



SFMTA

LRV4 Update

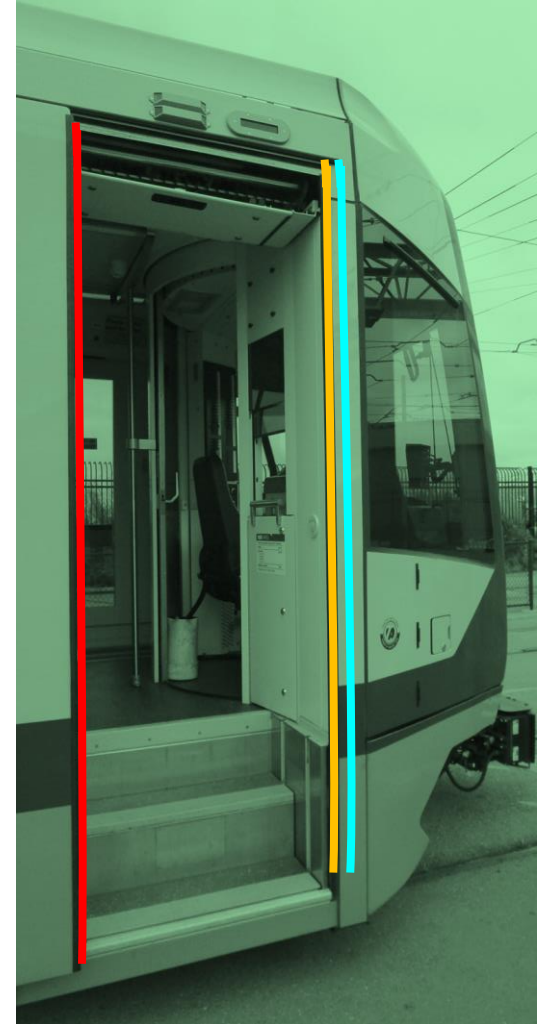
SFCTA Board
June 25, 2019



LRV4 Modifications on Track

Beginning Monday, June 24 LRV4 vehicles are back in service without restrictions:

- All doors have been retrofitted with new design
- Couplers have been modified to allow safe operation of two-car trains
- Vehicles with damaged couplers will be repaired by end of July (some LRV4s will continue to be single car until then, but will be used on J line)

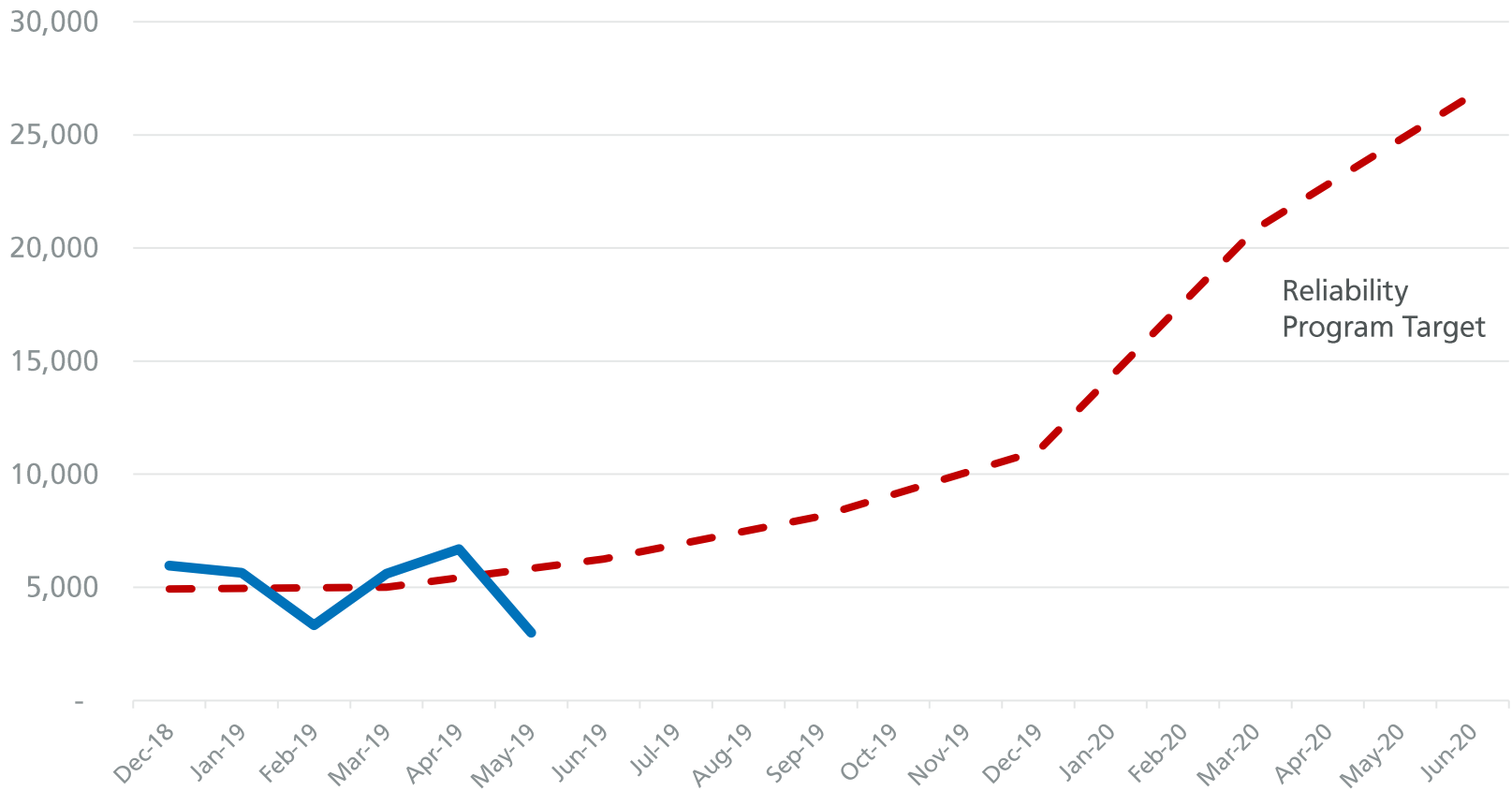


Emerging Concerns

- LRV4 experienced reduced vehicle availability in May
- Multiple issues contributed, but most significant is due to component failures that result in locked brakes:
 - Hydraulic Power Unit (HPU) failure prevents brake release, brakes stay in locked condition as a fail-safe
 - Four causes under investigation: motor driver circuit board, data communications connector, brake control valve, and software bug
 - Corrective actions are underway for the connectors, the valve and the software, circuit board still under investigation

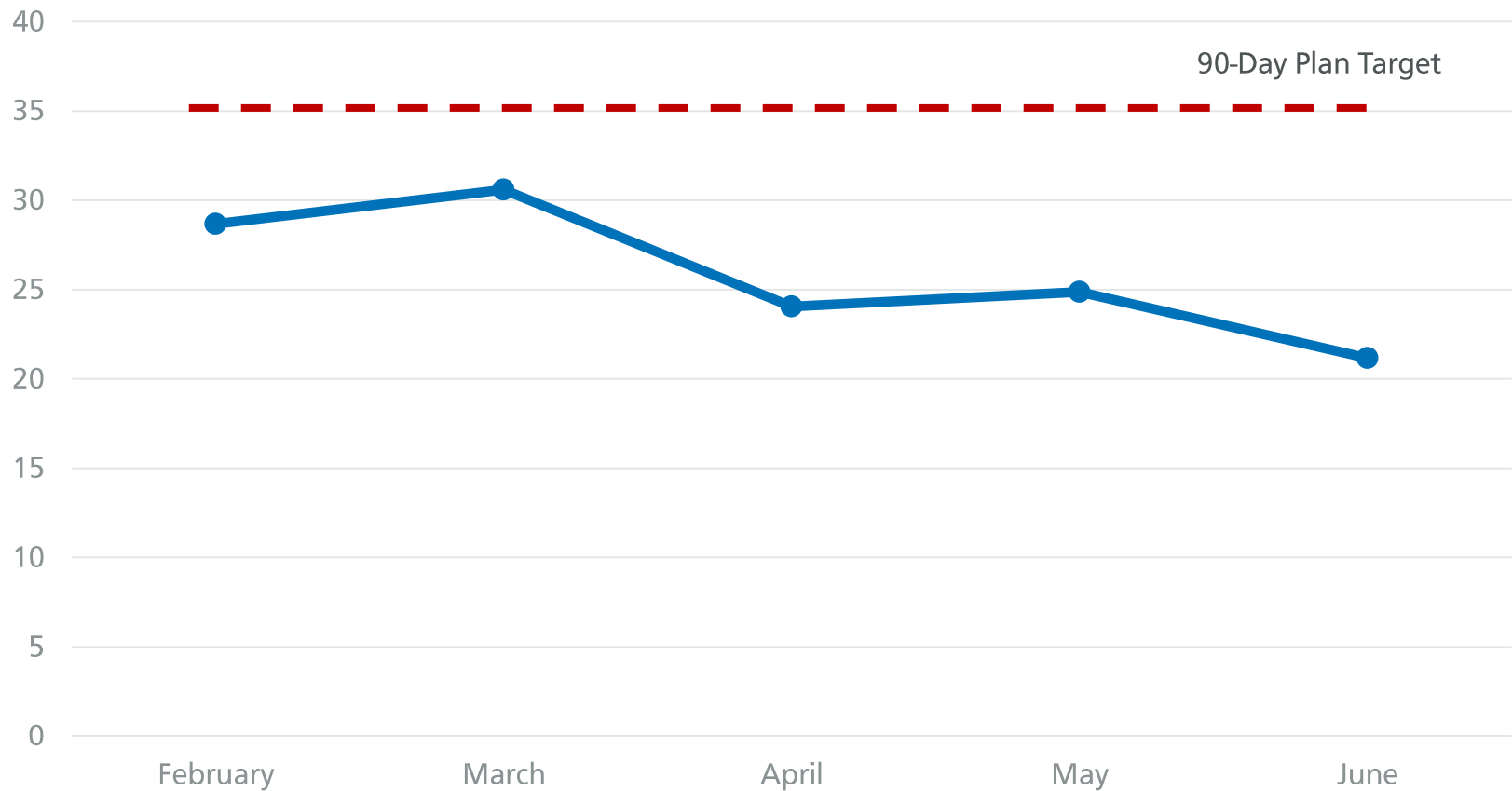
Reliability Program

Mean Distance Between Failures



Vehicle Availability

Vehicles Available for Service by Month



June data is preliminary and based on the first week of the month

90-Day Plan

We have initiated a new 90-Day Plan to ensure we continue to target key performance areas to improve service reliability and safety. The LRV4 project has five targets to achieve by September 15 as part of this plan.



Availability	Delivery	Doors	Reliability	Track Brakes
Increase vehicle availability to 35 vehicles per day	Complete delivery of the first phase of 68 vehicles	Correct issues with doors and couplers, remove all restrictions on operations	Increase reliability to 8,000 miles MDBF or greater	Safety certify new design for additional track brakes

Phase 2 Update

- SFMTA has slowed down Phase 2 in order to address reliability and availability issues with Phase 1
- Lessons learned from Phase 1 will be incorporated into Phase 2 – with specific focus on addressing problematic subsystems
- Six-month early arrival acceleration no longer possible
- If ready for a fall NTP, it's possible to shorten procurement and protect service from the risks of an aging Breda fleet
- SFMTA staff will provide regular updates to the SFCTA Board on LRV4 performance prior to bringing Phase 2 back for funding consideration



Thank You

