



San Joaquin  
Joint Powers Authority

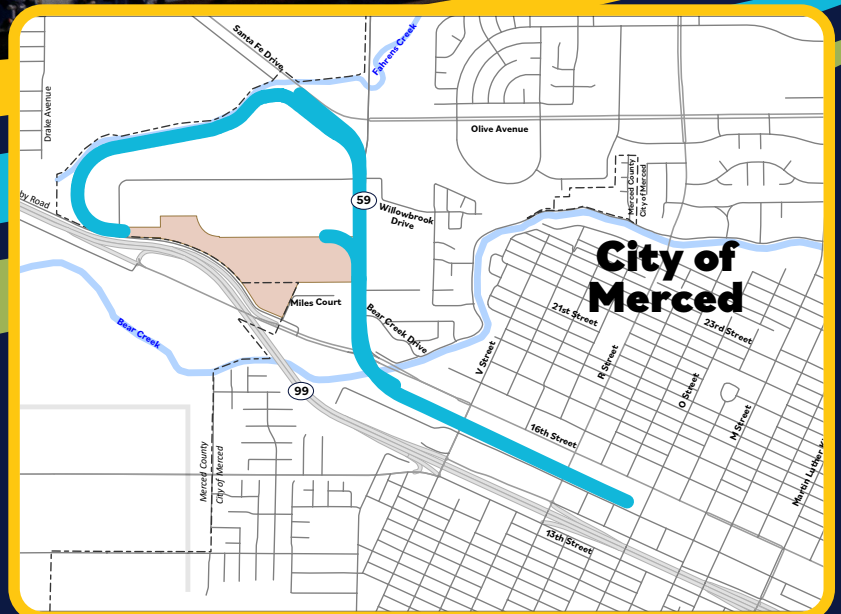


# Appendix 2.0-4:

## Merced Intermodal Track Connection Capital Cost Technical Memorandum

July 2024

SCH # 2023010061



# Memorandum

<b>To:</b>	Dan Leavitt, San Joaquin Joint Powers Authority Andy Cook, San Joaquin Joint Powers Authority
<b>From:</b>	Daniel Hartman, AECOM
<b>Cc:</b>	David DeRosa, AECOM Jason Green, AECOM Peng Zhao, AECOM
<b>Date:</b>	May 14, 2024
<b>Re:</b>	<b>Merced Intermodal Track Connection Project – Capital Cost Technical Memorandum</b>

This memorandum provides a summary of the capital cost estimate prepared for the San Joaquin Joint Powers Authority’s (SJJPA) Merced Intermodal Track Connection (MITC) Project (Project). This document summarizes the costs from the 2024 15% preliminary engineering design for the improvements associated with the Project. The Project includes main rail improvements, aerial guideway, modifications to Union Pacific Railroad (UPRR) industrial tracks, stations, and modifications to the layover and maintenance facility.

A master work breakdown structure (WBS) was developed collectively by the AECOM Technical Services, Inc. (AECOM) team to provide a tracking framework for design, planning, scheduling, funding, and partnering as the Project moves forward. Work items are introduced with reference to the CSI Master Format coding system.

## Overview of the Project

The Project is proposed by the SJJPA to provide one element of the foundation for SJJPA’s vision of passenger rail services.

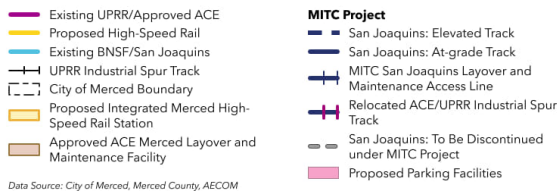
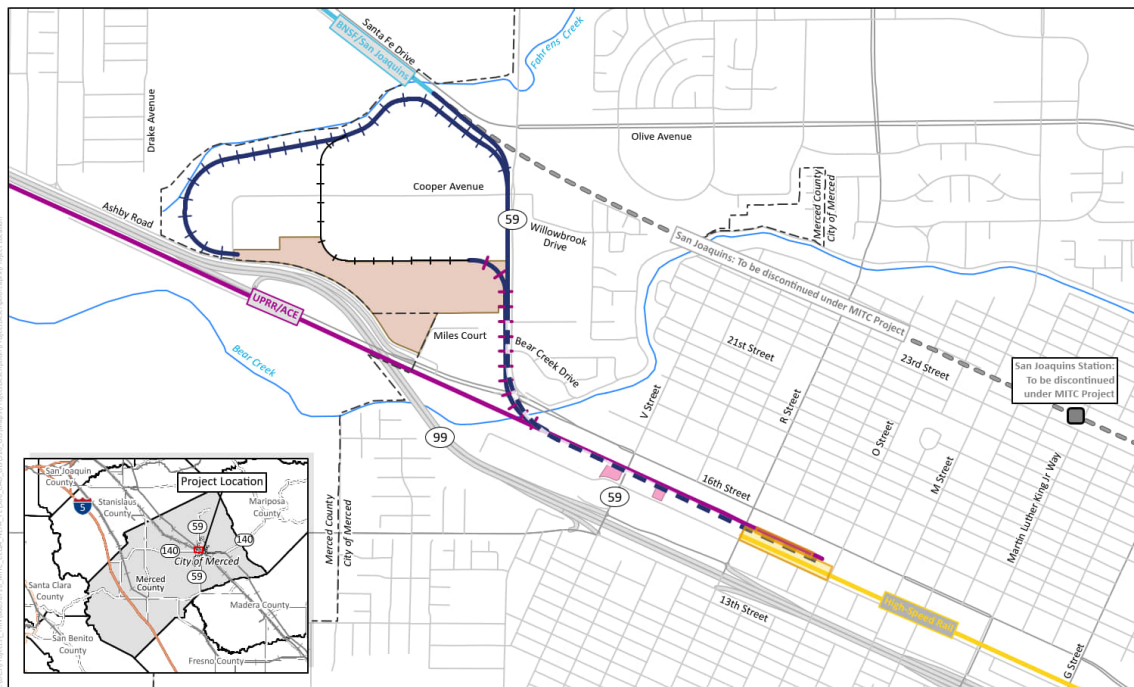
The Project would include a new track connection from the Burlington Northern Santa Fe (BNSF) corridor to the proposed integrated Merced High-Speed Rail (HSR) Station in downtown Merced between O and R Streets, in addition to a new platform that would allow for cross-platform transfer between the San Joaquins passenger rail and HSR. The Project only includes the construction of the track connection; it does not include the construction of the proposed integrated Merced HSR Station.

The Project would consist of the following:

- New passenger rail connection for the San Joaquins from BNSF north of SR 59, running along the SR 59 corridor and immediately west of the ACE UPRR corridor, to the southern terminus at the proposed integrated Merced HSR Station.

- Shifting the ACE UPRR spur track that accesses industrial area north of SR 59.
- New access to the approved ACE Merced Layover and Maintenance Facility for San Joaquins trains.
- Modification of the approved ACE Merced Layover and Maintenance Facility to include new and upgraded tracks for San Joaquins, joint use of the facility by both ACE and San Joaquins trains for maintenance activities and required equipment and parking for SJPPA maintenance staff. The footprint of the facility would not be expanded.
- New aerial guideway on the west side of the ACE/UPRR corridor that would connect into the east side of the HSR platform (which would be shared with the San Joaquins) at the proposed integrated Merced HSR Station, creating an elevated integrated platform with HSR.

**Figure 1. Project Location**



**Figure 2-1**  
Project Location  
Merced Intermodal Track Connection Project



## Development of Estimate

The development of this estimate was an integrated process within the AECOM team in the development of a project design and capital cost estimate. The steps conducted in the development of the Project cost estimate are outlined below.

## **Estimate Summary**

The Estimate Summary Sheet in Attachment A is a list of key elements that make up a project. It summarizes cost for each key element of work that makes up a project. It also provides the total estimated project cost. For the MITC Project, key elements include trackwork, stations, and a layover and maintenance facility. Each key element has related design and plans, take-off, and unit rates worksheet showing the detailed cost development work included.

## **Work Breakdown Structure**

The Estimate Summary Sheet is based on the WBS. The WBS was set up to develop a line item identifier for each key element of work for the Project. The WBS is intended to develop integrated costs and schedule for each key element, which can be used for the development of future individual construction contracts or combined with other key elements to produce a construction package in the future.

## **Estimate of Quantities**

The quantities used to develop the cost estimate for the Project were produced from designs developed by the AECOM design team. AECOM produced work activity quantities from this design work and populated the quantity cells within the estimate worksheets for each work activity. Specific track items such as track hardware, switches, and signals were quantified for pricing. Quantities from design sheets were back checked by AECOM to ensure that all quantities were accounted for throughout the estimate.

## **Estimate of Pricing**

To develop the pricing for the cost estimate, the quantities developed were integrated with standardized pricing based on the methodology discussed below. Each item is assigned a consistent unit rate for each of the activities to be used throughout the estimate. A factor was provided to adjust the standard cost rate for the work activities depending upon any differences from the standard rates, allowing for efficiency, markup, and difficulty of the work. This is a judgment based upon a review of the design documents and minimal field review of the work sites.

## **Construction Markups**

This section describes the basis for the inclusion of construction markups in the estimated cost of the Project.

This Opinion of Probable Cost is classified as a Class 4 estimate as defined by the Association for the Advancement of Cost Engineers (AACE international). Class 4 estimates are prepared based on information where the preliminary engineering is at the 15 percent design level, such as used for detailed strategic planning, business development, project screening, alternative scheme analysis, confirmation of economic and/or technical feasibility, environmental clearance, and preliminary budget approval.

The Class 4 estimating methodology is parametric using equipment and/or system process factors, budgetary vendor quotes, scale-up factors, and parametric and modeling techniques. The expected

accuracy ranges for this class of estimate are –15 percent to –30 percent on the low end and +20 percent to +50 percent on the high end.

Table 1 lists the probable cost markup to address the specific items listed in the table. The markups are indirect costs incurred by the contractor in the execution of the project.

**Table 1. Cost Markup**

<b>Cost Description</b>	<b>Markup</b>
Sales Tax (on material and equipment)	8.25%
General Conditions	13%
Phasing Requirement	5%
Mid Project Escalation	27.1%
Contractor Overhead	10%
Contractor Profit	10%
Subcontractor Markup, assumed 30% of work	5%
Bonds and Insurance	2%
Contingency	25%

## **Estimate Methodology Reference Data**

### **Opinion of Cost**

This Opinion of Probable Cost has been prepared from the information available at the time of the estimate. The final construction costs and the total cost of implementation will depend on actual labor and material costs, competitive market conditions, implementation schedule, and other variable factors. As a result, the final costs could vary from the estimate presented in this document. Because of this variance, to help ensure proper evaluation and adequate funding, feasibility and funding needs must be carefully reviewed prior to making specific financial decisions.

### **Material Cost**

Material unit pricing is derived from vendor quotes, historical cost data, market analysis, estimator judgement, and published cost books.

### **Labor Cost**

Labor unit pricing is based on probable labor production rates and crew sizes. Labor cost = (quantity/labor production rate) x labor rate where the labor production rate is the number of units of work produced by a person in a specified period of time, usually hours or days. This rate varies between trades, projects, climatic conditions, job supervision, complexity of the installation process, and other factors. The most current Davis-Bacon Act of 1931 prevailing labor rates will apply.

### **Equipment Cost**

The contractor's major construction equipment costs include rental, transportation, handling on the job, and operation and maintenance costs. The equipment costs will be allocated to each

appropriate line item, but may be shown as an individual line item if a major piece of equipment is used for many different work tasks during the project. Hourly, daily, weekly, and monthly equipment rental costs will be derived from the Equipment Watch publications for Rental Rate Blue Books and Cost Reference Guide.

## Escalation

The cost estimate unit costs are based on \$2024. Escalation has been added to the mid-point of construction.

## Assumptions, Inclusions, and Exclusions

### General Assumptions and Inclusions

The following general assumptions were used in the development of the estimate:

- This estimate assumes that the contractor will have full access to the site during normal business hours.
- Assumes a construction start date of July 1, 2027 and a total construction duration of 36 months.
- Includes right-of-way costs for full takes, temporary easements, and aerial easements and these costs are escalated to NTP in 2027.
- Includes existing building monitoring for building impacts.
- Assumes the top 20 feet of each CIDH pile includes a steel casing that stays in place.
- Assumes the mainline track is 136RE Rail and wood ties, and all other track is 115 RE Rail and wood ties.
- Includes allowances for systemwide train control and connection to the Operations Control Center.
- Assumes that all third party inspections, materials, and soil testing will be conducted by the owner's consultants, and paid for by the owner.
- This Basis of Estimate report (along with the above inclusions, exclusions, assumptions, and clarifications), and the attached cost estimate are intended to be, and constitute a single document.

### Exclusions

The cost estimate excludes the following costs:

- All scope outside what is stated in this estimate.
- Excludes the aerial guideway bents that are to be designed by CHSRA - Bent 69 to 85) and the California High Speed Rail Station.
- Excludes Professional Services (SCC 80) costs - Engineering coordination, design, administration and construction management, etc.
- Compression of schedule, premium or shift work, and restrictions on the contractor's working hours.
- Testing and inspection fees.
- Builder's risk, project wrap-up, and other owner-provided insurance program.

- Modification to the scope of work since the date of the design documents.
- Unforeseen subsurface conditions.
- Restrictive technical specifications or excessive contract conditions.
- Non-competitive bidding conditions.
- Sole source specifications of materials or products.
- Bids delayed beyond the projected schedule.
- Impact fees and permits.
- Owner's field inspection costs.
- General building permit.
- Off-site work.
- Owner contingency.
- Hazardous material abatement other than what is included in the detailed portion of the estimate.
- LEED design allowances.
- Cost impacts associated with restricted access to the immediate work area.

Attachment A  
**Project Cost Summary**

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# MITC Project Cost Summary

<u>Project Element</u>	<u>Year of Expenditure Total</u>
<b>MITC</b>	
Construction Cost	\$194,443,705
ROW Cost	\$63,214,415
Subtotal	\$257,658,120
Allocated Contingency (25%)	\$61,496,567
Soft Cost	
- PA&ED	\$6,720,741
- Design Services Final Design	\$13,611,059
- ROW Support Services	\$6,321,441
- Construction Support Services	\$19,444,371
- Freight Railroad Costs	\$1,000,000
<b>MITC Total</b>	<b><u>\$366,252,299</u></b>
<b>ACE Maintenance Facility Project</b>	
Construction Cost	\$73,813,731
ROW Cost	\$15,000,000
Soft Cost	
- Design Services	\$12,400,706
- ROW Support Services	\$1,500,000
- Construction Support Services	\$11,072,060
<b>ACE Maintenance Facility Total</b>	<b><u>\$113,786,497</u></b>
<b>TOTAL MITC WITH ACE MAINTNENANCE FACILITY</b>	<b>\$480,038,796</b>
<b>Hydrogen Variants</b>	
Hydrogen Variant 1 (Generation, storage and fueling of 600kg/day)	\$26,680,000
Hydrogen Variant 2 (Storage and fueling of 600kg/day)	\$1,500,000
Hydrogen Variant 3 (Storage and fueling of 600kg/day)	\$1,500,000

Attachment B  
**MITC Cost Back-up**

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15% Design  
Cost Estimate

for

San Joaquin Joint Powers Authority

Merced Intermodal Track Connection

Merced, California

4/12/2024



Project: Merced Intermodal Track Connection  
Location: Merced, California  
Client: San Joaquin Joint Powers Authority  
4/26/2024  
15% Design

## SCOPE OF WORK / BASIS OF ESTIMATE

- 1.00 Scope of Work
- 1.01 This project is for the San Joaquin Joint Powers Authority Merced Intermodal Track Connection (MITC).
- 1.02 This estimate has been prepared pursuant to an agreement between San Joaquin Joint Powers Authority and AECOM, for the purpose of predicting costs of the work for the above referenced project.
- 1.03 The work involves, but is not limited to, the following:
- \* Merced Intermodal Track Connection (MITC) Alignment
  - \* Shifting of UPRR industrial track to accommodate MITC alignment
  - \* MITC track connection into the planned ACE maintenance facility
  - \* Aerial Guideway (superstructure including HSR Station, excluding bents to be designed by CHSRA - Bent 69 to 85)
  - \* New bridge over Bear Creek
  - \* Addition of 4 storage tracks in the maintenance facility and expansion of the maintenance facility parking
  - \* Station Parking
  - \* Special Trackwork Turnouts
  - \* Grade Crossings with Gated Signals and pavement work
  - \* Train Control - Interlockings, Systemwide, Connection to OCC and Signal Houses
  - \* Mitigation for impacts to the Costco parking and gas pumps
- 2.00 Work Breakdown Structure (WBS)
- 2.01 Costs are then organized on a second level by Construction Specifications Institute (CSI) Masterformat 2004 Divisions.
- 2.02 The organization of estimates into discrete work items is essential to the perception and subsequent analysis of estimates. The estimate is organized by Construction Specification Institution (CSI) Masterformat 2004 Divisions. The CSI Divisional structure facilitates a direct comparison to the project specifications and drawings.
- 2.03 The organization of estimates into discrete work items is essential to the perception and subsequent analysis of estimates. The estimate is organized by a Uniformat Level 1 WBS. The Uniformat I construction classification system was developed in the United States in 1974 and replaced by Uniformat II in 1997. These Uniformat systems are based on typical building elements such as Basement Foundations, Slab on Grade, Floor Structure, Exterior Wall, Interior Walls, Interior Finishes, and Mechanical and Electrical Systems. The Uniformat systems are best used for broad cost comparisons of building elements or systems based on square feet parametric unit costs.
- 2.04 The organization of estimates into discrete work items is essential to the perception and subsequent analysis of estimates. The estimate is organized by a Uniformat Level 1 and Level 2 WBS. The Uniformat I construction classification system was developed in the United States in 1974 and replaced by Uniformat II in 1997. These Uniformat systems are based on typical building elements such as Basement Foundations, Slab on Grade, Floor Structure, Exterior Wall, Interior Walls, Interior Finishes, and Mechanical and Electrical Systems. The Uniformat systems are best used for broad cost comparisons of building elements or systems based on square feet parametric unit costs.
- 3.00 Estimate Classification
- 3.01 *Estimate Classification: Class 4*
- Stage of Design: Planning Level Design Estimate
- Similar Industry Terms for this Level of Estimate:
- \* Rough Order of Magnitude
  - \* Budget
  - \* Scope Development
  - \* Concept Study
- Accuracy Range: -30% to +50%
- Project Definition: 1%-15%
- Expected Project Contingency: 7%-20%
- Background Information Used: Based on project narrative, limited design data, and recommendations
- End Use: Reality Check, Alternate Schemes, Preliminary Project Funding, and Feasibility
- 4.00 Estimate Markups
- 4.01 Cost Estimate Markups
- 8.25% Sales Tax (on material and equipment)
  - 13.00% General Conditions
  - 5.00% Phasing Requirements
  - #REF! Mid Project Escalation
  - 10.00% Contractor Overhead
  - 10.00% Contractor Profit
  - 5.00% Subcontractor Markup, assumed 30% of work
  - 2.00% Bonds and Insurance



Project: Merced Intermodal Track Connection  
Location: Merced, California  
Client: San Joaquin Joint Powers Authority  
4/26/2024  
15% Design

## SCOPE OF WORK / BASIS OF ESTIMATE

25.00% Contingency

4.02 Estimate markups are indirect costs that are expressed as a lump sum or calculated as a percentage of the subtotal of the estimated construction costs. Indirect costs are costs that are required to complete a project. Direct costs are costs that are used to run the contractor's business. The following markups, at rates appropriate to the class of estimate, have been included in the cost estimate:

- **General Conditions:** The contractor's general conditions take into account the cost of items that cannot be associated with a specific element of work, but must be furnished to complete a project. This includes cost items such as supervision, temporary facilities, office trailers, toilets, utilities, permits, photographs, small tools, local Business & Occupation (B & O) Taxes, bonds, and insurance. General conditions costs prior to the 50% level of design are typically calculated as a percentage of the total project construction cost.
- **Escalation:** This is a provision for an increase in the cost of equipment, material, and labor above the costs specified in the contract, due to continuing price changes over time. Cost estimators analyze cost trends in local and national market conditions to temper and forecast escalation percentages. These factors are used to escalate project costs in current dollars to the expected mid-point of construction.
- **General Contractor/Subcontractor Overhead:** This markup accounts for costs associated with office and field employees that are engaged in daily work activities tied to the project life throughout all of the construction phases (pre-construction, construction, and close-out procedures).
- **General Contractor/Subcontractor Profit:** This markup includes the cost amount as compensation for risk and efforts to undertake and complete the project. This percentage will be based directly on economic conditions for the local construction industry, bidding environment, and perception of the risk of losing money on the project.
- **Design Contingency:** A percentage is added to the estimate to account for uncertainties inherent in the estimating process. As design progresses through the project design life cycle, this percentage typically decreases to 0% at design completion. This percentage is anticipated by the estimator as the relative stability of the design documents, project scope, and assumptions upon which the estimate is based are assessed. Design contingency typically accounts for costs associated with design that may not be complete enough to determine final quantities at the time of estimate preparation, items that may defy precise quantification, or as an added contingency to items that are computed by capacity factoring or other conceptual methods.
- **Construction Contingency:** Construction contingency is a factor added to the estimate to account for the estimator's anticipated overrun of the estimate due to errors and omissions in the final bid documents and/or design that may not be complete enough to determine final quantities. This is generally an estimator assumed markup to serve as a reserve for project change orders that may be inherent with the project design.

### 5.00 Basis of Estimate / Pricing

5.01 This cost estimate pertains to 15% Design Submittal for Merced Intermodal Track Connection. This cost proposal reflects the level of detail and completeness of the information provided.

5.02 This estimate has been prepared based on the 15% Design documents, dated February 2024. Specs were not included as part of the design package.

5.03 Conversations with members of the design team were also used in preparation of this estimate. Any design and engineering changes and/or additions produced subsequent to these documents are not included in this estimate.

5.04 The cost estimate is based on costs likely to be experienced in Merced, California. Material and equipment costs are included. The cost of labor is based on Davis Bacon act prevailing rates for the county in which the project is to be constructed. Labor costs are based upon a 40 hour work week with the anticipation of some overtime. This estimate does not include the cost of shift work or the cost of an accelerated schedule.

5.05 This estimate has been prepared according to AACE (Association for the Advancement of Cost Engineering) standards for the estimate classification as indicated, and thus inherits an expected range of accuracy according to the classification.

5.06 This Basis of Estimate report (along with the above inclusions, exclusions, assumptions and clarifications), and the attached Cost Estimate are intended to be, and constitute a single document.

5.07 This estimate is based upon the measurement of quantities where possible from the documents issued by the design team. Conceptual estimating methods are used for any remaining scope in conjunction with references from similar projects recently estimated by AECOM.



Project: Merced Intermodal Track Connection  
Location: Merced, California  
Client: San Joaquin Joint Powers Authority  
4/26/2024  
15% Design

## SCOPE OF WORK / BASIS OF ESTIMATE

5.08 Unit pricing shown within this estimate reflects AECOM's opinion of construction costs obtainable for working in the Merced, California area for this project on the date of the estimate. The intention of this estimate is to reflect fair market value for the construction of this project using a Design-Bid-Build procurement method. It is not a prediction of low bid. Pricing is based upon competitive bidding with a minimum of 6 qualified General Contractors familiar with the conditions of working on this project. Pricing is also based on a minimum of four (4) bids for all subcontractor work. If fewer bids are received the bid results are expected to vary from the costs presented in this estimate.

### 5.09 Material

Material Unit Pricing is derived from vendor quotes, historical cost data, market analysis, estimator judgement, and published cost books.

### 5.10 Labor

Labor unit pricing is based on probable labor production rates and crew sizes. Labor cost = (quantity/labor production rate) x labor rate where the labor production rate is the number of units of work produced by a person in a specified period of time, usually hours or days. This rate varies between trades, projects, climatic conditions, job supervision, complexity of the installation process, and other factors. The most current Davis-Bacon prevailing labor rates will apply.

### 5.11 Equipment

The Contractor's major construction equipment costs include the rental, transportation, handling on the job, operation and maintenance costs. The equipment costs will be allocated to each appropriate line item, but may be shown as an individual line item if a major piece of equipment is used for many different work tasks during the project. Hourly, daily, weekly, and monthly equipment rental costs will be derived from the "Equipment Watch publications for Rental Rate Blue Books and Cost Reference Guide."

### 5.12 Subcontractor Costs

The subcontractor's quote will be reviewed for items that are included and excluded from their quotation and the length of time the subcontractor will honor the price.

### 5.13 Other Construction Costs (Allowances)

This includes miscellaneous cost items that are not included in the unit costs. They may include costs associated with the following factors: weather, crew transportation, soil conditions, hazardous material removal, utility relocations, wetland replacements, road/highway/special crossings, traffic control, ground water, labor strikes, material and/or subcontractor availability, general economic conditions, complexity of the project, construction phasing, and the quality of the construction drawings and specifications.

## 6.00 Inclusions, Exclusions, Assumptions, and Clarifications

### 6.01 General Information/Notes

- This estimate assumes that the contractor will have full access to the site during normal business hours
- Assumes a construction start date of 7/1/2027 and a total construction duration of 36 months. This duration is tight and requires a crews with a total of 65 people per day, and would decrease productivity.
- Includes Right of Way costs for full takes, temporary easements and aerial easements and these costs are escalated to NTP in 2027.
- Includes Existing Building Monitoring for building impacts
- Assumes the top 20' of each CIDH pile includes a steel casing that stays in place
- Assumes the Mainline track is 136RE Rail and wood ties and all other Track is 115 RE Rail and wood ties
- Includes Allowances for Systemwide train control and connection to the OCC (Operations Control Center).
- We have assumed that all 3rd party inspections, materials and soil testing will be conducted by the owner's consultants, and paid for by the owner.
- This Basis of Estimate report (along with the above inclusions, exclusions, assumptions and clarifications), and the attached Cost Estimate are intended to be, and constitute a single document.

### 6.03 Exclusions

- All scope outside what is stated in this estimate.
- Excludes the aerial guideway bents that are to be designed by CHSRA - Bent 69 to 85) and the California High Speed Rail Station
- Excludes Professional Services (SCC 80) costs - Engineering coordination, design, administration and construction management, etc.
- Compression of schedule, premium or shift work, and restrictions on the contractor's working hours
- Testing and inspection fees
- Builder's risk, project wrap-up and other owner provided insurance program
- Modification to the scope of work since the date of the design documents outlined in section 5.02
- Unforeseen subsurface conditions



Project: Merced Intermodal Track Connection  
Location: Merced, California  
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4/26/2024  
15% Design

## SCOPE OF WORK / BASIS OF ESTIMATE

- Restrictive technical specifications or excessive contract conditions
- Non-competitive bidding conditions
- Sole source specifications of materials or products
- Bids delayed beyond the projected schedule
- Impact Fees and Permits
- Owner's field inspection costs
- General building permit
- Off-site work
- Owner contingency
- Hazardous material abatement other than what is included in the detailed portion of the estimate
- LEED design allowances
- Cost impacts associated with restricted access to the immediate work area

### 7.00 Statement of Estimated Costs

AECOM has no control over the cost of labor and material, the general contractor's or any subcontractors method of determining prices, or competitive bidding and market conditions. This opinion of probable costs of construction is made on the basis of experience, qualifications, and best judgement of professional construction cost managers familiar with the construction industry. AECOM cannot and does not guarantee that proposals, bids, or actual construction costs will not vary from this or subsequent cost estimates.

### 7.01

AECOM has no control over the quality, completeness, intricacy, constructability, or coordination of design documents, or over the amount of funds available for this project. AECOM is not responsible for design revision costs in the event that the estimate is in excess of the established budget.

### 7.02

AECOM's staff of professional cost managers has prepared this estimate in accordance with general accepted principles and practices. Our staff is available to discuss its contents with any interested party.

### 7.03

This estimate is based on the measurement and pricing of quantities wherever information is provided and/or reasonable assumptions for other work not covered in the drawings or specifications, as stated within this document. Unit rates have been obtained from historical records and/or discussion with contractors. The unit rates reflect current bid costs in the area. All unit rates relevant to subcontractor work include the subcontractors overhead and profit unless otherwise stated. The mark-ups cover the costs of field overhead, home office overhead and profit and range from 15% to 25% of the cost for a particular item of work. Pricing reflects probable construction costs obtainable in the project locality on the date of this statement of probable costs. This estimate is a determination of fair market value for the construction of this project. It is not a prediction of low bid. Pricing assumes competitive bidding for every portion of the construction work for all subcontractors and general contractors, with a minimum of 4 bidders for all items of subcontracted work and 6-7 general contractor bids. Experience indicates that a fewer number of bidders may result in higher bids, conversely an increased number of bidders may result in more competitive bids. Since AECOM has no control over the cost of labor, material, equipment, or over the contractor's method of determining prices, or over the competitive bidding or market conditions at the time of bid, the statement of probable construction cost is based on industry practice, professional experience and qualifications, and represents AECOM's best judgment as professional construction consultant familiar with the construction industry. However, AECOM cannot and does not guarantee that the proposals, bids, or the construction cost will not vary from opinions of probable cost prepared by them.

### 7.04

This estimate assumes that the general construction contract will be administered as a competitively bid/negotiated GMP with a selected construction manager / general contractor and prequalified subcontractors. Costs associated with a restrictive bidding market, including small business set-asides (minority, woman or veteran/service disabled veteran owned) and sole-sourced contractors are not included, and can cause a significant increase to the overall cost of the project.

### 7.05

### 8.00 Recommendations for Cost Control

AECOM recommends that the Owner, Architect, and Engineers carefully review this entire document to ensure that it reflects their design intent. Requests for modifications of any apparent errors or omissions to this documents should be made to AECOM within ten (10) days of receipt of this estimate. Otherwise, it will be understood that the contents have been concurred and accepted. If the project is over budget, or if there are unresolved budgeting issues, alternative systems/schemes should be evaluated before proceeding further into design.

### 08.01



AECOM  
 Gulf Tower  
 707 Grant Street  
 Pittsburgh, PA 15219

Project: Merced Intermodal Track Connection  
 Location: Merced, California  
 Client: San Joaquin Joint Powers Authority

4/26/2024

15% Design

12.00 Estimate Summary

Division	Description	% of Costs	Total
1	General Conditions	0.00%	\$ -
2	Existing Conditions	6.67%	\$ 7,350,000
3	Concrete	45.77%	\$ 50,423,535
4	Masonry	0.00%	\$ -
5	Metals	2.54%	\$ 2,796,488
6	Wood, Lumber, and Composites	0.00%	\$ -
7	Thermal and Moisture Protection	0.00%	\$ -
8	Openings	0.00%	\$ -
9	Finishes	0.00%	\$ -
10	Specialties	0.00%	\$ -
11	Equipment	0.00%	\$ -
12	Furnishings	0.00%	\$ -
13	Special Construction	0.00%	\$ -
14	Conveying Systems	0.00%	\$ -
21	Fire Suppression	0.00%	\$ -
22	Plumbing	0.00%	\$ -
23	Heating, Ventilating, and Air Conditioning	0.00%	\$ -
26	Electrical	0.00%	\$ -
27	Communications	0.00%	\$ -
28	Electronic Safety and Security	0.00%	\$ -
31	Earthwork	0.09%	\$ 96,277
32	Exterior Improvements	4.25%	\$ 4,681,230
33	Utilities	4.10%	\$ 4,514,337
34	Transportation	36.59%	\$ 40,306,057
Subtotal			\$ - \$ 110,167,924
Sales Tax (on material and equipment)			8.25% \$ 3,022,406
Subtotal			\$ - \$ 113,190,330
General Conditions			13.00% \$ 14,714,743
Phasing Requirements			5.00% \$ 5,659,516
Subtotal			\$ 133,564,589
General Contractor Overhead			10.00% \$ 13,356,459
General Contractor Profit			10.00% \$ 13,356,459
General Contractor Markup on Subcontractor 30% of work			5.00% \$ 2,003,469
Subtotal			\$ 162,280,976
Bonds and Insurance			2.00% \$ 3,245,620
Subtotal			\$ 165,526,595
Mid Project Escalation			17.47% \$ 28,917,110
Subtotal			\$ 194,443,705
ROW Acquisition			\$ 58,413,954
Subtotal			\$ 252,857,659
Allocated Contingency			25.00% \$ 63,214,415
<b>Total Construction Costs</b>			<b>\$ 316,072,073</b>





AECOM Merced Intermodal Track Connection  
 Gulf Tower Location: Merced, California  
 707 Grant Street Client: San Joaquin Joint Powers Authority  
 Pittsburgh, PA 15219

MADE BY: SB DATE: 4/26/2024  
 CHKD BY: KS & JS DATE: 4/26/2024

13.00 Estimate Detail

Item #	Description	Quantity	UOM	MH/Unit	Tot. Hours	Crew	\$/MH	Labor	Labor Total	Material	Material Total	Equipment	Equipment Total	Other	Other Total	Unit Cost	Subtotal	Total Cost	
001 General Conditions																			
001 General Conditions Total																		\$	-
002 Existing Conditions																			
2.001	Existing Building Monitoring, excludes any full take buildings	1.00	LS		0.00	B10M	\$ 101.34	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ 7,350,000.00	\$ 7,350,000.00	\$ 7,350,000.00	\$ 7,350,000.00	\$ 7,350,000.00	
002 Existing Conditions Total																		\$	7,350,000.00
003 Concrete																			
3.001	Aerial Guideway (superstructure including HSR Station, excluding bents to be designed by CHSRA - Bent 69 to 85):	6932.00	LF																
3.002	- CIDH piles (8.5'Øx90')	16834.00	CY	6.24	105044.16	CONC001	\$ 90.51	\$ 564.76	\$ 9,507,194.97	\$ 187.00	\$ 3,147,958.00	\$ 64.17	\$ 1,080,181.67	\$ 56.62	\$ 953,169.89	\$ 872.55	\$ 14,688,504.53	\$ 14,688,504.53	
3.003	- Columns (6.5'Ø)	3121.00	CY	7.28	22720.88	CONC001	\$ 90.51	\$ 658.89	\$ 2,056,390.72	\$ 187.00	\$ 583,627.00	\$ 35.28	\$ 110,101.94	\$ -	\$ -	\$ 881.17	\$ 2,750,119.67	\$ 2,750,119.67	
3.004	- Bent Cap	2480.00	CY	7.28	18054.40	CONC001	\$ 90.51	\$ 658.89	\$ 1,634,043.25	\$ 187.00	\$ 463,760.00	\$ 35.28	\$ 87,488.89	\$ -	\$ -	\$ 881.17	\$ 2,185,292.14	\$ 2,185,292.14	
3.005	- Outrigger Bent Cap	2310.00	CY	7.28	16816.80	CONC001	\$ 90.51	\$ 658.89	\$ 1,522,032.22	\$ 187.00	\$ 431,970.00	\$ 35.28	\$ 81,491.67	\$ -	\$ -	\$ 881.17	\$ 2,035,493.89	\$ 2,035,493.89	
3.006	- Precast Prestressed Concrete Box Beams	11109.00	CY	6.55	72786.17	CONC001	\$ 90.51	\$ 593.00	\$ 6,587,632.19	\$ 168.30	\$ 1,869,644.70	\$ 18.61	\$ 206,750.83	\$ -	\$ -	\$ 779.91	\$ 8,664,027.73	\$ 8,664,027.73	
3.007	- Cast-in-Place Concrete Deck	2185.00	CY	7.80	17043.00	CONC001	\$ 90.51	\$ 705.95	\$ 1,542,504.83	\$ 187.00	\$ 408,595.00	\$ 35.28	\$ 77,081.94	\$ -	\$ -	\$ 928.23	\$ 2,028,181.77	\$ 2,028,181.77	
3.008	- Cast-in-Place Concrete Walkway	1313.00	CY	7.80	10241.40	CONC001	\$ 90.51	\$ 705.95	\$ 926,914.80	\$ 171.00	\$ 224,523.00	\$ 35.28	\$ 46,319.72	\$ -	\$ -	\$ 912.23	\$ 1,197,757.52	\$ 1,197,757.52	
3.009	- Reinforcing Bars (Assume 180LB/CY)	5083541.00	LBS	0.01	35245.88	IRON	\$ 118.27	\$ 0.82	\$ 4,168,551.84	\$ 1.28	\$ 6,506,932.48	\$ 0.43	\$ 2,178,660.43	\$ -	\$ -	\$ 2.53	\$ 12,854,144.75	\$ 12,854,144.75	
3.010	- Bearings	68.00	EA		0.00	IRON	\$ 118.27	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ 20,000.00	\$ 1,360,000.00	\$ 20,000.00	\$ 1,360,000.00	\$ 1,360,000.00	
3.011 Retaining Wall and Abutment:																			
3.012	- Footing	693.00	CY		0.00	CONC001	\$ 90.51	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	
3.013	- Abutment and Wall	829.00	CY	10.40	8621.60	CONC001	\$ 90.51	\$ 941.27	\$ 780,312.13	\$ 187.00	\$ 155,023.00	\$ 35.28	\$ 29,245.28	\$ -	\$ -	\$ 1,163.55	\$ 964,580.41	\$ 964,580.41	
3.014	- Structure Excavation	1887.00	CY	0.34	647.62	B10M	\$ 101.34	\$ 34.78	\$ 65,629.72	\$ -	\$ -	\$ 13.34	\$ 25,175.73	\$ -	\$ -	\$ 48.12	\$ 90,805.44	\$ 90,805.44	
3.015	- Structure Backfill	3669.00	CY	0.26	953.94	B10M	\$ 121.61	\$ 31.62	\$ 116,006.86	\$ 45.00	\$ 165,105.00	\$ 12.72	\$ 46,657.30	\$ -	\$ -	\$ 89.33	\$ 327,769.16	\$ 327,769.16	
3.016	- Roadway Embankment	1578.00	CY	0.26	410.28	B10M	\$ 121.61	\$ 31.62	\$ 49,893.38	\$ 25.00	\$ 39,450.00	\$ 12.72	\$ 20,066.83	\$ -	\$ -	\$ 69.33	\$ 109,410.22	\$ 109,410.22	
3.017	- Cast-in-Place Concrete Walkway	133.00	CY	7.80	1037.40	CONC001	\$ 90.51	\$ 705.95	\$ 93,891.60	\$ 171.00	\$ 22,743.00	\$ 35.28	\$ 4,691.94	\$ -	\$ -	\$ 912.23	\$ 121,326.54	\$ 121,326.54	
3.018	- Reinforcing Bars (Assume 180LB/CY)	307999.00	LBS	0.01	2135.46	IRON	\$ 118.27	\$ 0.82	\$ 252,562.10	\$ 1.28	\$ 394,238.72	\$ 0.43	\$ 131,999.57	\$ -	\$ -	\$ 2.53	\$ 778,800.39	\$ 778,800.39	
3.019	- CIDH Piles (2'Ø x 60')	56.00	CY	8.32	465.92	CONC001	\$ 90.51	\$ 753.02	\$ 42,168.86	\$ 187.00	\$ 10,472.00	\$ 51.67	\$ 2,893.33	\$ 360.96	\$ 20,213.95	\$ 1,352.65	\$ 75,748.14	\$ 75,748.14	
3.020 Bear Creek Bridge:																			
3.021	- Abutment and Wingwall	21.00	CY	10.40	218.40	CONC001	\$ 90.51	\$ 941.27	\$ 19,766.65	\$ 187.00	\$ 3,927.00	\$ 35.28	\$ 740.83	\$ -	\$ -	\$ 1,163.55	\$ 24,434.49	\$ 24,434.49	
3.022	- Precast Pile Cap and Riser Block	19.00	CY	5.82	110.66	CONC001	\$ 90.51	\$ 527.11	\$ 10,015.10	\$ 149.60	\$ 2,842.40	\$ 83.75	\$ 1,591.25	\$ -	\$ -	\$ 760.46	\$ 14,448.75	\$ 14,448.75	
3.023	- Precast Concrete Beams	78.00	CY	5.82	454.27	CONC001	\$ 90.51	\$ 527.11	\$ 41,114.64	\$ 149.60	\$ 11,668.80	\$ 20.94	\$ 1,633.13	\$ -	\$ -	\$ 697.65	\$ 54,416.56	\$ 54,416.56	
3.024	- Cast-in-Place Concrete Walkway	21.00	CY	7.80	163.80	CONC001	\$ 90.51	\$ 705.95	\$ 14,824.99	\$ 171.00	\$ 3,591.00	\$ 35.28	\$ 740.83	\$ -	\$ -	\$ 912.23	\$ 19,156.82	\$ 19,156.82	
3.025	- Bearings	3.00	EA	0.00	0.00	IRON	\$ 118.27	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ 20,000.00	\$ 60,000.00	\$ 20,000.00	\$ 60,000.00	\$ 60,000.00	
3.026	- Reinforcing Bars (Assume 180LB/CY)	7560.00	lbs	0.01	52.42	IRON	\$ 118.27	\$ 0.82	\$ 6,199.27	\$ 1.28	\$ 9,676.80	\$ 0.43	\$ 3,240.00	\$ -	\$ -	\$ 2.53	\$ 19,116.07	\$ 19,116.07	
003 Concrete Total																		\$	50,423,535.00
004 Masonry																			
004 Masonry Total																		\$	-
005 Metals																			
5.001	Handrail	15446.00	LF	0.26	4015.96	IRON	\$ 118.27	\$ 30.75	\$ 474,969.99	\$ 125.00	\$ 1,930,750.00	\$ 2.38	\$ 36,684.25	\$ -	\$ -	\$ 158.13	\$ 2,442,404.24	\$ 2,442,404.24	
5.002	Bear Creek Bridge Steel Piles (HP14X89)	76540.00	LBS	0.01	796.02	IRON	\$ 118.27	\$ 1.23	\$ 94,145.29	\$ 0.90	\$ 68,886.00	\$ 0.60	\$ 45,924.00	\$ -	\$ -	\$ 2.73	\$ 208,955.29	\$ 208,955.29	
5.003	Bear Creek Bridge Steel Cross Bracing Allowance	21600.00	LBS	0.01	224.64	IRON	\$ 118.27	\$ 1.23	\$ 26,568.31	\$ 3.50	\$ 75,600.00	\$ 0.60	\$ 12,960.00	\$ -	\$ -	\$ 5.33	\$ 115,128.31	\$ 115,128.31	
5.004	Field Painting Exposed Piling	1.00	ALLOW		0.00	IRON	\$ 118.27	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ 30,000.00	\$ 30,000.00	\$ 30,000.00	\$ 30,000.00	\$ 30,000.00	
005 Metals Total																		\$	2,796,487.84
006 Wood and Plastics																			
006 Wood and Plastics Total																		\$	-
031 Earthwork																			
31.001	Bear Creek Bridge Rock Slope Protection	200.00	CY	0.78	156.00	B10M	\$ 101.34	\$ 79.05	\$ 15,809.06	\$ 304.84	\$ 60,968.00	\$ 97.50	\$ 19,500.00	\$ -	\$ -	\$ 481.39	\$ 96,277.06	\$ 96,277.06	
031 Earthwork Total																		\$	96,277.06
032 Exterior Improvements																			
32.001	Expansion of the maintenance facility parking	218.00	Spaces		0.00	B10M	\$ 101.34	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ 8,000.00	\$ 1,744,000.00	\$ 8,000.00	\$ 1,744,000.00	\$ 1,744,000.00	
32.002	Station parking	212.00	Spaces		0.00	B10M	\$ 101.34	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ 8,000.00	\$ 1,696,000.00	\$ 8,000.00	\$ 1,696,000.00	\$ 1,696,000.00	
32.003 Impacts to the Costco parking area-removes 100 parking spaces, and relocation of costco gas pumps and canopy:																			
32.004	Relocate Gas Pumps and Tanks	6.00	EA		0.00	B10M	\$ 101.34	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ 80,000.00	\$ 480,000.00	\$ 80,000.00	\$ 480,000.00	\$ 480,000.00	
32.005	Demo and Rebuild Canopy	3000.00	SF		0.00	B10M	\$ 101.34	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ 150.00	\$ 450,000.00	\$ 150.00	\$ 450,000.00	\$ 450,000.00	
32.006	Median	7700.00	SF	0.05	400.40	CONC001	\$ 90.51	\$ 4.71	\$ 36,238.86	\$ 3.50	\$ 26,950.00	\$ 3.00	\$ 23,100.00	\$ -	\$ -	\$ 11.21	\$ 86,288.86	\$ 86,288.86	
32.007	Curb	1000.00	LF	0.12	124.80	CONC001	\$ 90.51	\$ 11.30	\$ 11,295.23	\$ 8.62	\$ 8,624.58	\$ 5.00	\$ 5,000.00	\$ -	\$ -	\$ 24.92	\$ 24,919.80	\$ 24,919.80	
32.008	Misc pavement demo	1.00	LF	208.00	208.00	B10M	\$ 101.34	\$ 21,078.74	\$ 21,078.74	\$ -	\$ -	\$ 14,000.00	\$ 14,000.00	\$ -	\$ -	\$ 35,078.74	\$ 35,078.74	\$ 35,078.74	
32.009	1ft wide pavement marking	323.00	LF	0.04	13.44	PAINT	\$ 82.09	\$ 3.41	\$ 1,102.98	\$ 1.50	\$ 484.50	\$ 1.50	\$ 484.50	\$ -	\$ -	\$ 6.41	\$ 2,071.98	\$ 2,071.98	
32.010	2ft wide pavement marking	426.00	LF	0.06	26.58	PAINT	\$ 82.09	\$ 5.12	\$ 2,182.05	\$ 3.00	\$ 1,278.00	\$ 1.50	\$ 639.00	\$ -	\$ -	\$ 9.62	\$ 4,099.05	\$ 4,099.05	
32.011	Access Ramp	3.00	EA	8.32	24.96	B10M	\$ 101.34	\$ 843.15	\$ 2,529.45	\$ 800.00	\$ 2,400.00	\$ 1,300.00	\$ 3,900.00	\$ -	\$ -	\$ 2,943.15	\$ 8,829.45	\$ 8,829.45	
32.012	Arrow Pavement Marking	5.00	EA	8.32	41.60	PAINT	\$ 82.09	\$ 682.96	\$ 3,414.79	\$ 600.00	\$ 3,000.00	\$ -	\$ -	\$ -	\$ -	\$ 1,282.96	\$ 6,414.79	\$ 6,414.79	
32.013	Concrete median	1568.00	SF	0.05	81.54	CONC001	\$ 90.51	\$ 4.71	\$ 7,379.55	\$ 3.50	\$ 5,488.00	\$ 3.00	\$ 4,704.00	\$ -	\$ -	\$ 11.21	\$ 17,571.55	\$ 17,571.55	
32.014	Large Arrow Pavement Marking	2.00	EA	16.64	33.28	PAINT	\$ 82.09	\$ 1,365.92	\$ 2,731.83	\$ 1,500.00	\$ 3,000.00	\$ -	\$ -	\$ -	\$ -	\$ 2,865.92	\$ 5,731.83	\$ 5,731.83	
32.015	Proposed curb	1203.00	LF	0.12	150.13	CONC001	\$ 90.51	\$ 11.30	\$ 13,588.16	\$ 8.62	\$ 10,375.36	\$ 5.00	\$ 6,015.00	\$ -	\$ -	\$ 24.92	\$ 29,978.53	\$ 29,978.53	
32.016	Railroad Crossing symbol pavement marking	7.00	EA	4.16	29.12	PAINT	\$ 82.09	\$ 341.48	\$ 2,390.35	\$ 200.00	\$ 1,400.00	\$ -	\$ -	\$ -	\$ -	\$ 541.48	\$ 3,790.35	\$ 3,790.35	
32.017	Remove existing curb	23.00	LF	0.21	4.78	B10M	\$ 101.34	\$ 21.08	\$ 484.81	\$ 0.20	\$ 4.60	\$ 2.50	\$ 57.50	\$ -	\$ -	\$ 23.78	\$ 546.91	\$ 546.91	



AECOM Merced Intermodal Track Connection  
 Gulf Tower Location: Merced, California  
 707 Grant Street Client: San Joaquin Joint Powers Authority  
 Pittsburgh, PA 15219

MADE BY: SB DATE: 4/26/2024  
 CHKD BY: KS & JS DATE: 4/26/2024

13.00 Estimate Detail

Item #	Description	Quantity	UOM	MH/Unit	Tot. Hours	Crew	\$/MH	Labor	Labor Total	Material	Material Total	Equipment	Equipment Total	Other	Other Total	Unit Cost	Subtotal	Total Cost				
32.018	Remove existing guardrail	73.00	LF	0.10	7.59	B10M	\$ 101.34	\$ 10.54	\$ 769.37	\$ -	\$ -	\$ 6.50	\$ 474.50	\$ -	\$ -	\$ 17.04	\$ 1,243.87	\$ 1,243.87				
32.019	Reconstruct Driveway	761.00	SF	0.02	15.83	B10M	\$ 101.34	\$ 2.11	\$ 1,604.09	\$ 1.00	\$ 761.00	\$ 3.25	\$ 2,473.25	\$ -	\$ -	\$ 6.36	\$ 4,838.34	\$ 4,838.34				
32.020	Road Sign	13.00	EA	8.32	108.16	B10M	\$ 101.34	\$ 843.15	\$ 10,960.95	\$ 800.00	\$ 10,400.00	\$ 116.67	\$ 1,516.67	\$ -	\$ -	\$ 1,759.82	\$ 22,877.61	\$ 22,877.61				
32.021	Miscellaneous demo per crossing	3.00	LS	26.00	78.00	B10M	\$ 101.34	\$ 2,634.84	\$ 7,904.53	\$ -	\$ -	\$ 3,500.00	\$ 10,500.00	\$ -	\$ -	\$ 6,134.84	\$ 18,404.53	\$ 18,404.53				
32.022	Miscellaneous pavement work per crossing	3.00	LS	52.00	156.00	B10M	\$ 101.34	\$ 5,269.69	\$ 15,809.06	\$ 2,500.00	\$ 7,500.00	\$ 5,078.13	\$ 15,234.38	\$ -	\$ -	\$ 12,847.81	\$ 38,543.43	\$ 38,543.43				
<b>032 Exterior Improvements Total</b>																		\$	4,681,229.64			
<b>033 Utilities</b>																						
33.001	Relocation/Protection of Underground Utilities - at aerial guideway, grade crossings and parking sites	1.00	ALLOW		0.00	B10M	\$ 101.34	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ 4,500,000.00	\$ 4,500,000.00	\$ 4,500,000.00	\$ 4,500,000.00	\$ 4,500,000.00				
33.002	Existing light pole to be relocated	2.00	EA	16.64	33.28	ELEC	\$ 88.25	\$ 1,468.47	\$ 2,936.94	\$ 3,000.00	\$ 6,000.00	\$ 2,700.00	\$ 5,400.00	\$ -	\$ -	\$ 7,168.47	\$ 14,336.94	\$ 14,336.94				
<b>033 Utilities Total</b>																		2.00		\$	4,514,336.94	
<b>034 Transportation</b>																						
34.001	Remove existing track	3650	TF	0.23	835.12	B10M	\$ 101.34	\$ 23.19	\$ 84,631.15	\$ -	\$ -	\$ 20.50	\$ 74,825.00	\$ -	\$ -	\$ 43.69	\$ 159,456.15	\$ 159,456.15				
34.002	Remove existing W16th Street Crossing	1600	SF	0.10	166.40	CONC001	\$ 90.51	\$ 9.41	\$ 15,060.31	\$ -	\$ -	\$ 6.00	\$ 9,600.00	\$ -	\$ -	\$ 15.41	\$ 24,660.31	\$ 24,660.31				
34.003	New Mainline Ballasted Track, 136RE, wood ties	9760	TF																			
	Wooden Ties	6006	EA	0.52	3123.20	B10M	\$ 101.34	\$ 52.70	\$ 316,505.43	\$ 74.98	\$ 450,333.91	\$ 8.13	\$ 48,800.00	\$ -	\$ -	\$ 135.80	\$ 815,639.33	\$ 815,639.33				
	136 Lb Rail	19520	LF	0.21	4060.16	IRON	\$ 118.27	\$ 24.60	\$ 480,197.56	\$ 45.33	\$ 884,906.67	\$ 4.00	\$ 78,080.00	\$ -	\$ -	\$ 73.93	\$ 1,443,184.22	\$ 1,443,184.22				
	Steel Plates	12012	EA	0.52	6246.40	IRON	\$ 118.27	\$ 61.50	\$ 738,765.47	\$ 25.00	\$ 300,307.69	\$ 1.30	\$ 15,616.00	\$ -	\$ -	\$ 87.80	\$ 1,054,689.16	\$ 1,054,689.16				
	Rail Clips	24025	EA	0.12	2998.27	IRON	\$ 118.27	\$ 14.76	\$ 354,607.43	\$ 12.00	\$ 288,295.38	\$ 1.30	\$ 31,232.00	\$ -	\$ -	\$ 28.06	\$ 674,134.81	\$ 674,134.81				
	Ballast	11117	TONS	0.29	3237.34	B10M	\$ 101.34	\$ 29.51	\$ 328,072.71	\$ 60.00	\$ 667,035.00	\$ 13.17	\$ 146,377.13	\$ -	\$ -	\$ 102.68	\$ 1,141,484.84	\$ 1,141,484.84				
	Subballast	4620	CY	0.31	1441.44	B10M	\$ 101.34	\$ 31.62	\$ 146,075.69	\$ 40.00	\$ 184,800.00	\$ 7.90	\$ 36,498.00	\$ -	\$ -	\$ 79.52	\$ 367,373.69	\$ 367,373.69				
	Track Drainage, 2 pipes	19520	LF	0.16	3045.12	B10M	\$ 101.34	\$ 15.81	\$ 308,592.79	\$ 11.15	\$ 217,648.00	\$ 5.00	\$ 97,600.00	\$ -	\$ -	\$ 31.96	\$ 623,840.79	\$ 623,840.79				
34.004	New LMF and Access Ballasted Track, 115RE, wood ties	9873	TF																			
	Wooden Ties	6076	EA	0.52	3159.36	B10M	\$ 101.34	\$ 52.70	\$ 320,169.88	\$ 74.98	\$ 455,547.81	\$ 8.13	\$ 49,365.00	\$ -	\$ -	\$ 135.80	\$ 825,082.70	\$ 825,082.70				
	115 Lb Rail	19746	LF	0.21	4107.17	IRON	\$ 118.27	\$ 24.60	\$ 485,757.22	\$ 38.33	\$ 756,930.00	\$ 4.00	\$ 78,984.00	\$ -	\$ -	\$ 66.93	\$ 1,321,671.22	\$ 1,321,671.22				
	Steel Plates	12151	EA	0.52	6318.72	IRON	\$ 118.27	\$ 61.50	\$ 747,318.80	\$ 25.00	\$ 303,784.62	\$ 1.30	\$ 15,796.80	\$ -	\$ -	\$ 87.80	\$ 1,066,900.21	\$ 1,066,900.21				
	Rail Clips	24303	EA	0.12	3032.99	IRON	\$ 118.27	\$ 14.76	\$ 358,713.02	\$ 12.00	\$ 291,633.23	\$ 1.30	\$ 31,593.60	\$ -	\$ -	\$ 28.06	\$ 681,939.85	\$ 681,939.85				
	Ballast	8232	TONS	0.29	2397.05	B10M	\$ 101.34	\$ 29.51	\$ 242,917.23	\$ 60.00	\$ 493,897.50	\$ 13.17	\$ 108,383.06	\$ -	\$ -	\$ 102.68	\$ 845,197.79	\$ 845,197.79				
	Subballast	9253	CY	0.31	2886.94	B10M	\$ 101.34	\$ 31.62	\$ 292,562.41	\$ 40.00	\$ 370,120.00	\$ 7.90	\$ 73,098.70	\$ -	\$ -	\$ 79.52	\$ 735,781.11	\$ 735,781.11				
	Track Drainage, 2 pipes	19746	LF	0.16	3080.38	B10M	\$ 101.34	\$ 15.81	\$ 312,165.64	\$ 11.15	\$ 220,167.90	\$ 5.00	\$ 98,730.00	\$ -	\$ -	\$ 31.96	\$ 631,063.54	\$ 631,063.54				
34.005	Shift Spur Track, Assume Re-use material	3100	TF																			
	Shift Existing track (re-use material)	3100	TF	0.03	99.84	B10M	\$ 101.34	\$ 3.26	\$ 10,117.80	\$ -	\$ -	\$ 1.14	\$ 3,522.73	\$ -	\$ -	\$ 4.40	\$ 13,640.52	\$ 13,640.52				
	New Additional Ballast	3110	TONS	0.29	905.75	B10M	\$ 101.34	\$ 29.51	\$ 91,788.65	\$ 60.00	\$ 186,624.00	\$ 13.17	\$ 40,953.60	\$ -	\$ -	\$ 102.68	\$ 319,366.25	\$ 319,366.25				
	New Additional Subballast	3500	CY	0.31	1092.00	B10M	\$ 101.34	\$ 31.62	\$ 110,663.40	\$ 40.00	\$ 140,000.00	\$ 7.90	\$ 27,650.00	\$ -	\$ -	\$ 79.52	\$ 278,313.40	\$ 278,313.40				
	New Track Drainage, 2 pipes	6200	LF	0.16	967.20	B10M	\$ 101.34	\$ 15.81	\$ 98,016.15	\$ 11.15	\$ 69,130.00	\$ 5.00	\$ 31,000.00	\$ -	\$ -	\$ 31.96	\$ 198,146.15	\$ 198,146.15				
34.006	Subgrade Cut	53450	CY	0.31	16509.64	B10M	\$ 101.34	\$ 31.30	\$ 1,673,088.30	\$ 0.00	\$ -	\$ 12.01	\$ 641,800.88	\$ -	\$ -	\$ 43.31	\$ 2,314,889.18	\$ 2,314,889.18				
34.007	Subgrade Fill	130807	CY	0.23	30608.84	B10M	\$ 121.61	\$ 28.46	\$ 3,722,283.55	\$ 25.00	\$ 3,270,175.00	\$ 11.44	\$ 1,497,081.21	\$ -	\$ -	\$ 64.90	\$ 8,489,539.76	\$ 8,489,539.76				
34.008	16th/59 Grade Crossing	1470	SF	0.16	229.32	CONC001	\$ 90.51	\$ 14.12	\$ 20,754.98	\$ 35.45	\$ 52,110.95	\$ 6.00	\$ 8,820.00	\$ -	\$ -	\$ 55.57	\$ 81,685.93	\$ 81,685.93				
34.009	Cooper/59 Grade Crossing	900	SF	0.16	140.40	CONC001	\$ 90.51	\$ 14.12	\$ 12,707.13	\$ 35.45	\$ 31,904.66	\$ 6.00	\$ 5,400.00	\$ -	\$ -	\$ 55.57	\$ 50,011.80	\$ 50,011.80				
34.010	Cooper/Ashby Grade Crossing	570	SF	0.16	88.92	CONC001	\$ 90.51	\$ 14.12	\$ 8,047.85	\$ 35.45	\$ 20,206.29	\$ 6.00	\$ 3,420.00	\$ -	\$ -	\$ 55.57	\$ 31,674.14	\$ 31,674.14				
34.011	No. 9 Turnout 136# Wood	7	EA	338.00	2366.00	B10M	\$ 101.34	\$ 34,252.96	\$ 239,770.70	\$ 161,000.00	\$ 1,127,000.00	\$ 12,400.00	\$ 86,800.00	\$ -	\$ -	\$ 207,652.96	\$ 1,453,570.70	\$ 1,453,570.70				
34.012	No. 24 Turnout 136# Wood	1	EA	490.88	490.88	B10M	\$ 101.34	\$ 49,745.83	\$ 49,745.83	\$ 894,400.00	\$ 894,400.00	\$ 24,800.00	\$ 24,800.00	\$ -	\$ -	\$ 968,945.83	\$ 968,945.83	\$ 968,945.83				
34.013	Signals	10	EA	24.96	249.60	ELEC	\$ 88.25	\$ 2,202.70	\$ 22,027.01	\$ 19,500.00	\$ 195,000.00	\$ 3,050.00	\$ 30,500.00	\$ -	\$ -	\$ 24,752.70	\$ 247,527.01	\$ 247,527.01				
34.014	Crossing Gate Arm	10	EA	24.96	249.60	ELEC	\$ 88.25	\$ 2,202.70	\$ 22,027.01	\$ 33,000.00	\$ 330,000.00	\$ 1,200.00	\$ 12,000.00	\$ -	\$ -	\$ 36,402.70	\$ 364,027.01	\$ 364,027.01				
34.015	Interlockings	8	EA		0.00	ELEC	\$ 88.25	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ 500,000.00	\$ 4,000,000.00	\$ 500,000.00	\$ 4,000,000.00	\$ 4,000,000.00				
34.016	Systemwide	22733	TF		0.00	ELEC	\$ 88.25	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ 140.00	\$ 3,182,620.00	\$ 140.00	\$ 3,182,620.00	\$ 3,182,620.00				
34.017	Connection to OCC	1	ALLOW		0.00	ELEC	\$ 88.25	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ 5,000,000.00	\$ 5,000,000.00	\$ 5,000,000.00	\$ 5,000,000.00	\$ 5,000,000.00				
34.018	8x8 Signal House	3	EA		0.00	ELEC	\$ 88.25	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ 300,000.00	\$ 900,000.00	\$ 300,000.00	\$ 900,000.00	\$ 900,000.00				
<b>034 Transportation Total</b>																		\$	40,306,057.40	\$	110,167,923.88	