SFMTA Rail Operations during COVID-19 Emergency

SFMTA CAC

October 1, 2020

March 2020

The pandemic unfolded very quickly:

- Staff began calling out sick, reducing coverage for critical activities
- Ridership fell by 80% in two weeks
- Every day was new and unpredictable
- We redesigned service appropriate to needs and available resources

Real Time Data Guiding All Decisions

Monday, August 3, 2020

Date
Sunday 09/13/2020

Trend Type
Weekly

Period Type
(Multiple values)

Service Category
(All)

Routes
- [x] (All)
- [x] 1 California
- [x] 5 Fulton
- [x] 7 Haight/Noriega
- [x] 8 Bayshore
- [x] 9 San Bruno
- [x] 9R San Bruno Rapid
- [x] 12 Folsom/Pacific
- [x] 14 Mission
- [x] 14R Mission Rapid
- [x] 19 Polk
- [x] 22 Fillmore
- [x] 24 Divisadero
- [x] 25 Treasure Island
- [x] 28 19th Avenue

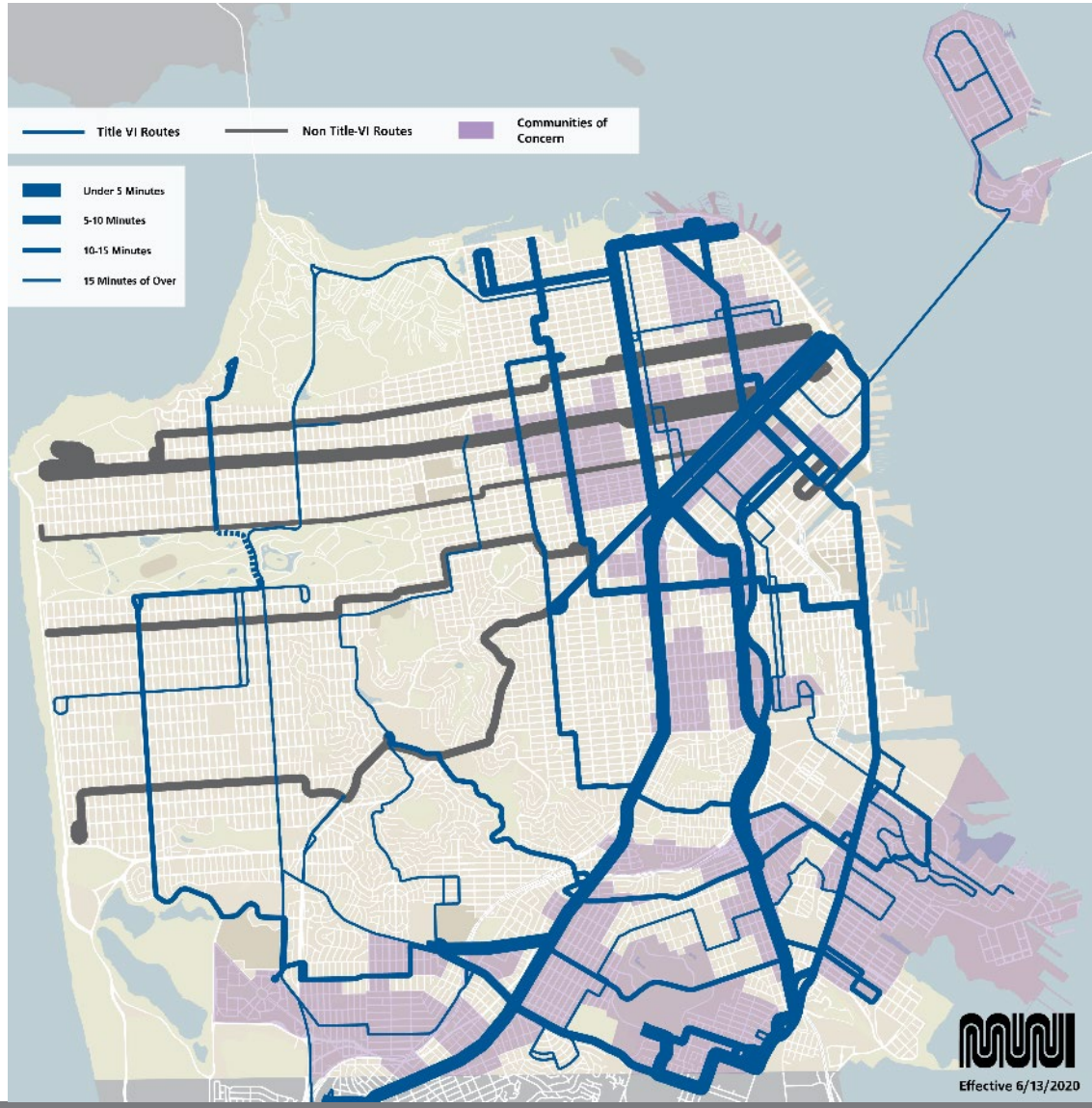
Cancel Apply

Median Load
0 26

Median Passenger Count by Stop
Sunday 09/13/2020

COVID19 Service Strategy

- How do we deliver *predictable* service during an unpredictable time?
- How do we ensure equity is at the core of our decisions?
- How do we make the best use of our limited resources?
- How have trip patterns changed?



Evaluate Resources for Resilience

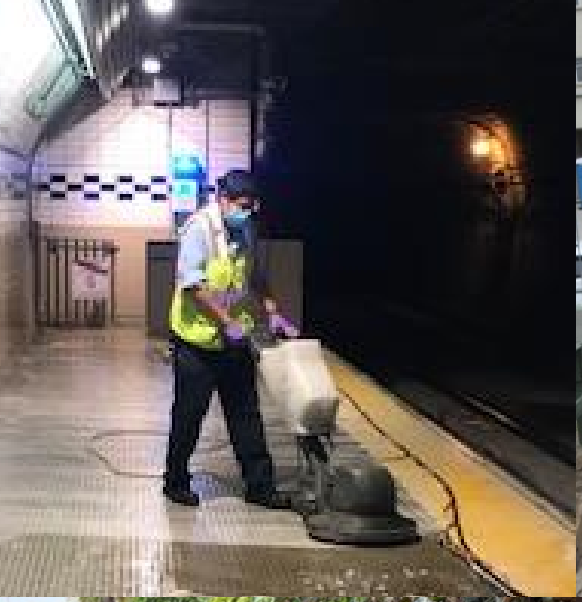
It is always better to *plan* for a service change than to cut service unexpectedly - Muni Metro was a vulnerability:

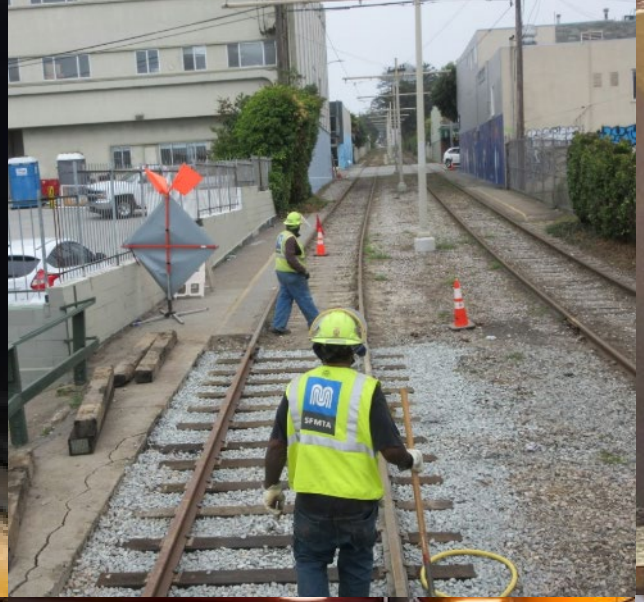
- Staff shortages could require us to halt service unexpectedly
- Shortages in maintenance could lengthen response times to urgent issues
- The cost-to-passenger ratio given reduced ridership was *very* high

Muni Metro bus substitution effective March 30, 2020

Work accelerated while Metro was closed

- Initially, DPH restricted maintenance work to caretaker role, basic safety inspections
- Mid-summer, close contact guidelines for maintenance allowed state-of-good-repair (SGR) work to accelerate:
  - Completed work on LRV4s that will improve reliability
  - Activated West Portal crossover for three car subway shuttles
  - Renewed sections of overhead wire, replaced and adjusted electrical hardware in the subway
  - Cleaned stations top to bottom
  - Replaced sections of track and track fasteners
  - Installed better lighting in tunnels to improve work environment for rail maintenance staff
  - Campaigned the trolley bus network






MUNI
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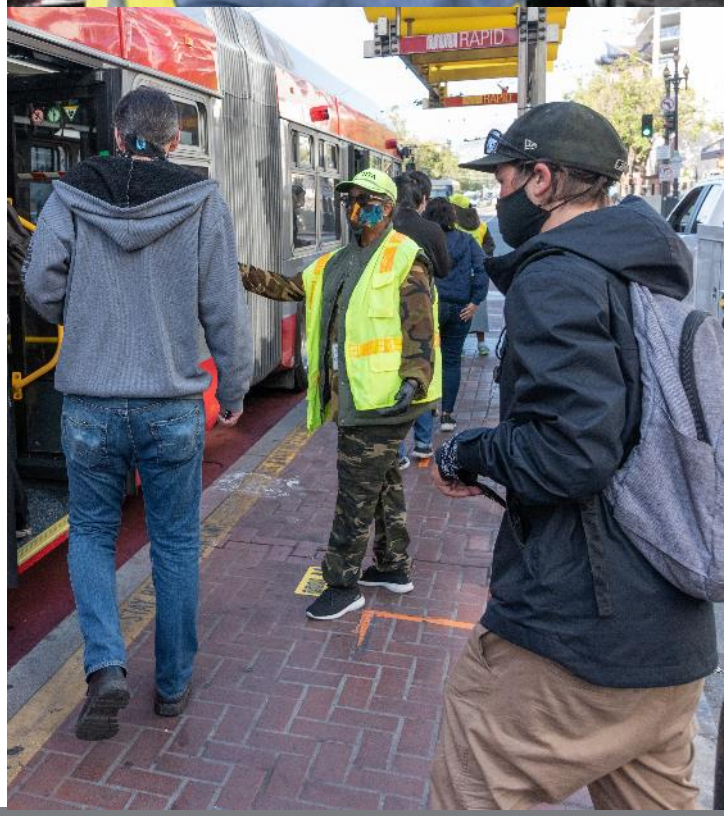
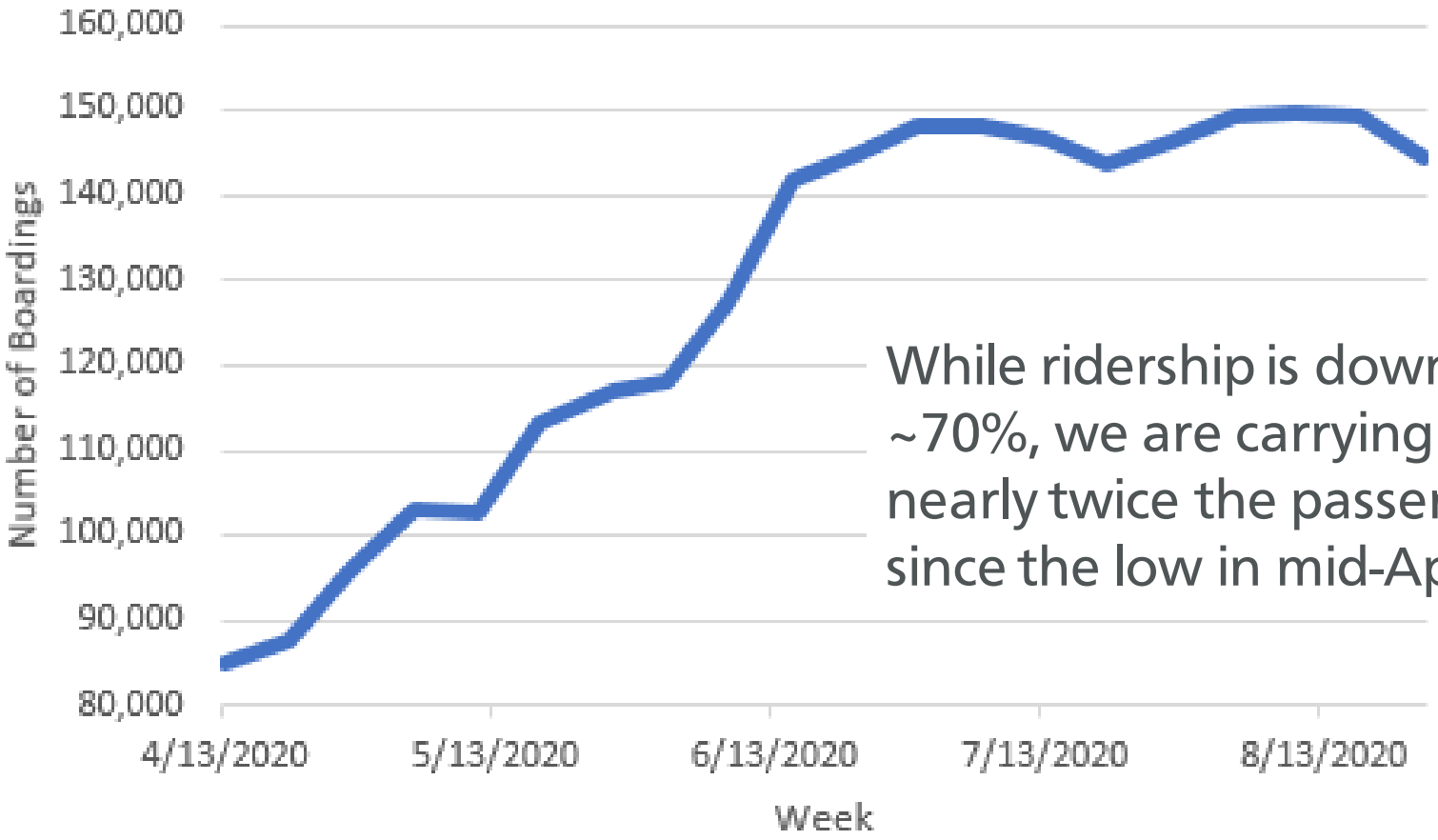
We Want to
Hold Your Hand

Why reopen rail?

- Increasing economic activity also means increasing crowding
- Following five months of operations, felt we had a handle on this “new normal”
- Light rail can carry more passengers per operator, freeing up buses to add service to crowded routes
- Overhead line issues known, but solutions were underway, and presented as relatively low risk



Ridership recovery since Shelter in Place



While ridership is down ~70%, we are carrying nearly twice the passengers since the low in mid-April

Shutting down rail for a second time

- Risk profile changed significantly when two splices broke within 72 hours
- Splice failures in the subway raised concern of customers getting stuck in the subway for extended periods of time during COVID

What is a splice?

- A *splice* is how we connect two pieces of overhead wire to one another
- Splices are customized to our system's specifications and require highly specialized manufacturing
- Splices should be stronger than the surrounding wires

Background on Failed Splices

Failed splices

2019 **2020** *No subway service*

April 16

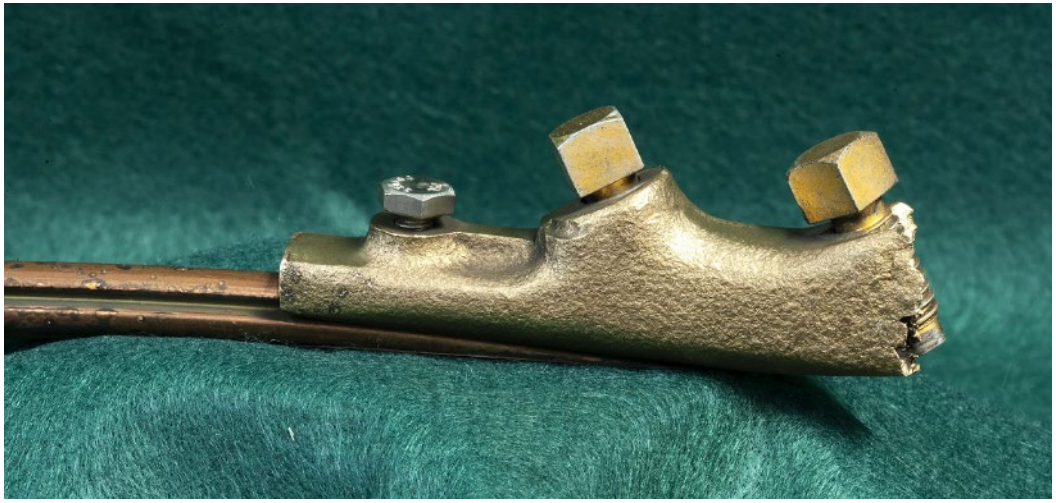
August 23

August 21

June 9 (surface)

May 15

April 26 (surface)

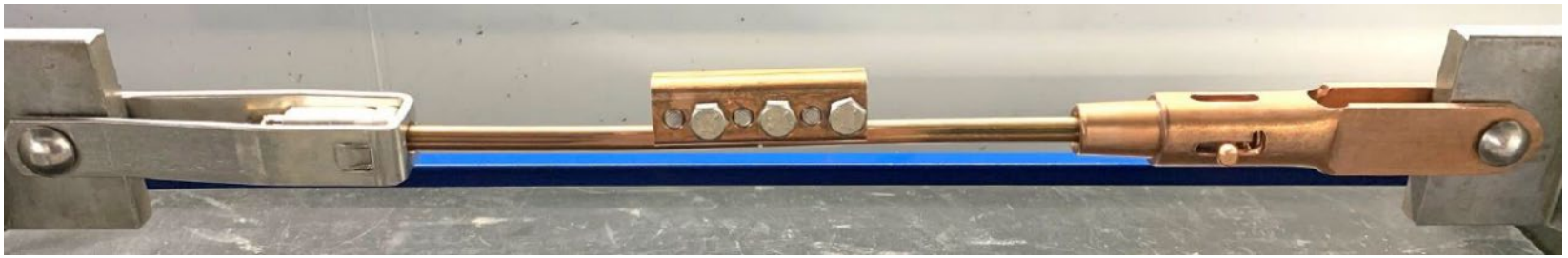


Poor Quality Led to Splice Failure

- Independent failure analysis determined that splices failed due to poor metallurgy quality - it contained low silicon levels which results in low tensile strength
- Splice is not a new design, and has been used in our system for over a decade
- Splice is a low-cost part ~$200, more like a bolt than an engine
- Splice did **not** fail because of state of good repair issues
- Splice problem not visible as part of our routine preventative maintenance inspections

Next Steps for Overhead Lines in Subway

- New splice identified with enhanced design features
- Overall splices will be reduced by replacing subway wire in sections with the most splices
- Reaching out to the industry to identify other opportunities and new perspectives



Maximize SGR work to come back stronger

- Shutdown presents opportunity to address state of good repair needs and create more reliable subway
- Will build on progress made over the summer *(minimal work was conducted this spring due to COVID restrictions)*
- Multi-disciplinary Task Force created to identify and plan work in key areas including track, signals, and fire/life safety systems

Safety, Reliability, Efficiency

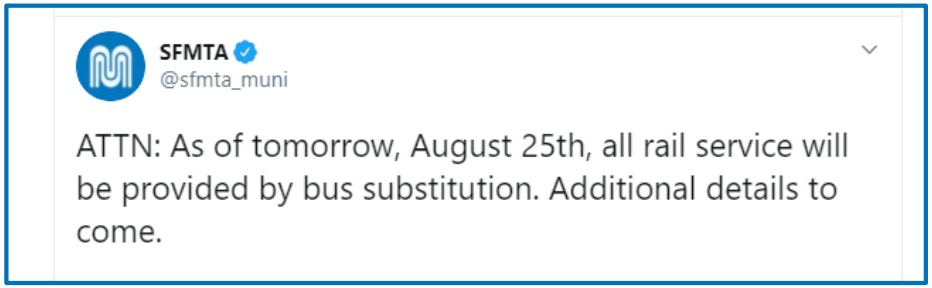
All work is assessed against the initiative's three goals:

- **Safety**: Does it improve the safety of our staff and/or the public?
- **Reliability**: Will it bring back the system in a better state of health?
- **Efficiency**: Does this work improve the future maintainability of our system and effectiveness of our staff

We will perform a combination of major maintenance campaigns and capital project upgrades to bring the system back better.

Lessons Learned – What Worked

- Making difficult decision early preserved service for essential workers



- Radical resilience of our bus system continues to allow SFMTA to respond to the changing needs of COVID pandemic
- Extended maintenance windows should continue – existing splices reduced by 25% since April 2019

Lessons Learned – For Improvement

- Direct more engineering resources to accelerate solutions
- Think bigger – consider full replacement rather than incremental upgrades
- Continue cultural shift towards cross-silo problem solving
- Build closer relationships with peer agencies – recent work shows some systems having similar challenges
- Re-evaluate COVID procedures for Transportation Management Center (TMC) and other small, mission critical groups
- Run several days of full service (without customers) to stress-test system before start-up


Thank you
SFMTA