

BART Agreement Number: 6M6137

Approval Date: 09/21/23

Work Plan No. A.14-01 Route Restoration Grant Planning Work

Scope:

1. Services to be Performed by consultant and Work Breakdown Structure

1. Identify Needs

Fehr & Peers will support BARTs engagement with three Community-Based Organizations (CBOs) to define and undertake a co-creative process where we interact directly with community members who will benefit from improved connectivity guidance. For each of three CBOs:

- a. Coordinate with CBO to set up meetings, including identifying and compensating participants and other meeting logistics.
- b. Prepare agendas and needed materials for meetings with CBO staff and constituents.
- c. Document and analyze feedback to inform development of tools to improve service connectivity.

BART will lead the identification of three CBO leads to help plan for and source participants for a co-creation process at the three study stations. Fehr & Peers will coordinate and attend prep meetings with BART staff to plan for Co-Creation Activities. Fehr & Peers will also develop agendas and materials for up to two Co-Creation Activities for each of the three study stations. Materials will likely include pens, clipboards, and a handout for participants that includes a map of the station and list of questions for participants.

Fehr & Peers will host two Co-Creation Activities (e.g. walk audits or in-person focus groups) per study station for a total of six activities. Spanish-speaking staff will be provided as needed. All Co-Creation Activity participants will be compensated for their time at a rate of \$50/hour assuming eight participants are identified per activity. Community Partner Leaders will also be compensated \$850 each for supporting activity planning and for participating in an interview.

Deliverables (for each CBO)

Dates

- | | |
|---|-------------------|
| • Meet with Community Partner Leads | 9/23 |
| • Set date for Co-Creation event 1 | |
| • Work with Community Partners regarding outreach | |
| • In-depth meeting with Community Partner Leads | |
| • Co-Creation Event #1 | 9/30/23 |
| • Co-Creation Event #2 | TBD based on |
| • Post-Event Debriefing with Community Partner Lead | "prototype" model |

- Co-Creation Report Write-Up

availability

2. *Pilot GTFS Pathways Connectivity*

Fehr & Peers will develop GTFS files for each of the three pilot stations.

- Review up-to-date documentation for the GTFS-Pathways feed specification such as that from Mobility Data and CalITP. Identify data not standardly collected by GTFS-Pathways that was identified as useful during Co-creation process.
- Review and provide feedback on BART Trip Planner documentation.
- BART eGIS staff will share the spatial location data of available assets required by the GTFS-Pathways specification or as identified through Co-creation. Access to other BART systems that may facilitate locating additional key points within the station will also be provided to the appropriate contractor staff. Access to these data will facilitate an efficient process of creating the new GTFS-Pathways specification.
- Evaluate methodology for data collection and storage proposed in BART's working GTFS Data Capture Standards based on current industry standards and the feedback received during the Co-Creation process.
- Develop and implement detailed GTFS Pathways files for each of the three identified stations based on methodology approved by BART. Coordinate to update BART's working GTFS Data Capture Standards as lessons are learned through the development of the files.

Deliverables (for each Station)

Dates

- | | |
|---|----------|
| • Provide feedback on BART's Pathways Data Capture Standards & Trip Planner documentation | 10/16/23 |
| • Complete data collection | 2/2/24 |

3. *Develop Capital Needs and Station Signage Plans*

This task will produce a construction-ready plan for Station Access signage (see definition below) and other sign types as needed, within budget, to implement the GTFS pathways pilot for each of the three identified stations.

Station access signage identifies or facilitates navigation to the station and station access facilities from adjacent public infrastructure and the fare gates. These signs are primarily located between station roll-up gates and the property line. Some station access signage may be located within the station roll-up gates, for example at stations with multiple exits to direct people to the appropriate exit to reach station access facilities. Some station access signage may also be located on public properties, with the permission of the local jurisdiction, where station access facilities are on those properties. Station access signage includes visual and, where appropriate, tactile signs of the following types:

- Bus area/aisle, bus bay number ID and bus bay key informational signs
- Curb zone ID signs

- Bike parking and stair channel ID and informational signs
- Parking lot and garage entrance ID and garage level informational signs
- Parking ID and informational signs
- Pedestrian, bicycle, and vehicular wayfinding signage.

Additional signage needed to support implementation of GTFS pathways may be in the station itself, continuing visual connectivity from the Station Access signage to between the station access facilities and the platform.

For each of the three BART Stations (Powell, Fruitvale, El Cerrito Del Norte), the consultant will provide:

- a. Inventory:
 - i. Inventory existing station access signage and determine if it should remain in location, be moved, removed, or replaced by a different sign type.
 - ii. The following should be recorded: location, orientation, sign type, sign height, pole type and height, mounting type. For Transit Information Displays, and Kiosks, the following should be inventoried: location, orientation, mounting type, current condition.
- b. Develop Signage Plan:
 - i. Test and identify gaps in station signage based on ability to support use of GTFS Pathways data and improve customer mobility and transfer activity.
 - ii. Refer to BART Draft Station Access Signage & Wayfinding Guidelines and updated Regional Transit Mapping and Wayfinding Standards.
 - iii. Develop construction-ready plans for all station access signage including the following:
 - Demolition plan
 - Identify signage, TID kiosks, and poles to be moved or removed
 - Signage installation plan:
 - For all station access signage types (as described above), identify sign type, message, location, orientation, height, and pole or mounting type, pole height, and bracket type.
- c. Other signage and graphics support as necessary, and within budget, to implement signage for the GTFS Pathways pilot at the three stations.

Items not included in scope:

1. Visual graphic layouts for each individual sign face
2. Production-ready artwork for individual signs
3. Detailed construction drawings of new sign types not defined in the BFS

Deliverables (for each station)

Dates

- | | |
|---|---------|
| a. Existing signage inventory spreadsheet and location/orientation plan(s). | 2/2/24 |
| b. Station Access Signage Plan and sign schedule for three stations. | 6/28/24 |

4. *Evaluate BART Service*

This task includes evaluating key BART locations for service capacity and reliability. As a part of this project BART will evaluate possible service changes throughout the network. BART needs microsimulations of two key locations to identify the maximum capacity of existing infrastructure and the expected degradation of reliability if service is pushed beyond that limit. The team will utilize TrainOps® modeling capabilities to operationally analyze service changes at two locations in the network. It has been suggested that these locations could be Bayfair and Daly City, but this scope makes no requirement as to the two locations chosen. The analysis would focus on the operations of service at these locations as part of the specified turnbacks. The consultant will work with BART staff to articulate the definition of adequate reliability at which the maximum service level will be identified and the distribution of service to specific travel patterns (through or turning trains).

The project team has recently used microsimulations to address capacity and terminal timing questions on the BART network under the BART Metro 2030 work. These analyses use the TrainOps model of the BART system but focus the simulation effort only on the immediate area in question. Usually this extends no further than one or two stations in either direction. The understood limitations of microsimulations are that they are fully deterministic (randomization is not employed) and they produce idealized results which are then converted into practical values. Microsimulations are the best choice for simplified analysis if the proposed questions concern capacity and schedule timing. Examples could include determining the minimum operable headway of a terminal or determining how close a system is operating to its maximum capacity.

For this analysis, one microsimulations would be developed for each of the turnback locations. At each turnback location, up to three operational patterns of service can be simulated and tested to determine comparative headway or capacity measurements. These operational service patterns are to be defined by BART and state which services turn at which locations. The headways of these services are iteratively adjusted throughout subsequent model runs, producing practical capacity of each pattern as an output. These outputs help define the operable bounds of the turnback location under the conditions simulated. These analyses could take place under either CBTC or ATC signaling, as TrainOps models exist for both. If performed under CBTC, the simplifying assumption of a single brake rate associated with the more conservative exposed territory rate will be assumed everywhere. The operating parameters (service headways, turnback patterns and routing) will be defined by BART for all microsimulation cases. No infrastructure or train control changes are assumed as part of this analysis and no randomization will be considered.

Deliverables (for each microsimulation)

- Participation in meetings to inform Scenario Development
- Simulations of service at model locations.

Dates

Feb/Mar 2024
4/26/24

- Technical memo & PowerPoint Presentation
Two draft Review Cycles and Final

6/28/24

5. *Project Management*

Fehr & Peers will make sure that its work and the work of its subcontractors are aligned with the overall direction of the project. It will review the work of the team to ensure the quality of deliverables and will coordinate with BART staff to ensure pilot efforts are consistent and aligned.

Deliverables

Dates

- Monthly written updates on work progress and level of effort ongoing
- Monthly to Quarterly video conferences on project status ongoing

Prime: Fehr and Peers

Subconsultant	Amount	DBE (Y/N)	SBE (Y/N)
Hatch Associates Consultants	\$ 85,568	N	N
Studio L'Image	\$ 26,971	Y	Y

Total Work Plan Value: \$ 239,731