Update on TIRCP Project: EMU Configuration & Bike Improvements at Stations

Joint CAC/BAC Meeting
April 17, 2019

Workshop Outline

- **Train Configuration & Bike Improvements Presentation** - 25 mins.
- **Station Bike Improvements Activity** - 20 mins.
- **Car Reconfiguration Activity + Report Out** - 40 mins.

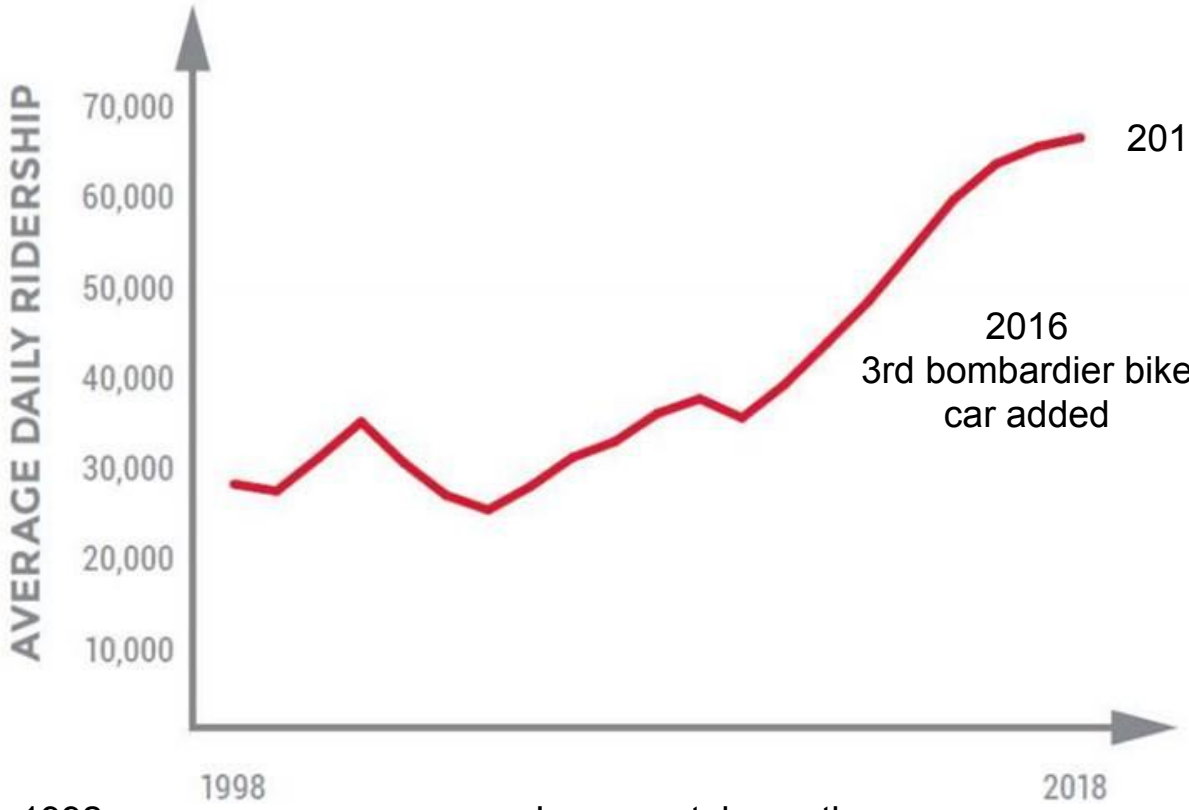
Train Configuration & Bike Improvements Presentation

Overview

- **Additional vehicle option:** Board approved December 2018
- **$183M** for 37 additional electric vehicles
  - 7 car trains instead of 6 car trains
- **Bike car security** concerns from bike community
- **$3.5M+ bike parking & micromobility** improvements at stations
- Process to move forward

Context

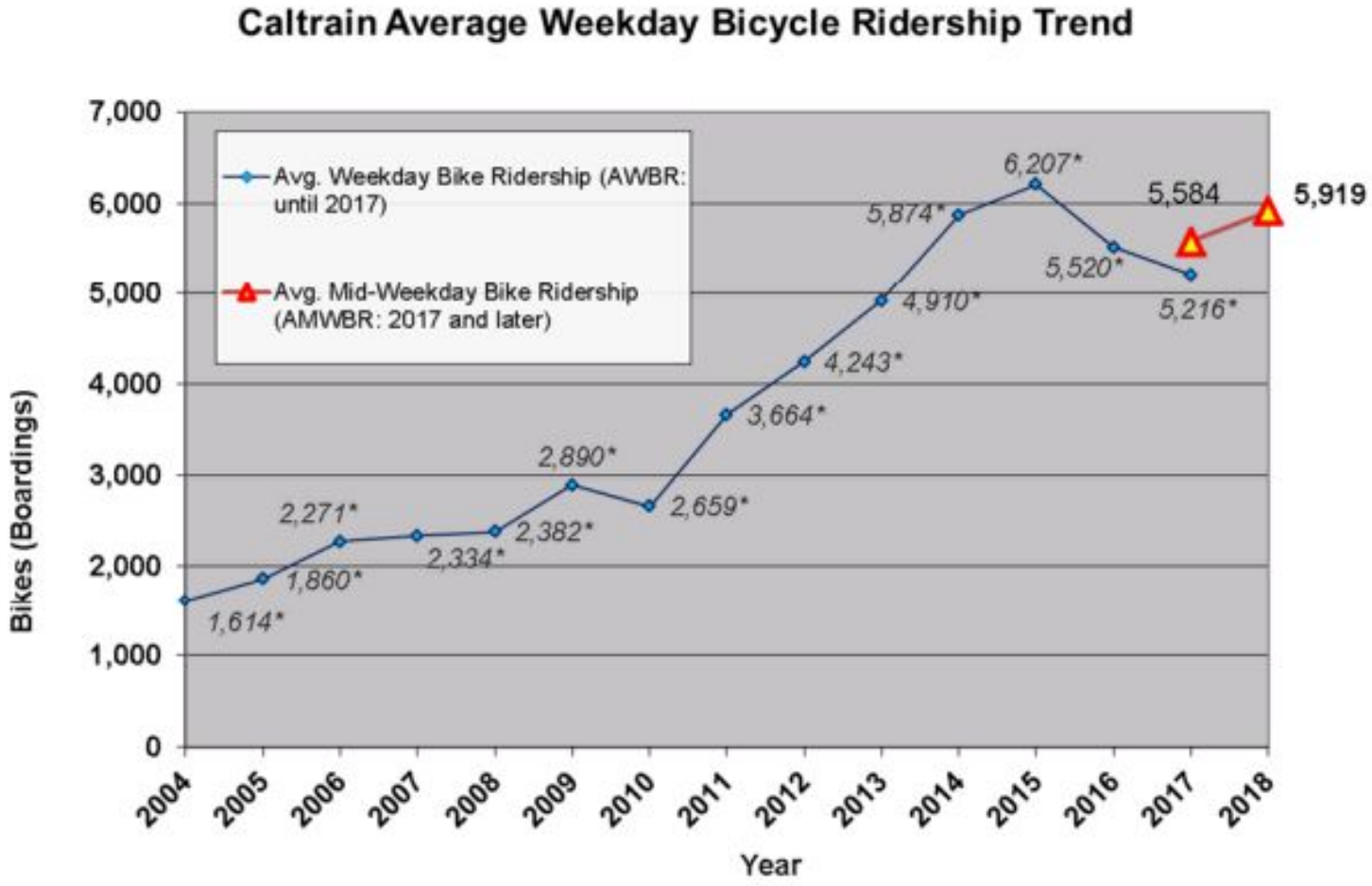
Ridership & Bikes Onboard



1992
Bikes allowed
onboard

Incremental growth
over the years

On Board Bike Ridership



Source: Caltrain 2018 Annual Passenger Count

2015 Context

- **Daily ridership:** ~58,000
- **Daily bike boardings**: 6,207
- **Trains per peak hour:** 5
- **On board bike spaces:** 80 or 48
- **Metrolink cars on the way** (provides additional bike capacity)
- **Board resolution related to 6-car PCEP electric vehicle purchase:** 1 bike space for every 8 seats
- **Bike parking options at stations limited** (mostly racks and keyed lockers)
- **Bike share very limited**, no scooters etc.

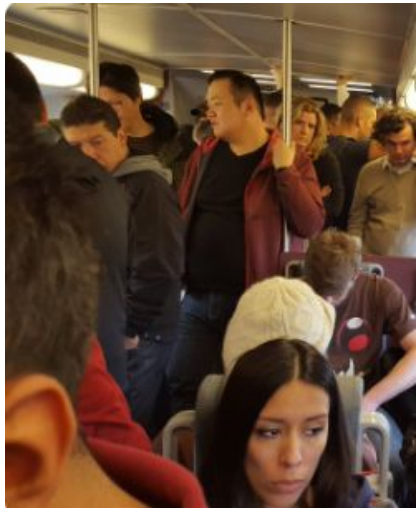
2018 Context

- **Daily ridership:** ~65,000 **(up 12% from 2015)**
- **Daily bike boardings:** 5,919
- **Trains per peak hour:** 5 (combination of 5 and 6-car trains)
- **On board bike spaces** 72-80 per trainset
- **Caltrain Electrification** in construction
- **Significant number** of trains with **standees**
- Variety of **new first / last mile** options

Today - Bikes on Train

- **Caltrain carries more bikes onboard than any commuter rail in the country**
- A person bringing a bike onboard takes two spaces (bike and seat)

Today - Increased Crowding



Rider Survey (2017)

10% (~300 people) on Limited & Bullet Trains Commented on Crowding

"Commuting everyday. It sucks that you may not actually get a seat after how much you pay to take Caltrain. Second to not having a seat, is how crowded it can get."

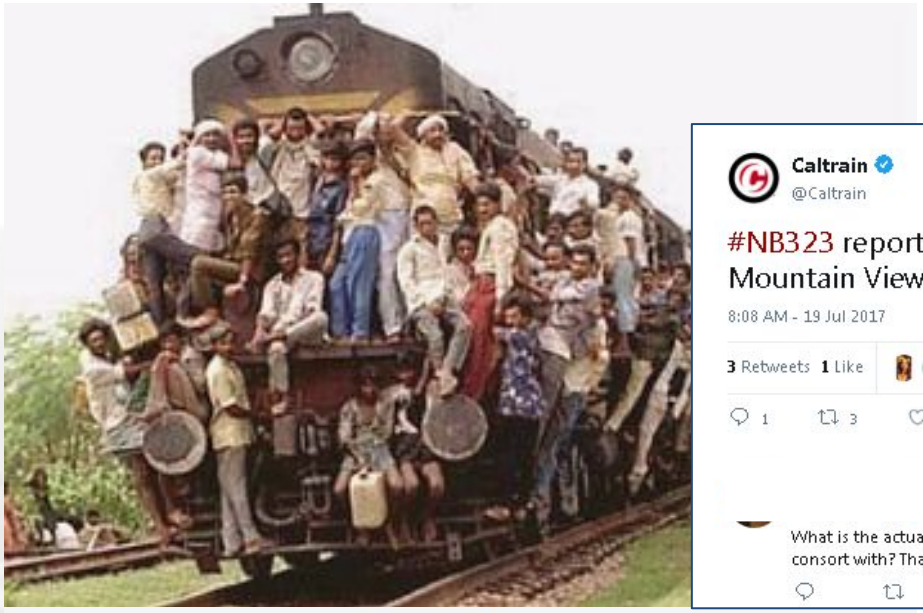
"Many trains are too crowded. 50% of the time I don't get a seat"

"Need more train cars → rush hour → no seats"

"My usual afternoon train that leaves at Cal Ave at 1630 is very crowded"

"You added a car and have a new train which gives more room, but I still have to stand because you have no seats."

Social Media Customer Complaints Crowded Trains



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2,405 views | 5 faves | 12 comments

Caltrain is getting crowded

I snapped this photo yesterday evening as the train approached Palo Alto station for my commute home. It's getting a little bit crowded on the train.

Tags

Caltrain
@Caltrain

Follow

#NB323 reported Standing Room Only out of Mountain View. #Caltrain

8:08 AM - 19 Jul 2017

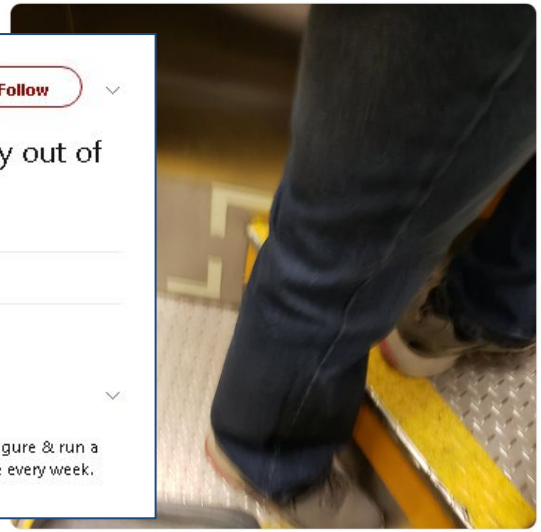
3 Retweets 1 Like

1 3 1

What is the actual maximum number of cars you can configure & run a consort with? That's what 323 needs. It's nuts now, worse every week.

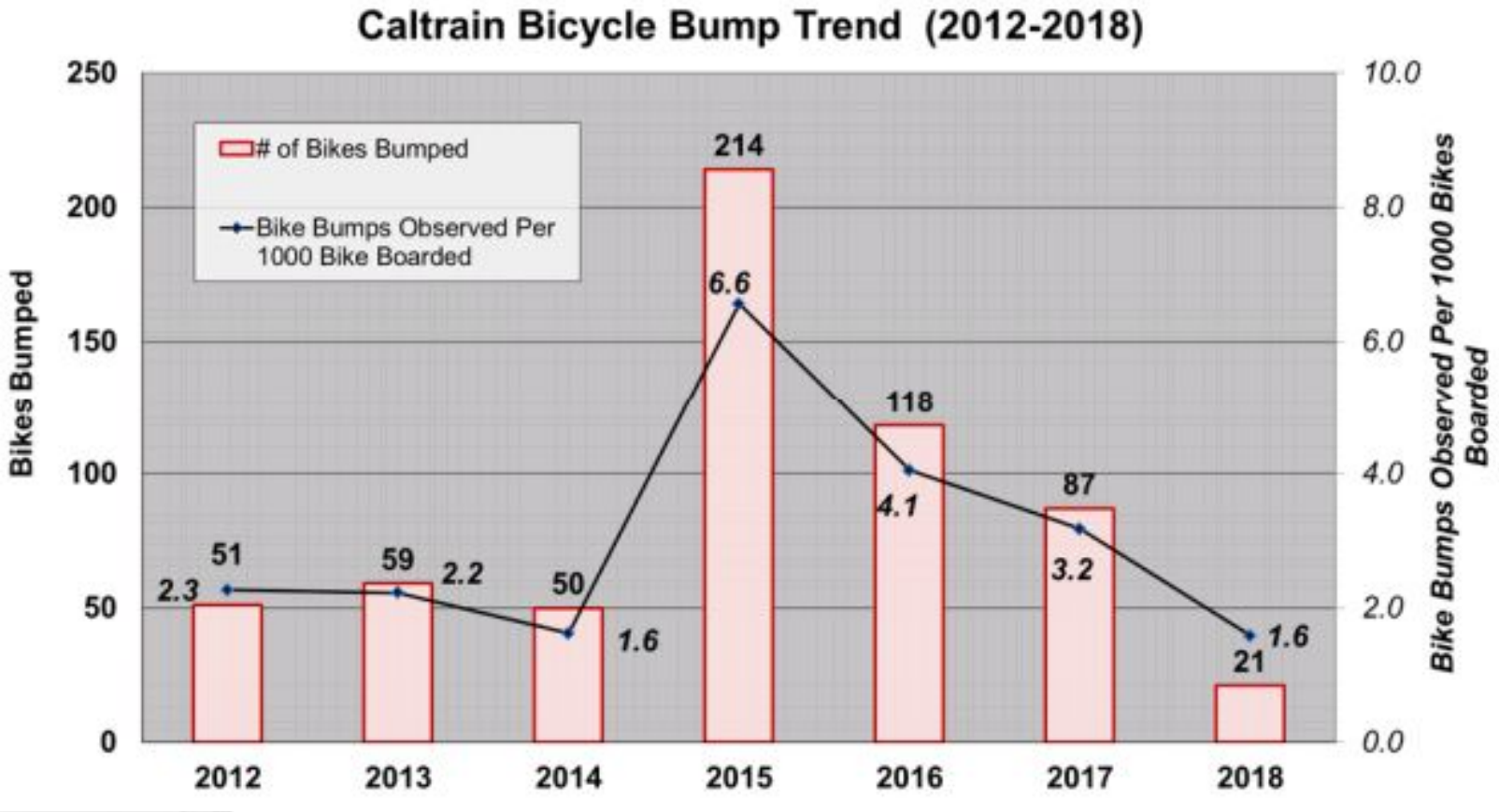
Follow

The #caltrain experience of standing in a one-person wide stairwell because the rest of the train is packed. #commute



5:39 PM - 10 Dec 2018

Reported Bike Bumps



Source: Caltrain 2018 Annual Passenger Count

Morning Capacity – 2018

	Over Capacity			Over Capacity	
NB Train	Seats	Bikes	SB Train	Seats	Bikes
305			206		
207			208		
309			310		
211			212		
313	X		214		
215	X		216		
217	X	X	218		
319	X		320		
221	X		222		
323	X		324	X	X
225	X	X	226		
227	X		228		
329	X		330	X	
231			232		X
233	X	X	134		

Train Operations (Today)

- Bike boarding/deboarding a significant cause of delay
  - Bikes board first project aimed at reducing boarding time
- Conductor resources used to oversee bike cars
- Number of bike cars should be limited in order to limit excessive dwell times

Future Operations (2022)

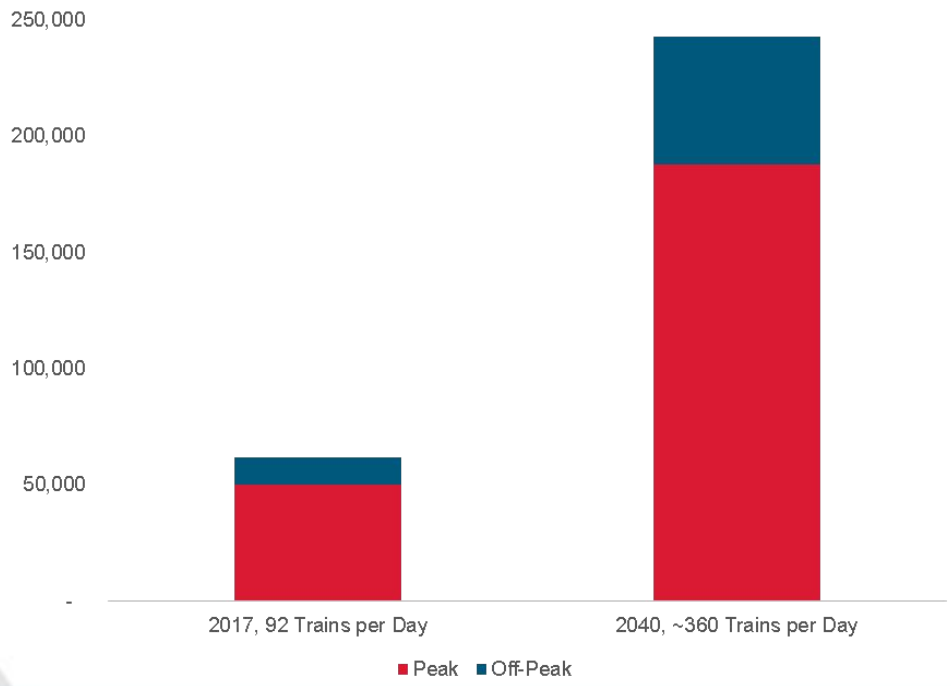
- **7-car electric trains** (max 667 seats)
  - Seating capacity equivalent to a 5-car diesel train
- **Incremental commissioning/decommissioning** trainsets requires electric trains to have at least the seating capacity of a 5-car train
- **Remaining diesel** Gilroy trains will continue to provide more seated capacity
- **Future demand** satisfied by combination of seating capacity and increased frequency (6 per hour, up from 5)
- **Assess next increment** through Business Plan

Financial Implications: Onboard Bikes

- **Initial electric vehicle purchase:** $551M for 16 six-car trainsets ($34.4M per train)
- **Six-car trainset** = 567 seats + 72 bike spaces
  - 72 seats removed to install bike spaces
- **Per seat replacement cost** =$53.8k
- **Per trainset seat replacement cost** = $3.88M
- **$62M investment** in additional rolling stock needed to provide equivalent seat replacement
- Legislation precludes charging for bikes onboard

Caltrain Business Plan – Future Ridership Growth

By 2040 there could be underlying demand for approximately 240,000 daily trips on the system.



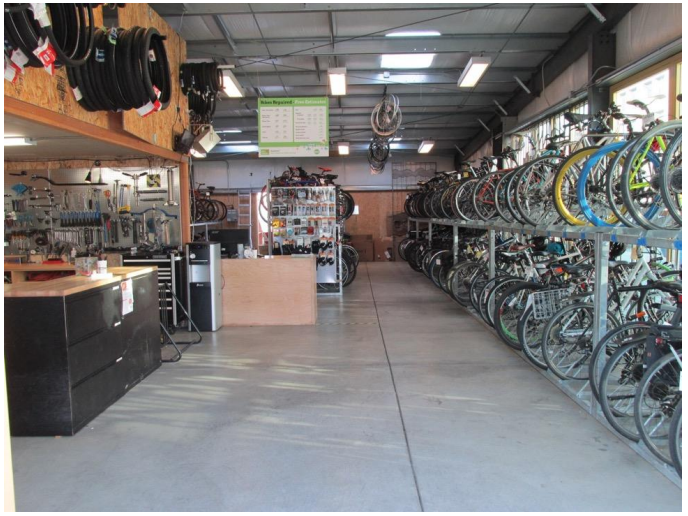
Caltrain Business Plan Continued

- While Caltrain is able to expand its Electric train consists to seven car trains, **adding further capacity will be challenging**.
- In addition to purchase additional vehicles, other investments, such as platform extensions, will be required.
- The Caltrain Business Plan is exploring what options are available to further lengthen trains (beyond 7 cars to 8- or 10- car consists) as well as what may be required to run additional trains.
- This is a holistic analysis that will illustrate both the opportunities as well as the limits to adding capacity to the Caltrain system as a whole.

Bike Parking & Micromobility at Stations

Options at Stations Improving

- Limited options today
- Working to offer more:
  - Electronic lockers
  - Shared access bike rooms
  - Better management
  - Bike and scooter share
- Untapped potential - much more space at stations than onboard trains

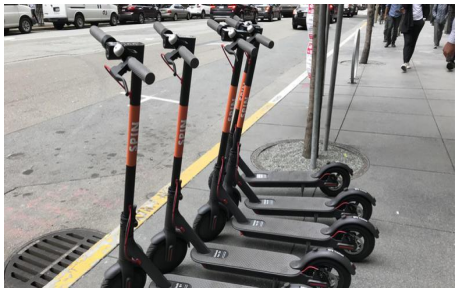


Bike & Scooter Share Today

- Much learned since original Bay Area Bike Share pilot, w/ Lyft & Uber owning & operating more integrated systems
- San Francisco 4th & King is the busiest bike share station in the Bay Area

Bike & Scooter Share Today

- **Scooter share is a quickly evolving** first and last mile option not available in 2015
- Multiple scooter share companies started in 2017 and now claim over 10 billion rides
- **Caltrain currently developing micromobility policy** to make options work well for all riders



Best Practices Around the World

As ridership increases, we must look to places around the world with higher bike ridership

Rotterdam

Tokyo

Recent Efforts to Improve Caltrain Bike Options

- **Bike Parking Management Plan** approved (November 2017)
- **Bike Security Task Force** (began January 2018)
- **New station access planner** hired (August 2018)
- **Bike access & parking survey** (Fall 2018)
- **Funding for bike improvements at stations**: $3.5M (TIRCP grant 2018)

Caltrain Ongoing Bike Parking Efforts

- **Develop station specific plans** with bike parking amenities
- **Work with bike share companies**, locker manufacturers & station area projects to make things easy to understand and inexpensive for users
- **Develop a strategic plan** for corridor-wide bike share
- **Prioritize spending**
- **Coordinate with cities** on bike plan updates

Caltrain Priorities (near / future)

- **Capital plan for first 10 stations:** Spring 2019
- **Rework keyed locker management:** 1-2 stations/month (ongoing)
- **4th & King/Townsend bike parking expansion:** Winter 2019 / 2020
- **Capitol Corridor eLockers:** June 2019
- **San Carlos Station Improvements:** Fall 2019
- **Sheds managed by 3rd party:** Late 2019 - early 2020
- **E-lockers system wide:** 2022
- **Bike rooms:** Include with any TODs

Caltrain Bike Security Efforts

- Interdepartmental effort started Spring 2018
- Reporting/protocol improved
- Updated bike webpages
- Underway
  - **Theft prevention app -** pursuing partnership
  - **Lost & Found -** new 24 hour recovery policy
  - **Updating onboard decals** and materials

Electric Train Configuration
Next Steps

Bikes Security on Electric Trains

- Bike community desires seats next to bikes
- Caltrain can review possible configuration options
  - Additional community input/feedback
  - Joint CAC/BAC workshop
    - Hands-on interaction with configuration possibilities
    - Small groups
    - Board participation

Funding

- Reconfiguration not part of current budget
- Funding sources not yet identified

Next Steps

- Make bike parking and micromobility at stations more viable solutions and seek feedback
- Identify strategies for configuration of existing bike cars and seventh car to address bike security concerns
  - Maximize seated capacity
  - Minimize impact on cost, bike capacity
  - Not constrained by 1:8 bike to seat ratio

Outreach Process

Item	Audience	Date
Outreach Process Update	CAC, BAC Subcommittee, Bike Coalitions	February
Outreach Process Input / Process	Board	March
Joint Workshop: Electric Train & Bikes Onboard Configuration	CAC and BAC	April
Possible broader outreach (survey and/or station pop-up events)	General Ridership	April/May
Staff Recommendation	CAC & BAC	May
Board Decision	Board	June

Station Bike Improvements Activity

Station Bike & Micromobility Improvements

Goal: Understand barriers and motivations, get feedback on what station improvements are most important

Barriers and Motivations Activity

- Read the 2 prompts
- Write your responses on sticky notes and share with your neighbor
- Each participant invited to share responses and consider where investments could be made

Station Bike & Micromobility Improvements

Secure on-demand bike lockers

Secure on-demand enclosed parking facility

Extensive bike share program, electric bikes, micromobility

Abundant, well-designed bike racks in high-visibility areas

Station Bike & Micromobility Improvements

Prompt #1 (pink sticky note)

What are the key barriers to parking bikes or using bike share / micromobility options at stations?

Prompt #2 (blue sticky note)

What would motivate riders to try bike parking / bike share / active mobility options at the station? Where should Caltrain spend resources (i.e $3.5m)?

Car Reconfiguration Activity

Car Reconfiguration Exercise

Goal: Create opportunities to weigh in on bike security solutions that work for all riders.

- Small groups (including the public) receive set of train parts to arrange on train car layout
- Groups create two different configuration options
  - Configuration options: no change, two-car, three-car
  - Complete checklist for each configuration option
- Report out options to the larger group (w/ pics)

Feedback Incorporation

- Insights and feedback from this workshop will be considered and factored into a final staff recommendation
- Staff will need to factor financial impacts and feasibility into the recommendations

Car Reconfiguration Activity Logistics

Interior Train Parts

Scale 1:5

Piece Types:

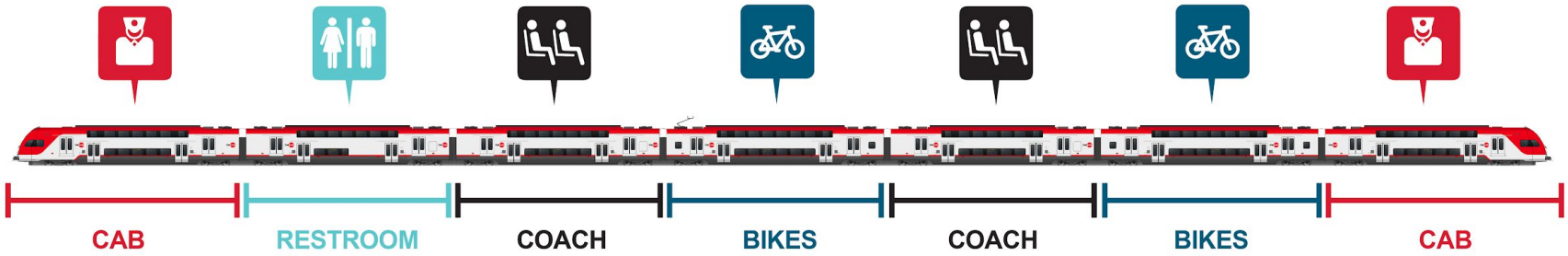
- 4 standard seats + table
- 2 standard seats
- 3 flip seat
- 2 slip seats
- 1 flip seats
- bike rack (holds 4 bikes)

Car Reconfiguration Exercise Checklist

- ❑ Configuration type for this option (circle one):
  No Change Two-car Three-car

  Note: You must explore two different reconfiguration types
- ❑ How many seats are there in this reconfiguration? _____
- ❑ Did you maximize seat capacity?
- ❑ Did you enhance security for bike riders?
- ❑ How many bikes fit in this reconfiguration? _____
- ❑ Does the solution work for all riders?
- ❑ Which cost category does this option fall into (circle one):
  Neutral (no change) medium-impact (2-car) high-impact (3-car)

Current Train Car Types



Flip Seats

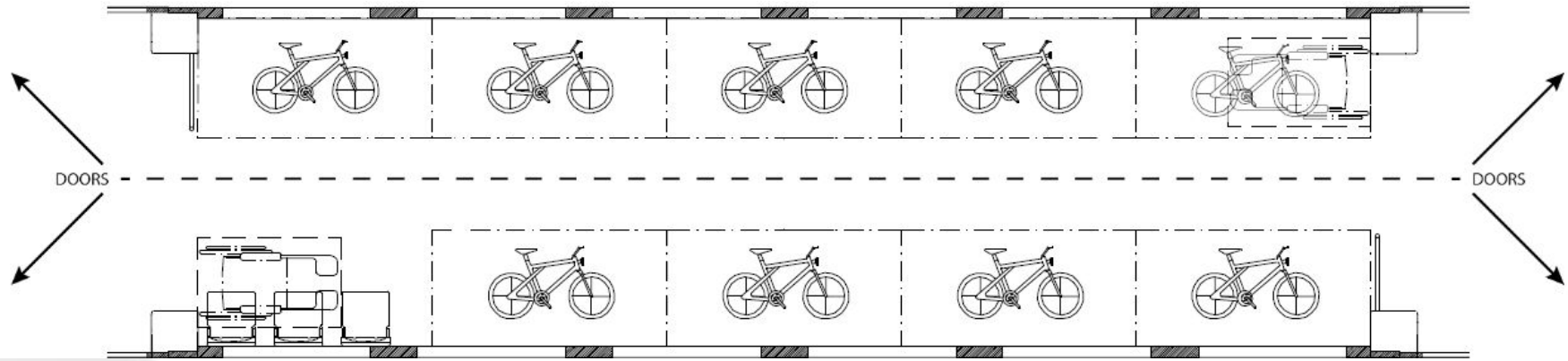
Standard Seats + Table

Bike Rack

Standard Seats

The different car types have different lengths. The bike cars are the longest cars.The “seventh” car will be a coach car.

Current Bike Car Configuration



Bike car configuration is duplicated across two cars.
Number Seats: 3 flips seats in lower level* (6 total)
Number Bike Spaces: 36 in lower level (72 total)

*86 seats per car in the mid/upper level of the bike car (172 total)

Car Reconfiguration Report Out

Overall Workshop Reflection

- Did this workshop give you an opportunity to share your viewpoints?
- Do you feel many riders would be well-served by bike parking improvements and bike share or micro mobility programs? Why?
- Do you have a better understanding of the elements, constraints and challenges that go into electric train bike car configuration after completing this workshop?