



SFMTA

# Train Control Upgrade Project

July 2024 Project Briefing





# TCUP Benefits to Muni Metro Riders

## Fewer delays

Customers no longer “stuck” due to subway congestion or slow-moving trains

## Faster trips and less time waiting

Better traffic signal management for less waiting at red lights

## More reliable service

More consistent frequencies and travel times making trip-planning more reliable

## More efficient connections

Metro reliability will improve connections to crosstown routes and between neighborhoods

## Better service management

More flexibility for train controllers to manage bunching and gaps



## TCUP Benefits to Muni Metro Riders

The SFMTA's current automatic train control system (ATCS) runs Muni Metro in the subway and without it we simply cannot run effective Metro service. But the current technology is very outdated and really pushing the end of its useful life.

We risk a technology failure that would cause major bottlenecks in the subway and ripple effect delays citywide if we do not upgrade as soon as possible. But if we don't upgrade and our existing technology fails, everyone will feel the pain of a broken Metro system.

At the same time, this is an opportunity to upgrade to the latest modern technology and install it across the entire Metro network – in the subway and on the street.

Over the next eight years, TCUP will address these challenges by **installing modern train control technology along on-street Metro segments where this technology currently does not exist and replacing the technology in the subway so we can provide more service than ever without the delays.**

The new communications-based train control (CBTC) technology will have significantly greater bandwidth and capabilities that will allow us to run more Metro service, more efficiently and reliably, and make operating Metro better for staff.

**Trains will be connected to the new system from the moment they go into service to the moment they go out of service. This means the system will track all trains, citywide, and trigger actions to keep our Metro lines running smoothly throughout service.**

**With a continuous connection, we can prevent many of the issues that cause Metro delays and DO EVEN MORE**

- Trains are more likely to arrive on time, making trip planning and connections more reliable
- Sophisticated technology will communicate with streetlights well in advance to get signal priority, reducing wait times and travel times
- Our staff will have greater flexibility to manage train operations, reroutes, switchbacks, and other issues
- The new tech also has the capability to manage longer trains with more sophistication so we can eventually run 3 or 4 car trains

This is not a typical capital project that is highly visible with lots of construction and obvious new features. **This is a technology upgrade, and most people won't ever see most of the work.**

**We are ultimately buying the benefits of that modern technology to enable better service – and more service – on our Muni Metro. And we're doing it in ways that build our workforce and support our work.**

# What we will ask the Board of Supervisors to approve in September:

## As-needed consultant services contract:

- Five-year term
- Five options to extend term an additional year, for a total of ten years
- Not to exceed \$36,000,000

Consultant has modern train control expertise that SFMTA does not; has worked with all potential suppliers.

**We need the consultant's knowledge to avoid preventable risks.**



## What we will ask the Board of Supervisors to approve in September

It's important that we get this investment right. Managing risk and careful project planning are foundational to the success of this project.

We know a project of this scale will have challenges. We can't eliminate or ignore these, but we can prepare and reduce them.

To that end, we're applying lessons learned from peers and past projects like Central Subway, Van Ness, and other technology projects – and one of our major lessons learned has been around contracting.

### **The consultant contract is the first contract we are taking to MTAB in August and BOS in September.**

SFMTA staff do not currently have modern train control experience, so we're bringing on a consultant with that experience to help SFMTA staff manage and deliver the project, help us identify and address issues, and see through blind spots.

### **We need the consultant's knowledge to avoid preventable project risks, and transfer knowledge to staff to build our in-house skills.**

The consultant has worked with the companies that offer modern train control and has expertise in the technology that we will be installing – expertise that we don't have in-house at present. Their role will be to augment staff capacity to support

- Project management
- Construction management
- Design and engineering
- System integration
- Quality assurance
- Testing and commissioning
- Post-delivery, operations and maintenance consulting

The contract also holds the consultant to performance goals and includes five options so that we don't have to waste time and money later if we need to extend the contract. However, if we don't need or don't like the consultant's work, we are not locked in.

# WSP/PGH Wong Joint Venture

- Local ties and international experience
- Know the Bay Area contracting environment
- Experience with SFMTA peer agencies
- Strong relationships with all likely suppliers, installers and other vendors
- Small businesses and minority-owned businesses are key part of the team



Global CBTC Experience • 8 SBE/DBE Firms • Local and National Talent

## Trusted to Deliver CBTC Projects Worldwide

Experience with all 9 SFMTA-Identified Peer Transit Agencies

### U.S. Peers



### Canadian Peers



### International Peers



**Strong CBTC Vendor Relationships**  
 Extensive experience with Alstom, Hitachi Rail, Siemens and Thales. Team members include past CBTC vendor employees.



## WSP/PGH Wong Joint Joint Venture

WSP/PGH Wong Joint Venture was ranked the highest in the evaluation due to their excellent qualifications. They have a deep bench of CBTC professionals to draw from, having delivered more than 60 CBTC installations in the past two decades across almost every continent.

The Joint Venture combines the strengths of two established firms bringing together WSP's global train control experience with PGH Wong's extensive local construction management and engineering experience.



# Learning from past projects and improving contracts

## Separate contracts

### SUPPLIER

- Provides technology
- Helps design system
- Provides long-term maintenance support

SBE/DBE goal: 5%

### INSTALLERS

- Multiple installers shorten construction timeline

SBE/DBE goal: 100% (preliminary)

### CONSULTANT

- Support staff with project delivery

SBE/DBE goal: 15%

## Key Features

Performance goals

Long-term needs

Knowledge transfer, in-house skill-building





## Learning from past projects and improving contracts

Late in the fall we will bring the supplier and then the installers contracts to the Board for approval. We are currently still completing negotiations.

All TCUP contracts are designed to

- Apply the lessons of past mistakes and give the SFMTA as much choice, flexibility and control as possible over what we get, how we hold contractors accountable, and how we spend our investment.
- Take into account long-term needs. We know contracts often get extended, which is time consuming and costly, so we've built in support terms in advance that can be optioned.
- Hold vendors accountable to performance goals. We've included contract incentives tied to performance to make contractors responsible for outcomes. They don't get paid unless they do a good job, the system works, and they meet performance goals.
- And provide opportunities for SFMTA staff build new expertise.

We chose to conduct a competitive bidding process and separate our contracts for greater flexibility and range of choice to select the best products and services for our needs.

### *Supplier*

There are only 4 companies in the world who can supply modern train control technology, so building in opportunities to increase our options is crucial to getting the best results for the investment.

### *Installers*

We've sought out a pool of qualified installers to give us greater flexibility during construction.

### *Consultant*

We're bringing on a consultant with modern train control experience to help SFMTA staff manage and delivery the project, help us identify and address issues and see through blind spots.

And we developed the project plan and contract terms with the help of key SFMTA staff across multiple teams.



# Keeping and creating city jobs

## Creating new City jobs

### Local 21

104x IS Engineer series  
520x Engineer (Electrical) series  
5502 Project Manager I  
5504 Project Manager II  
528x Transportation Planner series

### IBEW

7318 Electrical  
Maintenance  
Technician

### TWU

9153 Transit  
Ops Specialist

### SEIU

182x series  
Admin Analyst

## Preserving City jobs

### SFMTA

Network engineering and design, system integration, data architecture and middleware

### Public Works

Civil engineering and design

### Department of Technology

Fiber-optic cable installation





## Keeping and creating city jobs

Another key lesson learned is keeping jobs in-house. **Updating technology will not reduce jobs. If anything, we will need more in-house expertise.**

We have a strong interest in being able to self-perform as much of the work as possible to reduce our dependence on contractors – particularly the supplier. With such a service-critical system, we can't afford not to have qualified experts on staff to quickly troubleshoot issues, just as our current train control staff do today. We currently have 6 open engineering positions to support system design. As the project goes on, we will hire additional maintenance technicians and operations specialists. We expect to keep on many of these hire as permanent employees to support the new system.

**We've worked with our staff and other city departments to keep as much work in-house as possible. Any work that city staff have the necessary expertise to do, we will not contract out.**



# D1 Project Highlights

- **More efficient Muni connections citywide** – More Metro reliability, less wait time and consistent travel times will improve connections to Muni bus routes, with positive ripple effects throughout the transit network for riders in all neighborhoods.
- **Minimal construction and service impacts anticipated during installation.**
- **Highly competitive for funding; strong long-term funding plan.**
- **As-needed consultant contract allows us to spend strategically** – If we don't need certain support, or they don't meet expectations, we are not locked in.
- **Project delays increase risk of major Metro service impacts** from train control failure.



## D1 Project highlights

While this project is Muni Metro-focused, **the benefits of improving Metro service citywide also extend to Metro connections.** Many District 1 constituents ride Muni bus lines to Metro and a reliable connection is an important benefit for them.

**Since this is not a typical construction project, we don't anticipate typical large-scale construction and service impacts.** Construction will be relatively minimal and mainly only to install fiber optic cable where it currently does not exist. Working with the Department of Technology, our initial mapping of existing fiber optic cable that meets the specifications for the project is promising. Most of the installation work along on-street Metro corridors and in the subways will take place after hours so we don't have to halt service. If service shutdowns are necessary, they will likely be short, and we'll work to minimize impacts to all Muni riders.

In addition to protecting this investment with careful contracting, we are successfully attracting additional funds to free up committed Capital Improvement Plan dollars for other SFMTA projects. And we are confident continue to attract funding opportunities.