2018 Annual Passenger Counts

Presentation Outline

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

Purpose of Ridership Counts

- Provide 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

- New weekday count methodology
- Weekday: Headcount every train averaged over 2 mid-weekdays
- Weekend: Headcount on every train for one weekend
- Seventh year "bikes denied boarding" count
- Differs from other ridership count methods:
  - Monthly revenue-based average weekday ridership calculations
  - Identify ridership based on randomized samplings for National Transit Database (NTD)

New Weekday Count Methodology

- Reason: Increasing project costs & budget constraints (~ savings $400K to $500K)

- Good opportunity to revisit methodology

- This year: Average 2 mid-weekday counts
  - *"Average Mid-Weekday Ridership" (AMWR)*
  - *"Average Mid-Weekday Bike Ridership" (AMWBR)*
  - Capture true maximum load (Mid-Weekday = busier; Mon. & Fri. = lighter) (-1% Mon.; -9% on Fri.)

- All data comparisons 2018 and 2017 "AMWR"
  - 2017: Tues to Thurs data to generate mid-weekday average data (Apples to Apples)

Challenges

- New weekday count methodology

- New sub-consultant team to conduct, oversee & manage field surveys

- 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 (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 (7/15/2017)
  - Service reduction to support the electrification project construction work windows
    - From 60-min frequency to 90-min frequency
- Weekdays (10/1/2017)
  - Adjustments to enhance operations efficiency

Average (Mid-) Weekday Ridership

1.5% AMWR Increase
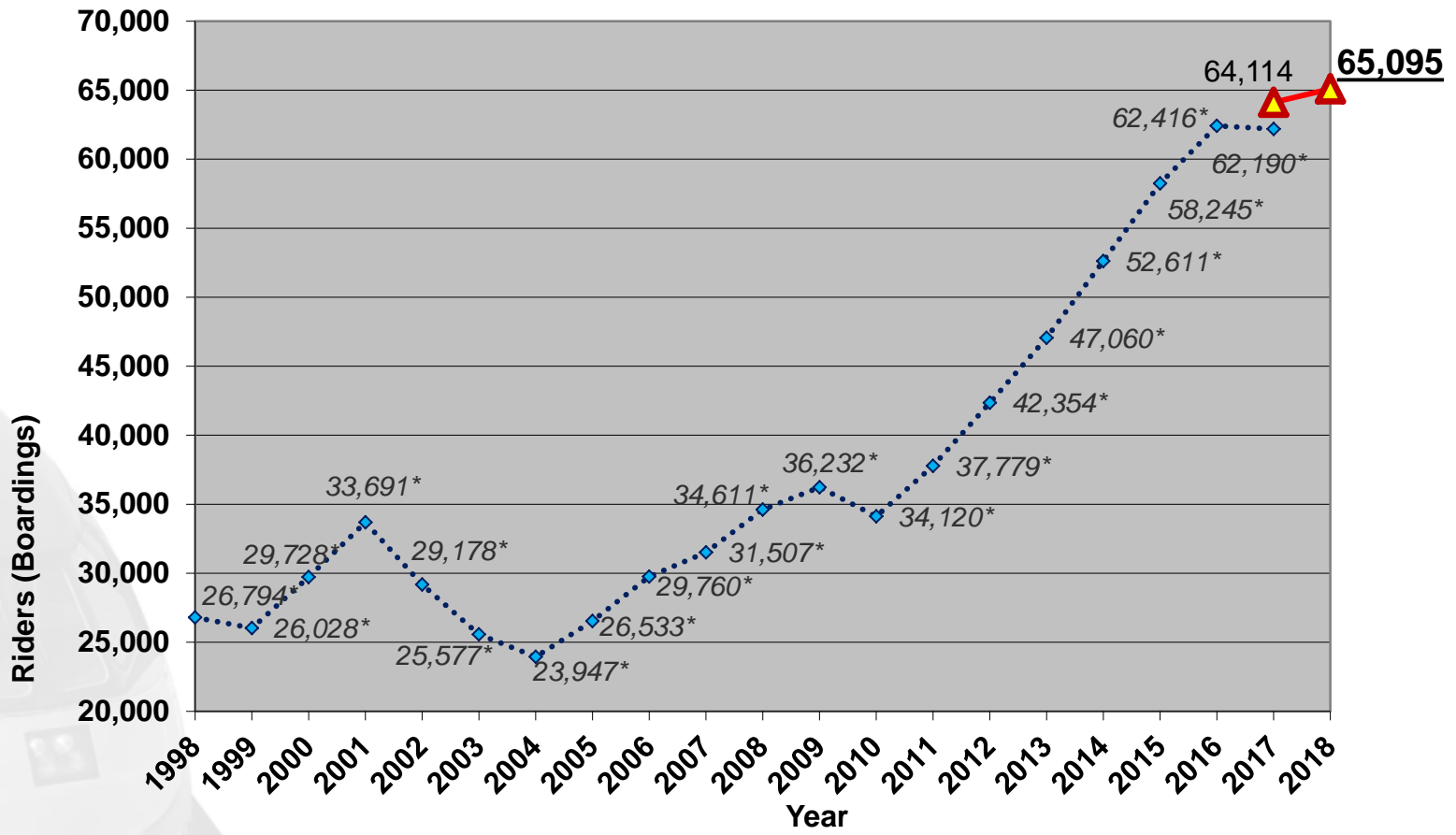
Riders by Time Period (2017 vs 2018)

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

Riders Train Type (2017 vs 2018)

Peak-period (AM + PM) Average ridership per train

Train Type	2017 AMWR	2018 AMWR	% 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

Station Ridership (2017 vs 2018)

- **Ridership Increased 18 stations**

Station	% Change (Difference)
Hayward Park	51.2% (197)
College Park	31.7% (26)
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)

Station	% Change (Difference)
Redwood City	6.9% (271)
Santa Clara	6.1% (63)
Hillsdale	6.1% (185)
San Bruno	1.9% (13)
Palo Alto	1.6% (124)
Burlingame	1.4% (15)
San Jose Diridon	1.3% (61)
Mountain View	0.8% (37)

Weekday Boardings - AMWR

Station Ridership (2017 vs 2018)

- **Ridership Decreased 11 stations**

Station	% Change (Difference)
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)

Weekday Boardings - AMWR

Top 10 Stations (Weekday Boardings)

Station	2017		2018	
	Rank	AMWR	Rank	AMWR
San Francisco	1	15,666	1	15,427
Palo Alto	2	7,640	2	7,764
San Jose Diridon	3	4,815	3	4,876
Mountain View	4	4,773	4	4,810
Redwood City	5	3,941	5	4,211
Sunnyvale	7	3,419	6	3,364
Millbrae	6	3,441	7	3,340
Hillsdale	8	3,044	8	3,229
San Mateo	9	2,141	9	2,291
22nd Street	11	1,772	10	1,977

Light Red = Change in rankings
Note: Menlo Park was the 10th busiest station by average mid-weekday boarding volume in 2017

County-by-County Comparison

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

Average Passenger Trip Length

Train Type	2017 Miles AMWR	2018 Miles AMWR
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

- Weekday average trip length for 2018 is slightly lower than 2017

2018 Busiest NB Trains: Max Load

11 trains at ≥ 95% of seated capacity at max. load point

Northbound					
Train Number	Depart SJ	As Leaving	Max Load (AMWR)	Train Seated Capacity	% 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 ≥ 95% of seated capacity at max. load point

|	Train Number	Depart SF	As Leaving	Max Load (AMWR)	Train Seated Capacity	% of Seated Capacity
			Southbound			
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)
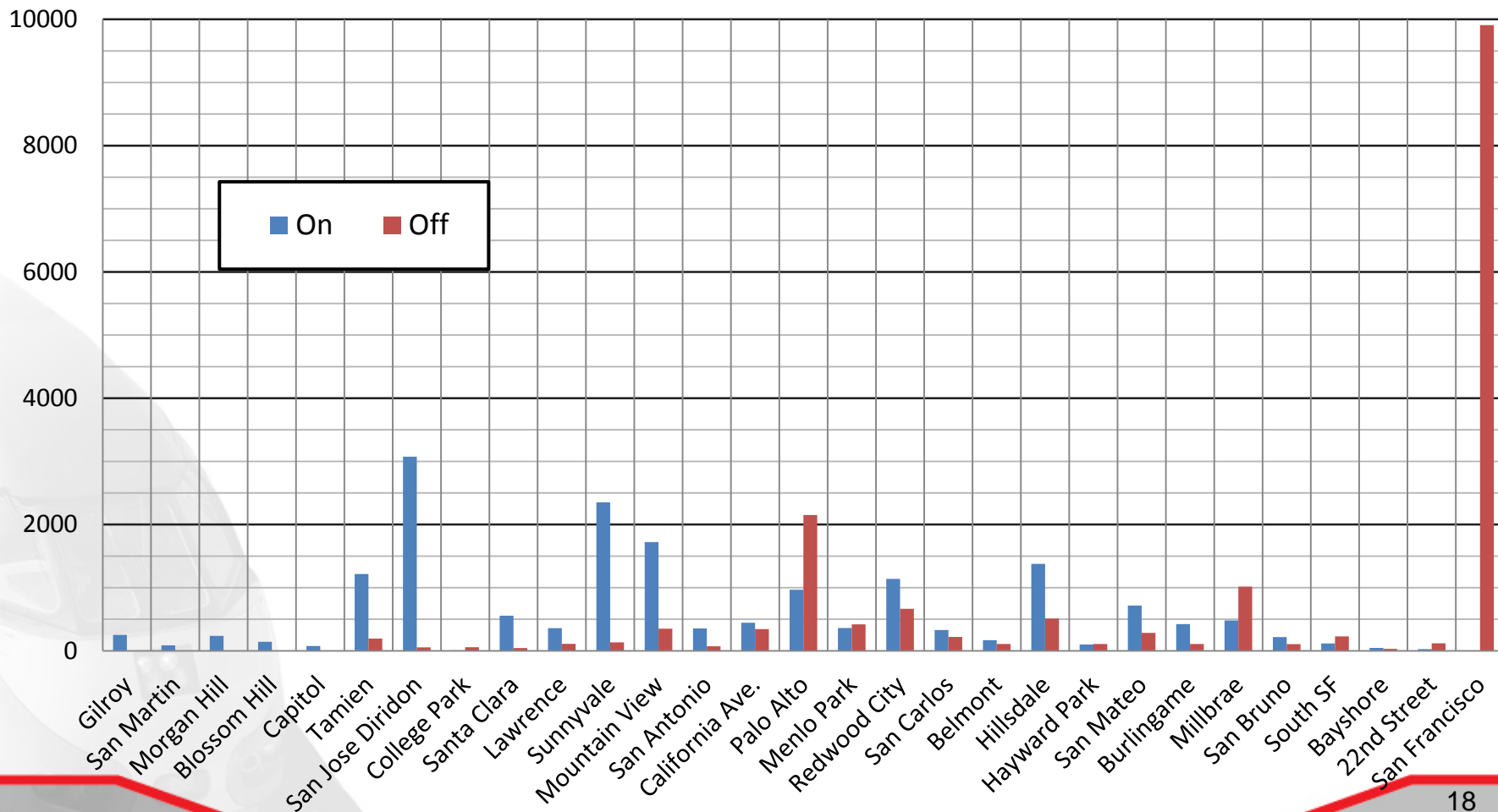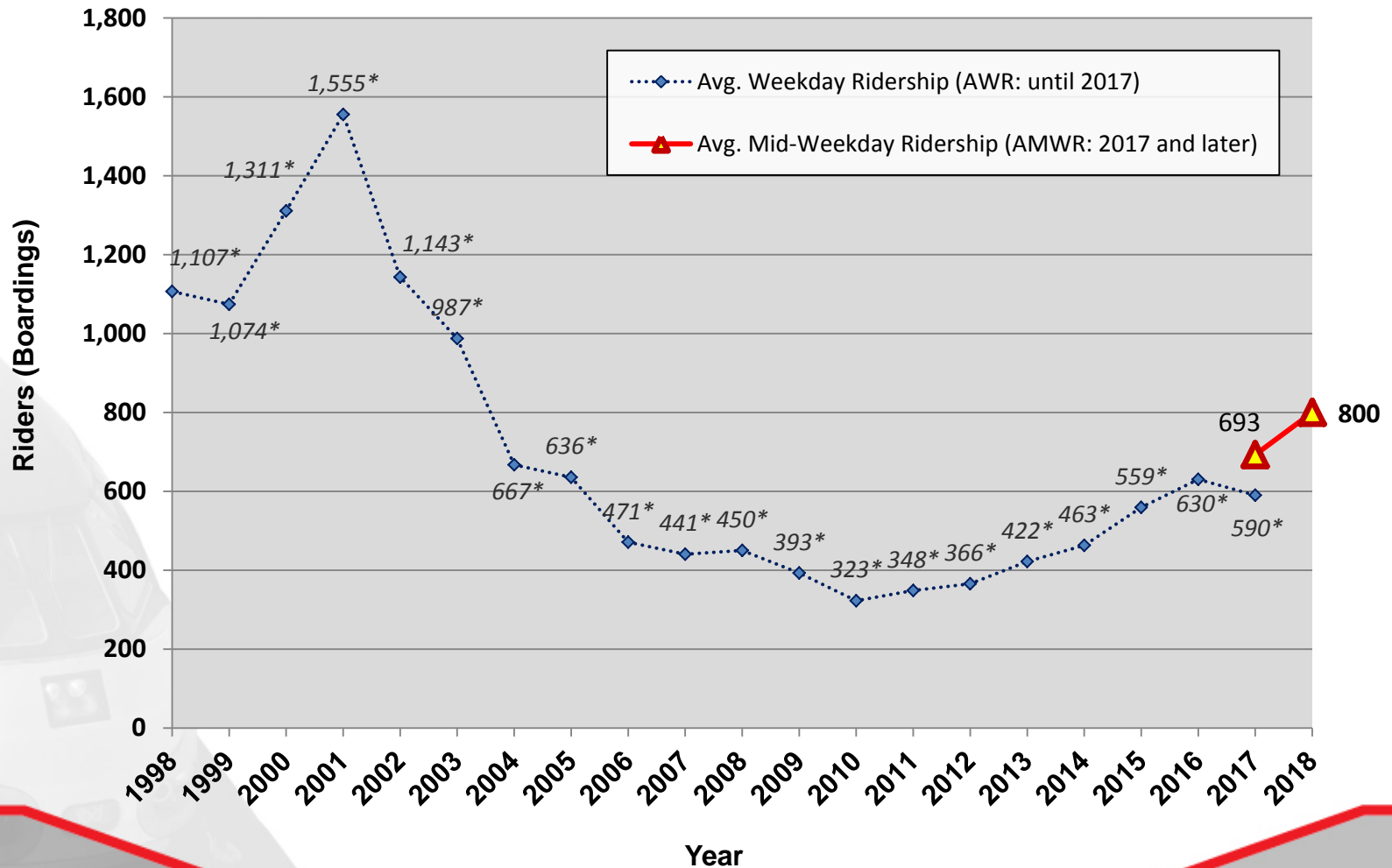
Peak Period Boarding/Alighting Reverse Peak Direction (AM SB)
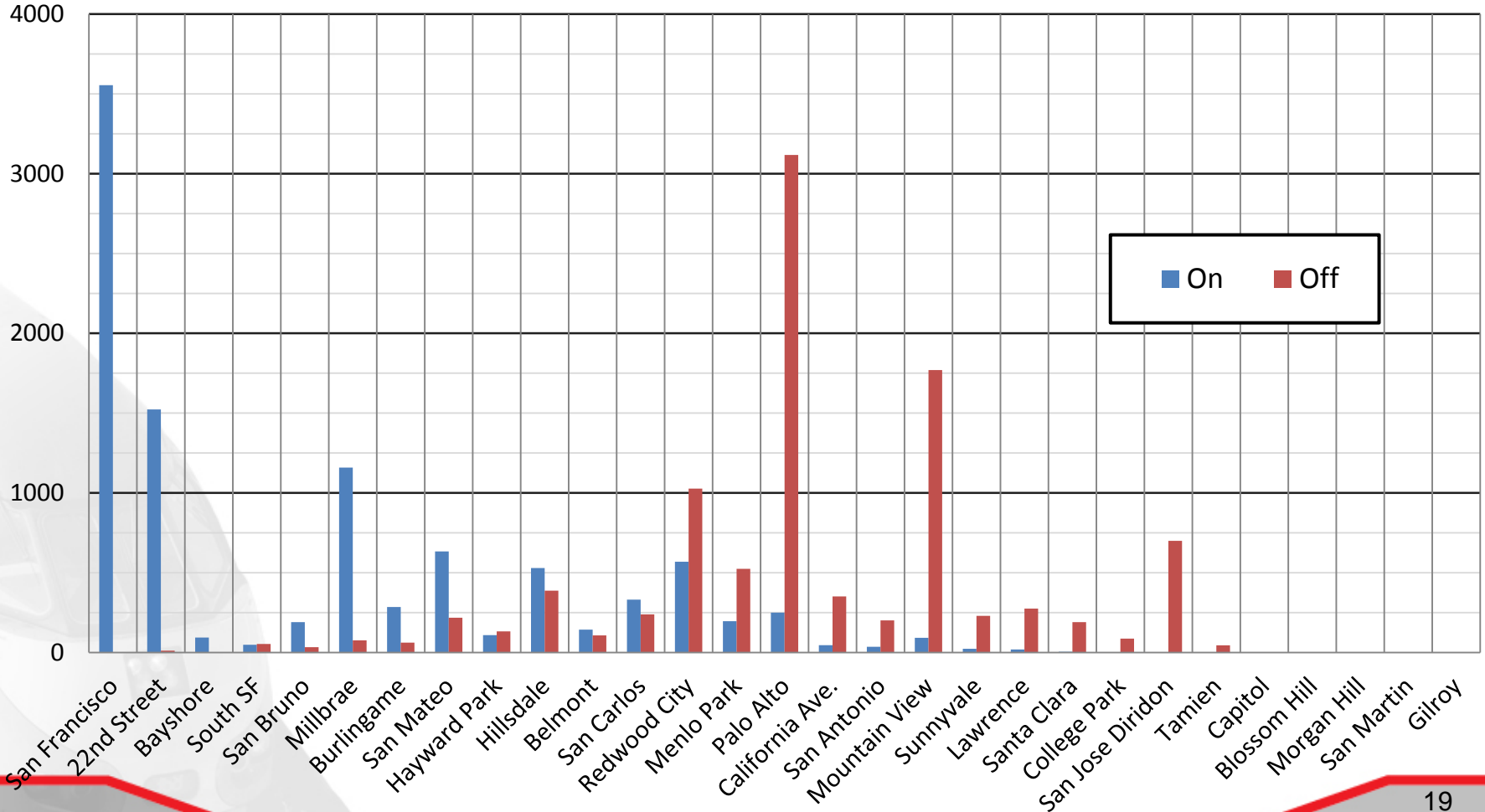
Gilroy Avg. (Mid-) Weekday Ridership

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 service planning with VTA in concert with the Caltrain Business Plan

Avg. (Mid-) Weekday Bike Ridership

6.0% AMWBR increase
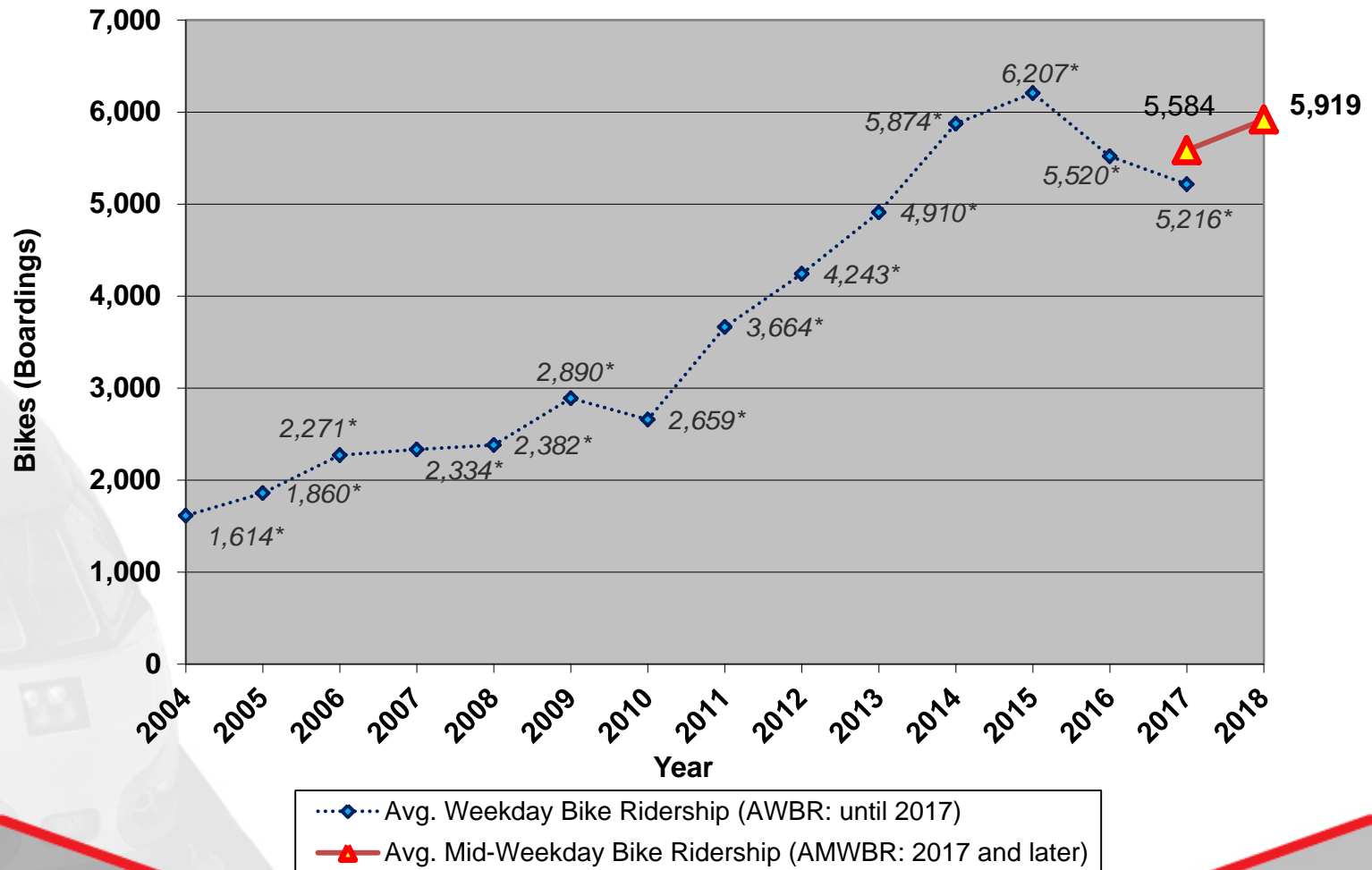
Bicycle Boardings: Top 10 Stations (Weekday)

Station	2017		2018		2017 vs 2018
	Rank	AMWBR	Rank	AMWBR	% Change (Difference)
San Francisco	1	1,240	1	1,442	16.3% (202)
Palo Alto	2	765	2	796	4% (31)
Mountain View	3	470	3	551	17.2% (81)
Redwood City	4	341	4	407	19.2% (66)
San Jose Diridon	5	324	5	359	10.8% (35)
Sunnyvale	6	275	6	303	10.5% (29)
Hillsdale	7	247	7	257	4% (10)
22nd Street	8	218	8	251	15% (33)
California Ave.	9	212	9	225	6% (13)
San Mateo	10	164	10	218	33.2% (54)

Bikes Denied Boardings

- Seventh year counted with annual count
- 21 bumps (2018) vs 87 bumps (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)

- 2017: 44 PNA boardings per mid-weekday
- 2018: 35 PNA boardings per mid-weekday
  - PNA boardings on 45 trains of 92 scheduled trains during count
- 2017 vs 2018: 20% decrease

Weekend Service

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

Weekend Service (2017 vs 2018)

Corridor-Wide Boardings

Passenger	2017	2018	Difference	% 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.)

Station	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:

b = Baby Bullet Express

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

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
- Weekday ridership increased during peak periods
- Gilroy Extension weekday ridership increased
- Bike ridership increased *but* "bumps" observed 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 w/ Caltrain Business Plan efforts to strategize for future scheduling and passenger capacity
- Planning for future Annual Counts Methodology
    - 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