

BART Agreement Number: 6M8146

Approval Date: 05/02/23

**Work Plan No. B.020-01 Traction Power & Electrical Engineering Support Project
Nos. 15ER000, 11CS001, 15EJRR1, 15EKRR1**

Scope:

A. Negative Return Mapping (NRM)

1. Create initial drawing set by reviewing as-built drawings and Enterprise Geographical Information System (EGIS) for existing NR and TC assets prior to going out to the field for surveys.
2. Schedule field visit
3. Lead and provide support the TP and TC engineering field team in locating and identifying NR and TC assets to red line the Negative Return & Train Control Asset (NRTCA) Maps to reflect field conditions. This work will be done during non-revenue hours on weekends and weekdays as needed.
4. Implement field survey notes and redlines into Bluebeam Studio Session during dayshift following field surveys.
5. Coordinate between BART Engineering and Maintenance staff and conduct fields visits to prepare Computer Aided Drafting (CAD) as-built drawings. This task will include preparation of field markups of design drawings to confirm installation per the drawings, and red-line markups of installations differing from the design drawings. Work with BART Documentation and CAD staff to prepare final as-built drawings and to publish these updated drawings.
6. Submit:
 - a. Regular scheduled meetings and meeting notes with BART project management and the Traction Power Division manager summarizing progress made, planned work and necessary resources for the coming tasks.
 - b. List of outstanding items (punch-list) with estimated date of completion, and any challenges requiring management action.

Deliverables:

Deliverables include, but are not limited to:

- a. Design markups and adjustments for mapping drawings
- b. Red-line markups of mapping drawings.
- c. BART BECO materials for processing of red lines drawings into CAD drawings or PDFs by BART Documentation.
- d. Publication of the Negative Return and Train Control Asset Mapping

B. Electrification Plans Book 36 and Book 400:

1. Review design and construction documents to gain familiarization with completed projects. This may include the review of some of the later comment resolution notes to understand concerns raised and the designer's responses. Also review construction schedules and meet with BART staff to understand the work plans and any deviations that were required during installation.
2. Coordinate between BART Engineering and Maintenance staff and conduct fields visits (included graveyard and weekend shifts) to prepare Computer Aided Drafting (CAD) as-built drawings. This task will include preparation of field markups of design drawings to confirm installation per the drawings, and red-line markups of installations differing from the design

drawings. Work with BART Documentation and CAD staff to prepare final as-built drawings and publish these updated drawings.

3. Utilize information from the as-built drawings to make modifications to BART's Electrification Manual to reflect new system conditions.
4. Coordinate with stakeholders in the facilitation of permanent channels of communication within the district's IT infrastructure to allow for a streamlined method of receiving edit requests.
5. Submit:
 - a. Regular scheduled meetings and meeting notes with BART project management and the Traction Power Division manager summarizing progress made, planned work and necessary resources for the coming tasks.
 - b. List of outstanding items (punch-list) with estimated date of completion, and any challenges requiring management action.

Deliverables:

Deliverables include, but are not limited to:

- a. Design markups and adjustments documentation for maintenance staff use
- b. Red-line markups of design drawings
- c. BART BECO materials for processing red line dwgs into CAD dwgs or PDFs by BART Documentation
- d. Publication with accurate updated drawings
- e. Technical memorandums and reports as necessary

C. 15EJRR1 Project: Engineering Support for 34.5kV Cable Replacement work:

1. Work collaboratively with the project engineer (consultant or BART) of Traction Power (TP) Engineers to support Core Capacity Substation design and installation for resolving RFIs, technical consultation, and other applicable work as assigned.

Deliverables:

Deliverables include, but are not limited to:

- a. Design markups and adjustments for project drawings
- b. Red-line markups of project drawings.
- c. BART BECO materials for processing of red lines drawings into CAD drawings or PDFs by BART Documentation.
- d. Data input completed project assets into Maximo database.
- e. Technical memorandums and reports as necessary.

D. 15EKRR1 Project: Engineering Support for Core Capacity Substation work:

1. Input to BART's Asset Management System, Maximo, to update asset maintenance and replacement program.

Deliverables:

Deliverables include, but are not limited to:

- a. Design markups and adjustments for project drawings
- b. Red-line markups of project drawings.
- c. BART BECO materials for processing of red lines drawings into CAD drawings or PDFs by BART Documentation.

- d. Data input completed project assets into Maximo database. Technical memorandums and reports as necessary.

Prime: Parsons Transportation Group

Subconsultant	Amount	DBE (Y/N)	SBE (Y/N)
Turner Engineering	\$ 258,172	N	Y

Total Work Plan Value: \$ 272,557