Subway Infrastructure Challenges

Known vulnerabilities:
• Splices, overhead line slow zones
• Aging track and switches from Embarcadero to Castro
• Outdated train control system
• Switch and signal system wiring
• Track stability/ballast in Twin Peaks tunnel
• Resiliency (e.g., aging back up power systems)

Currently analyzing:
• Station systems – electrical, fire/life safety
• Traction power system for three and four car trains
Recent Investments

• Escalator replacement
• Radio replacement
• Emergency “blue light “phone system replacement
• Upgraded passenger announcement system
• Track replacement and earthquake safety in Twin Peaks Tunnel
• Quarterly extended maintenance window (e.g., subway lighting f/Montgomery to VN)
Comprehensive Program Needed

- Improved Project Delivery
- Infrastructure Upgrades
- Subway Renewal
- Workforce Development
Subway Renewal Program

- Subway work best addressed systematically, as a comprehensive work program
- Many elements are funded in 5-year capital plan, but as discrete, stand alone, items
- Capital investment approach also needs revamping to better integrate engineering and maintenance needs
Major work underway will kick off long-term program

We can’t eliminate all subway vulnerabilities in only a few months, but this shutdown will be a major down payment and focuses on critical work that is ready to go:

1. **Rail grinding** for a smoother, quieter ride and extended life of the rail

2. **Spot replacement of track fasteners and rails** in areas of higher wear and deterioration due to ground water

3. **Switch machine replacement** in Embarcadero pocket

4. **Eureka Curve ballast** replacement to provide increased stability to the rail and reduce maintenance

5. **Overhead lines work** including wire replacement to reduce splices, splice replacement and redesign of support structure to eliminate slow zones

6. **Upgrade Subway Lighting** to be completed to allow for improved visibility during maintenance work and emergency response
Subway Shutdown

• Multi-disciplinary subway task force convened to scope and lead subway work
• Significant work already completed or underway, including new sections of overhead wire and splice replacement
• Emergency declaration to expedite Eureka Curve ballast work - expected subway duration dependent on getting contractor on board and mobilized
• Evaluating service enhancements to manage increased trips between now and early Spring
Future Work

5 to 8 year effort:
• Remaining Tangent Track and Switch Replacement
• Crossover Replacement
• Electrical Systems in Subway Stations
• Ventilation System
• Power Upgrades
• Train Control

Note: Image taken pre-COVID.
Thank you