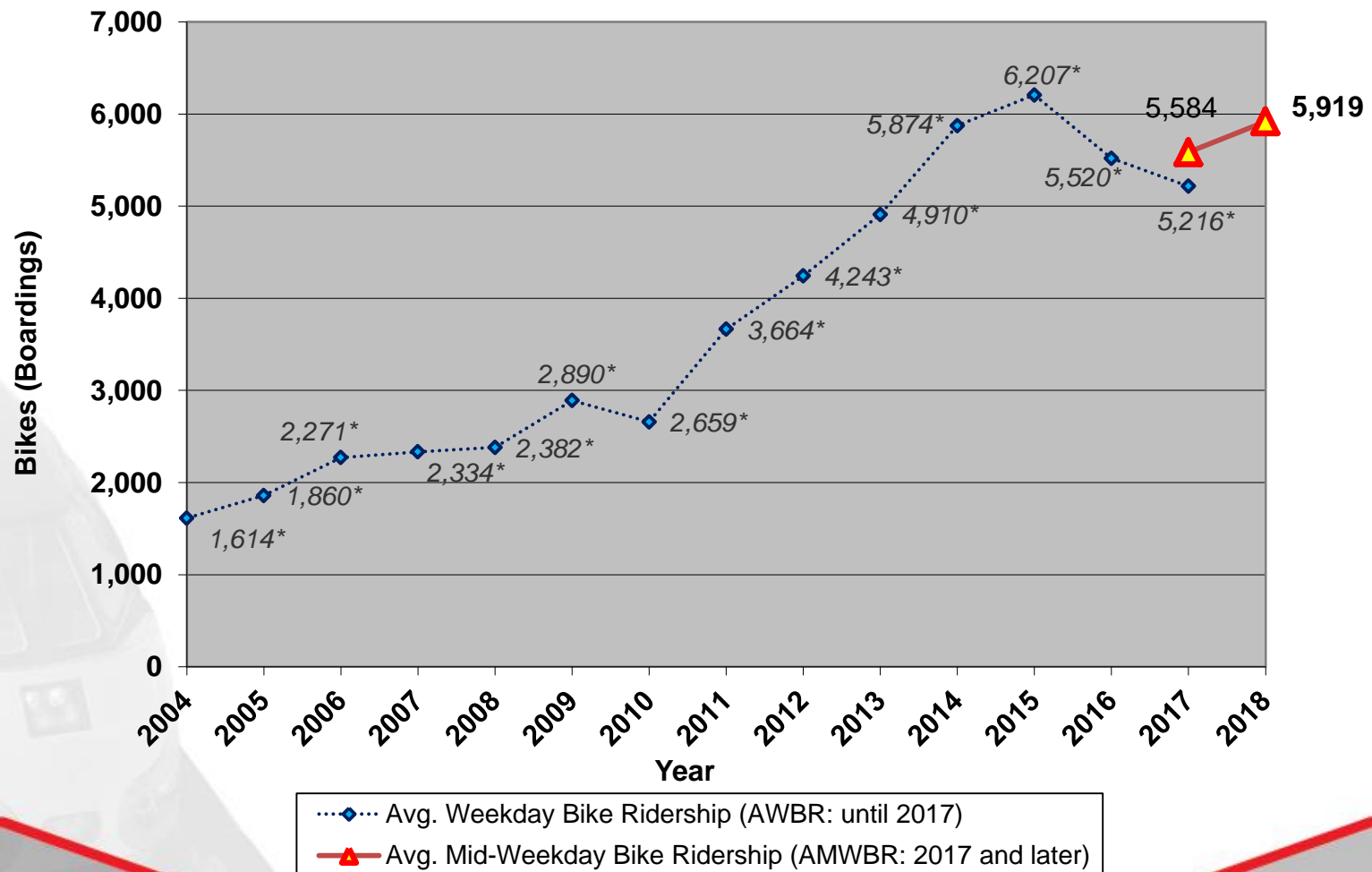
# Average Passenger Trip Length

**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
<b>San Francisco</b>	1	1,240	1	1,442	202	16.3%
<b>Palo Alto</b>	2	765	2	796	31	4.0%
<b>Mountain View</b>	3	470	3	551	81	17.2%
<b>Redwood City</b>	4	341	4	407	66	19.2%
<b>San Jose Diridon</b>	5	324	5	359	35	10.8%
<b>Sunnyvale</b>	6	275	6	303	29	10.5%
<b>Hillsdale</b>	7	247	7	257	10	4.0%
<b>22nd Street</b>	8	218	8	251	33	15.0%
<b>California Ave.</b>	9	212	9	225	13	6.0%
<b>San Mateo</b>	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>	<b>2017</b>	<b>2018</b>	<b>Numeric Difference</b>	<b>Percent Change</b>
<b>Saturday</b>	15,612	13,954	-1,658	-10.6%
<b>Sunday</b>	11,274	9,636	-1,638	-14.5%
<b>TOTAL</b>	<b>26,886</b>	<b>23,590</b>	<b>-3,296</b>	<b>-12.3%</b>

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

	<b>2017</b>	<b>2018</b>	<b>Change</b>
<b>Broadway</b>	166	114	-31.3%
<b>Atherton</b>	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>