

California High Speed Rail Authority

Palmdale to Burbank Project Section

Draft Environmental Impact Report/
Environmental Impact Statement

Appendix 6-B Preliminary Engineering for
Project Definition (PEPD) Record Set Capital
Cost Estimate Report

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CALIFORNIA
High-Speed Rail Authority

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1.0 INTRODUCTION

1.1 Purpose and Scope

The purpose of this report is to present the Capital Cost Estimating Methodology (CCEM) in the preparation of reasonably reliable and accurate capital cost estimates for the PEPD Design level.

This document describes the methodology for preparation of estimated capital cost for the California High-Speed Rail Project (CHSRP) Palmdale to Burbank PEPD document. In addition, it presents the summary of Capital Cost Estimates along with detailed FRA Standard Cost Categories (SCC) and sub-categories or cost elements. Refinement of these cost estimates will be on-going during the advancement of engineering during subsequent project development phases.

The primary objectives of this report are:

- Identify the methods and processes used to develop the capital cost estimate during PEPD Design Level Phase;
- Identify the source documents and/or methodology used for pricing work;
- Specify how estimating assumptions have been documented during the course of the estimate development;
- Describe Unit Price Elements;
- Define the approach and methodology with respect to FRA Standard Cost Categories (SCC);
- Present estimates have been developed for each complete alignment alternative for the Palmdale to Burbank Project Section.

The estimating approach has been done in a manner that (1) allows consistent application to each alternative to facilitate comparisons; (2) provides the proper foundation for more detailed estimates as selected alternative(s) are further evaluated; and (3) provides the basis for subsequent construction package procurement level estimates with additional guidelines for a more detailed capital cost estimate.

Considering CHSRP's size, complexity, phased design, and number of participants, it is important that the CCEM is flexible enough to be applied at each point in the project development process to appropriately support the tracking, monitoring and control of cost changes through each of the program's design and implementation phases. This document addresses only the capital cost estimating requirements for the PEPD Design level. Additional guidelines have been developed for the preparation of capital cost estimates for subsequent phases of the CHSRP.

1.2 Statement of Technical Issue

The document is intended to address the preparation of a program cost estimate, including construction, acquisition of right-of-way, vehicles, and professional services during execution of the project.

The CCEM is intended to provide guidelines for accurately and consistently estimating the costs of capital infrastructure and systems for the PEPD Design level. It also provides a framework for defining the scope and technical basis for the estimates, the roles and responsibilities for specific estimating tasks among the project participations, and the structure, organization, and format for reporting capital costs for all geographic sections of CHSRP.

1.3 General Information

1.3.1 Definition of Terms

Technical terms, acronyms, or other cost estimating terminology specifically used for capital cost estimating purposes, unless otherwise indicated, will follow the standard definition of terms published by the Association for the Advancement of Cost Engineering (AACE) International in their Recommend Practice No. 10S-90 – Cost Engineering Terminology.

The following acronyms used in this document have specific connotations with regard to California High Speed Rail system.

Acronyms

AACE	Association for the Advancement of Cost Engineering
CCEM	Capital Cost Estimating Methodology
Authority	California High-Speed Rail Authority
CHSRP	California High-Speed Rail Project
ENR	Engineering News Record
FRA	Federal Railroad Administration
FTA	Federal Transit Administration
HST	High Speed Train
LCCA	Life Cycle Cost Analysis
O&M	Operating and Maintenance
PMT	Program Management Team
RC	Regional Consultant(s)
SCC	Standard Cost Categories
TM	Technical Memorandum
WBS	Work Breakdown Structure

1.3.2 Units

The California High-Speed Rail Project is based on U.S. Customary Units consistent with guidelines prepared by the California Department of Transportation and defined by the National Institute of Standards and Technology (NIST). U.S. Customary Units are officially used in the United States and are also known in the US as “English” or “Imperial” units. In order to avoid confusion, all formal references to units of measure shall be made in terms of U.S. Customary Units.

Guidance for units of measure terminology, values, and conversions can be found in the Caltrans Metric Program Transitional Plan, Appendice B U.S. Customary General Primer (<http://www.dot.ca.gov/hq/oppd/metric/TransitionPlan/Appendice-B-US-Customary-General-Primer.pdf>). Caltrans Metric Program Transitional Plan, Appendice B can also be found as an attachment to the CHSRP Mapping and Survey Technical Memorandum.

2.0 CAPITAL COST ESTIMATING METHODOLOGY

Estimating methodologies are not static and must be flexible enough to adjust to the needs of the project's stage in the development process. The development process is described by the overall level of engineering design associated with the major development stages defined for the CHSRP:

Development Stage	Engineering Design Completion			
Programmatic EIR/S	0% - 5%			
Project EIR/S	5% - 15%			
PEPD Design Level	15% - 30%			
Procurement Level		30% - 90%		
Design-Build			90% - 100%	
	0	15%	30%	90% 100%

Each development stage is represented by a range of engineering design completion and influenced by ongoing updates to the ridership demand forecast and associated revisions to estimated system capacity, service design and operating plans. Because of this variability, the appropriate estimating methods or procedures at a given milestone will be based on the actual levels of project engineering and scope definition present at that time. Because the program will be designed in multiple segments, the level of engineering design completed for major high-speed rail system elements will be at different levels at any point in time. The goal of using established estimating methodologies is to assure that project estimates are prepared in a consistent and uniform manner, organized and standardized in methods, and formatted in order to facilitate estimate review and reporting.

2.1 Estimating Format

A consistent format is developed for the reporting, estimating, and managing of the project's capital costs. This document recommends using standard cost categories (SCC) established by the Federal Railroad Administration (FRA) as part of American Recovery and Reinvestment Act (ARRA) grant application requirements. Preparation of capital costs in SCC format is adopted throughout the PEPD Design phase.

2.2 Estimating Software

Commercially available database software systems are used depending on the type of work elements. For example, Timberline is used for surface heavy construction work elements and HCSS is used for underground work elements. However, in order to provide uniformity between numerous work elements and sections of the corridor and to provide consistent platform for reporting and analysis requirements, the cost data are exported to Microsoft Excel. This will better enable the review, edit consolidation and reporting of estimate components over the course and provide more flexibility to make adjustments.

2.3 FRA Standard Cost Category (SCC)

The methodology used for generating capital cost estimates has been consistent with FRA guidelines for estimating capital costs. The heart of the FRA guidance is the SCC, which enables FRA-funded projects to develop budget baselines that summarize to the SCC. This cost structure is used for capital cost detail and summary sheets and is described below. Where the level of design does not support quantity measurements, parametric estimating techniques were utilized.

2.3.1 Work Breakdown Structure (WBS)

This involves the development of the Work Breakdown Structure (WBS) that is applied to cost estimating and cost reporting. The WBS for estimating includes a coding system that is used for estimating elements. The WBS for reporting includes the development of a coding system that allows the cost estimates to be sorted and presented by categories and subcategories as prescribed by the FRA.

The WBS for capital cost estimates for the PEPD Design level is based upon the FRA Standard Cost Categories is presented in Appendix A.

The primary WBS for quantities and unit prices are Unit Price Element's (UPE's). UPE's were originally developed as an estimating tool to assist in the development of conceptual level cost estimates and provide a method for translating typical construction items into a unit-based unit of measurement. The scope and definition of UPE's are developed by the Regional Consultant based on the unique design present in their project section.

2.3.2 Estimated Unit Costs

The development of construction unit costs for each of the construction activities that is identified and quantified from the design documents. The development of individual or composite estimated unit costs is accomplished through the use of historical bid data and by unit cost analysis, as appropriate, using labor, equipment and material rates. Unit costs are expressed in current year dollars and are adjusted to reflect any regional variations.

These methods are used either individually or in combination. For the PEPD Design level, when limited engineering details are available, the historical bid price method is typically used.

2.3.2.1 Historical Bid Price Method

Historical bid prices are typically used to develop costs for common construction elements. When using this method, the time of bid and conditions of the historical project used for pricing is considered and factors applied as needed:

- Adjust bid prices where the bid date is older than 12 months from the current date by using an appropriate escalation factor
- Adjust bid prices to reflect conditions of the project, such as type of terrain, geographical location, soil, traffic and other related factors. For location factor adjustments, the City Cost Index as published by RS Means is used.

Sources for historical bid prices that are used may come from local, regional, statewide and national levels, as well as from international high-speed rail projects with unique high-speed elements. Historical unit prices that are used for the CHSRP will be verified for appropriateness and documented as to their source as well as any adjustments for site, escalation or location factors.

2.3.2.2 Unit Cost Analysis Method

The estimated unit cost analysis method is typically used to develop costs for complex construction elements including but not limited to viaducts, retained earth systems, tunneling and underground structures. This method allows for unit costs to be developed based on current local construction and market conditions, such as changes which might affect productivity or the cost of labor or materials. The following steps are required in order to develop a unit price using this method:

- Analyze the proposed construction conditions
- Estimate production rates where applicable
- Obtain materials prices using local available sources
- Determine labor and equipment rates where applicable
- Calculate direct unit price using the above factors

The following sources are used to obtain basic cost data that is input into the database estimating program in order to develop any needed construction unit prices:

- Labor Rates – RS Means national wages adjusted by City Cost Index factor, Federal Davis-Bacon Wage Determination and/or California Department of Industrial Relations Prevailing Wage Determinations.
- Equipment Rates – RS Means and/or Corp of Engineers Construction Equipment Ownership and Operating Expense Schedule, Region VII.
- Material Prices - Material and supply prices for locally available material are obtained from local supplier quotes, if possible. Secondary sources of material cost data may be taken from RS Means, Engineering News-Report (ENR) or other published resource.

A list of prototypical work elements and the units of measure are estimated for PEPD Design level with corresponding estimated unit cost. Appendix A presents the list of variable cost elements within each FRA SCC 10's to 60's series. When required, additional project-specific work elements reflecting unique site conditions and configurations are identified and their estimated costs are developed in addition to prototypical unit costs. Examples of these project-specific unit costs include very high and/or long span iconic bridge structures, grade separations, specific roadway improvements, unique utility relocations, staged construction to accommodate existing rail or vehicular traffic, or restrictive site access conditions in urban areas.

2.3.3 Quantity Takeoffs

The task of quantity takeoffs involves preparation of estimated quantities either by direct measurement and calculation of construction elements that are shown in design drawings, sketches, electronically calculated from CADD files or established as an allowance quantity based on professional experience and judgment. Quantity take-offs have been prepared by the Regional Consultant and are presented in the Palmdale to Burbank PEPD quantities document "EEPB_PEPD_UPE_master_table_v13" and "EEPB_PEPD_BACKUP_v7"

2.3.4 Allocated and Unallocated Contingencies

Contingency, in the statistical sense, is the estimated percentage by which a calculated value may differ from its true or final value and is typically included in an estimate as an allowance for the level of engineering design completion or to address imperfections in the estimating methods used at the various project development stages. Contingency is typically added to a particular item or group of items by the use of percentage multipliers. Contingency is generally greatest for the early stage of project development and decreases with advancement in the level of engineering design and pricing detail. During the preliminary design of the high-speed rail project, the limited level of design information that is available requires the use of contingency allowances that are allocated against specific construction or procurement cost categories. The percentage selected for a given cost category are generally based on level of definition of the scope of work involved and substantiated by professional judgment and experience relative to level of uncertainty and historical cost variability typically seen for work within a particular cost category. For the purposes of this estimating program, contingency is assigned into two major categories – allocated and unallocated.

Allocated contingency is added to each cost category based on an assessment of the quality of design information; means and methods; and site accessibility available for individual items of work. This contingency typically falls in a range of 10% to 25%. The exact percentage selected for each cost category is based on professional judgment and experience related to the cost variability typically seen for items of work within a particular cost category. The contingency is generally higher for underground elements reflecting the additional exposure for unknowns as well as the construction complexity. It is also higher for stations, terminals, storage yard facilities and utilities since their design progress is still in the conceptual level and identification of all the utilities are not determined. The percentages shown in Table 2-1 are the values that are normally used; however, slightly higher or lower values are used if a project-specific condition warrant.

Unallocated contingency is typically included to address uncertainties that are more global in nature like schedule delays, changes in contracting environment, or other such issues that are not associated with individual construction activities. Unallocated contingencies will be estimated at 5 percent of the total construction costs.

Table 2-1 Allocated Contingency Percentages by Cost Category

Cost Category No.	Description	Allocated Contingency Percentage
10 Track Structures and Track		
10.01	Track structure: Viaduct	15%
10.02	Track structure: Major/Movable bridges	15%
10.03	Track structure: Under grade bridges	15%
10.04	Track structure: Culverts and drainage structures	15%
10.05	Track structure: Cut and Fill (> 4' height/depth)	20%
10.06	Track structure: At-grade (grading and subgrade stabilization)	10%
10.07	Track structure: Tunnel	25%
10.08	Track structure: Retaining walls and systems	15%
10.09	Track new construction: Conventional ballasted	15%
10.10	Track new construction: Non-ballasted	15%
10.11	Track rehabilitation: Ballast and surfacing	15%
10.12	Track rehabilitation: Ditching and drainage	15%
10.13	Track rehabilitation: Component replacement (rail, ties, etc)	15%
10.14	Track: Special track work (switches, turnouts, insulated joints)	15%
10.15	Track: Major interlocking	15%
10.16	Track: Switch heaters (with power and control)	15%
10.17	Track: Vibration and noise dampening	15%
10.18	Other linear structures including fencing, sound walls	15%
20 Stations, Terminals, Intermodal		25%
30 Support Facilities: Yards, Shops, Admin. Bldgs		25%
40 Sitework, Right of Way, Land, Existing Improvements		
40.01	Demolition, clearing, site preparation	25%
40.02	Site utilities, utility relocation	25%
40.03	Hazardous material, contaminated soil removal/mitigation, ground water treatments	15%
40.04	Environmental mitigation: wetlands, historic/archeology, parks	20%
40.05	Site structures including retaining walls, sound walls	25%
40.06	Temporary facilities and other indirect costs during construction	10%

40.07	Purchase or lease of real estate	20%
40.08	Highway/pedestrian overpass/grade separations	20%
40.09	Relocation of existing households and businesses	0%
50 Communications & Signaling		15%
60 Electric Traction		15%
70 Vehicles		0%
80 Professional Services		0%

2.3.5 Environmental Mitigation

An allowance to account for the cost of environmental mitigation that relates to hydrology and water resources; wetland impact; hazardous material and waste; historic/archeology; safety and security; noise, vibration and air quality during construction and permanent aesthetic is included in the total capital cost. This allowance is based on 3% of the total cost of track structures, track work, station buildings, roadway modification and highway grade separation.

2.3.6 Right-of-Way Cost Estimate

This involves preparing estimated quantities of impacted properties, either permanent takes or temporary easements, which result from construction, operation, and maintenance of proposed high-speed rail alignment alternatives. In order to arrive at the estimated cost, professional experience and judgment in the area of property valuation, business damages, and legal and administrative issues as they relate to the estimation of right-of-way costs have been applied. The values used in the cost estimate were developed by the Regional consultant to reflect the design changes

“10_P2K_DRAFT_PEPD_Rev01_Right_of_Way_Requirements_Report_Volume_I_of_IV.”

2.3.7 Vehicle Estimate

The costs for the Palmdale to Burbank section do not include acquisition of high-speed train vehicles. Acquisition of trainsets is considered to be a system-wide procurement and is not associated with construction of individual sections of the CHSRP System. Consistent with the Revised 2016 Business Plan, the cost of vehicles was determined by using publicly available data regarding recent sales of comparable equipment to other CHSRP projects around the world and by informal consultations with the manufacturers.

2.3.8 Program Implementation/Professional Services Add-ons

Program Implementation costs are included to represent the costs of engineering, project and construction management, contract administration, permits and fees, training/start-up/testing and any force account work. These add-on costs are calculated as a percentage of construction costs only (applied individually and not cumulatively and excluding vehicle procurement and right-of-way costs) and presented under Professional Services cost category in the estimate. The management and administration cost associated with right-of-way and rolling stock are included with the respective items.

Preliminary Engineering	2.0%
Program Management	3.0%
Final Design	6.0%
Construction Management	4.0%
Agency Costs	0.5%
Total	15.5%

In addition, an allowance for system start-up and pre-revenue testing is added to the Professional Services cost category in the amount of 6% of the Train Controls, Communications and Electrification construction costs.

2.3.9 Escalation

Estimates are prepared in Base Year dollars with the Base Year defined as the current calendar year. Unit costs are updated annually or as required. For cost estimates with a base year that is older than the current calendar by one or more years, actual historical construction cost index values are used to calculate the escalation rate to be applied to bring a cost from the period in question to the present.

2.3.10 Finance Charge

Finance charges are not included in the capital cost estimates.

2.4 Estimate Validation

Following preparation of the PEPD Design level estimates, cost estimates are subjected to a validation process including reviews by subject matter experts in the areas of engineering and construction.

2.5 Estimate Reconciliation

Reconciliations are made between current cost estimates and cost estimates that were developed in previous design phases. The goal of reconciliation is to identify and document significant changes that may have occurred since the preparation of the prior capital cost estimate. Significant changes are identified in the reconciliation under one of three categories that best reflects the cause for the change: Quantity, Unit Price, or Scope, as applicable.

2.6 Estimate Assumption and Exclusions

- All costs are in 2018\$ Q3
- Allocated Contingency is included in all costs.
- ROW costs have been included based on current ROW report as referenced in the list of documents from the RC.
- UPEs 20.07.xxx are moved to 40.08 SCC minor in order to be compatible with FRA Standard Cost Categories for Capital Projects/Programs.

- Subsection "Alternate" Complete contains alternative wide Soft Costs that cannot be assigned to a specific subsection such as professional services, temporary facilities, , Environmental Mitigation allowances, and unallocated contingency in the Appendix C detailed estimate tables.

There may be some minor rounding variances due to allocation of indirect costs back into total costs on very large sum

APPENDIX A WORK BREAKDOWN STRUCTURE (WBS)

WORK BREAKDOWN STRUCTURE (FRA STANDARD COST CATEGORIES)

10 TRACK STRUCTURES & TRACK	
10.01	Track structure: Viaduct
10.02	Track structure: Major/Movable bridge
10.03	Track structure: Under grade Bridges
10.04	Track structure: Culverts and drainage structures
10.05	Track structure: Cut and Fill (> 4' height/depth)
10.06	Track structure: At-grade (grading and subgrade stabilization)
10.07	Track structure: Tunnel
10.08	Track structure: Retaining walls and systems
10.09	Track new construction: Conventional ballasted
10.10	Track new construction: Non-ballasted
10.11	Track rehabilitation: Ballast and surfacing
10.12	Track rehabilitation: Ditching and drainage
10.13	Track rehabilitation: Component replacement (rail, ties, etc)
10.14	Track: Special track work (switches, turnouts, insulated joints)
10.15	Track: Major interlockings
10.16	Track: Switch heaters (with power and control)
10.17	Track: Vibration and noise dampening
10.18	Other linear structures including fencing, sound walls
20 STATIONS, TERMINALS, INTERMODAL	
20.01	Station buildings: Intercity passenger rail only
20.02	Station buildings: Joint use (commuter rail, intercity bus)
20.03	Platforms
20.04	Elevators, escalators
20.05	Joint commercial development
20.06	Pedestrian / bike access and accommodation, landscaping, parking lots
20.07	Automobile, bus, van accessways including roads
20.08	Fare collection systems and equipment
20.09	Station security

30 SUPPORT FACILITIES: YARDS, SHOPS, ADMIN. BLDGS

30.01	Administration building: Office, sales, storage, revenue counting
30.02	Light maintenance facility
30.03	Heavy maintenance facility
30.04	Storage or maintenance-of-way building/bases
30.05	Yard and yard track

40 SITEWORK, RIGHT OF WAY, LAND, EXISTING IMPROVEMENTS

40.01	Demolition, clearing, site preparation
40.02	Site utilities, utility relocation
40.03	Hazardous material, contaminated soil removal/mitigation, ground water treatments
40.04	Environmental mitigation: wetlands, historic/archeology, parks
40.05	Site structures including retaining walls, sound walls
40.06	Temporary facilities and other indirect costs during construction
40.07	Purchase or lease of real estate
40.08	Highway/pedestrian overpass/grade separations
40.09	Relocation of existing households and businesses

50 COMMUNICATIONS & SIGNALING

50.01	Wayside signaling equipment
50.02	Signal power access and distribution
50.03	On-board signaling equipment
50.04	Traffic control and dispatching systems
50.05	Communications
50.06	Grade crossing protection
50.07	Hazard detectors: dragging equipment high water, slide, etc.
50.08	Station train approach warning system

60 ELECTRIC TRACTION

60.01	Traction power transmission: High voltage
60.02	Traction power supply: Substations
60.03	Traction power distribution: Catenary and third rail
60.04	Traction power control

70 VEHICLES

70.00	Vehicle acquisition: Electric locomotive
70.01	Vehicle acquisition: Non-electric locomotive

70.02	Vehicle acquisition: Electric multiple unit
70.03	Vehicle acquisition: Diesel multiple unit
70.04	Vehicle acquisition: Loco-hauled passenger cars w/ ticketed space
70.05	Vehicle acquisition: Loco-hauled passenger cars w/o ticketed space
70.06	Vehicle acquisition: Maintenance of way vehicles
70.07	Vehicle acquisition: Non-railroad support vehicles
70.08	Vehicle refurbishment: Electric locomotive
70.09	Vehicle refurbishment: Non-electric locomotive
70.10	Vehicle refurbishment: Electric multiple unit
70.11	Vehicle refurbishment: Diesel multiple unit
70.12	Vehicle refurbished: Passenger loco-hauled car w/ ticketed space
70.13	Vehicle refurbished: Non-passenger loco-hauled car w/o ticketed space
70.14	Vehicle refurbishment: Maintenance of way vehicles
70.15	Spare parts

80 PROFESSIONAL SERVICES (applies to Cats. 10-60)

80.01	Service Development Plan/Service Environmental
80.02	Preliminary Engineering/Project Environmental
80.03	Final design
80.04	Project management for design and construction
80.05	Construction administration & management
80.06	Professional liability and other non-construction insurance
80.07	Legal; Permits; Review Fees by other agencies, cities, etc.
80.08	Surveys, testing, investigation
80.09	Engineering inspection
80.10	Start up

90 UNALLOCATED CONTINGENCY

100 FINANCE CHARGES

APPENDIX B TYPICAL UNIT COST ELEMENTS

No.	DESCRIPTION	UNIT
10.01	Track structure: Viaduct	
10.01.122	Elevated Structure - 1 Track (20' Avg. Pier Ht)	Route Mile
10.01.123	Elevated Structure - 1 Track (30' Avg. Pier Ht)	Route Mile
10.01.124	Elevated Structure - 1 Track (40' Avg. Pier Ht)	Route Mile
10.01.125	Elevated Structure - 1 Track (50' Avg. Pier Ht)	Route Mile
10.01.126	Elevated Structure - 1 Track (60' Avg. Pier Ht)	Route Mile
10.01.127	Elevated Structure - 1 Track (70' Avg. Pier Ht)	Route Mile
10.01.222	Elevated Structure - 2 Track (20' Avg. Pier Ht)	Route Mile
10.01.223	Elevated Structure - 2 Track (30' Avg. Pier Ht)	Route Mile
10.01.224	Elevated Structure - 2 Track (40' Avg. Pier Ht)	Route Mile
10.01.225	Elevated Structure - 2 Track (50' Avg. Pier Ht)	Route Mile
10.01.226	Elevated Structure - 2 Track (60' Avg. Pier Ht)	Route Mile
10.01.227	Elevated Structure - 2 Track (70' Avg. Pier Ht)	Route Mile
10.01.242	Elevated Structure - 4 Track (20' Avg. Pier Ht)	Route Mile
10.01.243	Elevated Structure - 4 Track (30' Avg. Pier Ht)	Route Mile
10.01.244	Elevated Structure - 4 Track (40' Avg. Pier Ht)	Route Mile
10.01.245	Elevated Structure - 4 Track (50' Avg. Pier Ht)	Route Mile
10.01.246	Elevated Structure - 4 Track (60' Avg. Pier Ht)	Route Mile
10.01.247	Elevated Structure - 4 Track (70' Avg. Pier Ht)	Route Mile
10.01.322	Elevated Structure (LS) - 1 Track (20' Avg. Pier Ht)	Route Mile
10.01.323	Elevated Structure (LS) - 1 Track (30' Avg. Pier Ht)	Route Mile
10.01.324	Elevated Structure (LS) - 1 Track (40' Avg. Pier Ht)	Route Mile
10.01.325	Elevated Structure (LS) - 1 Track (50' Avg. Pier Ht)	Route Mile
10.01.326	Elevated Structure (LS) - 1 Track (60' Avg. Pier Ht)	Route Mile
10.01.327	Elevated Structure (LS) - 1 Track (70' Avg. Pier Ht)	Route Mile
10.01.422	Elevated Structure (LS) - 2 Track (20' Avg. Pier Ht)	Route Mile
10.01.423	Elevated Structure (LS) - 2 Track (30' Avg. Pier Ht)	Route Mile
10.01.424	Elevated Structure (LS) - 2 Track (40' Avg. Pier Ht)	Route Mile
10.01.425	Elevated Structure (LS) - 2 Track (50' Avg. Pier Ht)	Route Mile
10.01.426	Elevated Structure (LS) - 2 Track (60' Avg. Pier Ht)	Route Mile
10.01.427	Elevated Structure (LS) - 2 Track (70' Avg. Pier Ht)	Route Mile
10.01.431	Elevated Structure (LS-Tall) - 2-Single Tracks (110' Avg. Pier Ht)	Route Mile

10.01.432	Elevated Structure (LS-Tall) - 2-Single Tracks (120' Avg. Pier Ht)	Route Mile
10.01.512	Elevated Structure Straddle over 2 RR - 1 Track (20' Avg. Pier Ht)	Route Mile
10.01.513	Elevated Structure Straddle over 2 RR - 1 Track (30' Avg. Pier Ht)	Route Mile
10.01.514	Elevated Structure Straddle over 2 RR - 1 Track (40' Avg. Pier Ht)	Route Mile
10.01.515	Elevated Structure Straddle over 2 RR - 1 Track (50' Avg. Pier Ht)	Route Mile
10.01.522	Elevated Structure Straddle over 2 RR - 2 Track (20' Avg. Pier Ht)	Route Mile
10.01.523	Elevated Structure Straddle over 2 RR - 2 Track (30' Avg. Pier Ht)	Route Mile
10.01.524	Elevated Structure Straddle over 2 RR - 2 Track (40' Avg. Pier Ht)	Route Mile
10.01.525	Elevated Structure Straddle over 2 RR - 2 Track (50' Avg. Pier Ht)	Route Mile
10.01.612	Elevated Structure Straddle over 4 RR - 1 Track (20' Avg. Pier Ht)	Route Mile
10.01.613	Elevated Structure Straddle over 4 RR - 1 Track (30' Avg. Pier Ht)	Route Mile
10.01.614	Elevated Structure Straddle over 4 RR - 1 Track (40' Avg. Pier Ht)	Route Mile
10.01.615	Elevated Structure Straddle over 4 RR - 1 Track (50' Avg. Pier Ht)	Route Mile
10.01.622	Elevated Structure Straddle over 4 RR - 2 Track (20' Avg. Pier Ht)	Route Mile
10.01.623	Elevated Structure Straddle over 4 RR - 2 Track (30' Avg. Pier Ht)	Route Mile
10.01.624	Elevated Structure Straddle over 4 RR - 2 Track (40' Avg. Pier Ht)	Route Mile
10.01.625	Elevated Structure Straddle over 4 RR - 2 Track (50' Avg. Pier Ht)	Route Mile
10.01.944	Elevated Structure - 2 Track w/ 2 Single Trenches	Route Mile
10.02	Track structure: Major/Movable bridge	
10.02.013	Bridge Structure - 3 span with 1 Track	Route Mile
10.02.023	Bridge Structure - 3 span with 2 Track	Route Mile
10.02.043	Bridge Structure - 3 span with 4 Track	Route Mile
10.05	Track structure: Cut and Fill (> 4' height/depth)	
10.05.111	At-Grade Track-bed in Cut - 1 Track (5' Avg. Exc Depth)	Route Mile

No.	DESCRIPTION	
10.05.112	At-Grade Track-bed in Cut - 1 Track (10' Avg. Exc Depth)	Route Mile
10.05.113	At-Grade Track-bed in Cut - 1 Track (15' Avg. Exc Depth)	Route Mile
10.05.114	At-Grade Track-bed in Cut - 1 Track (20' Avg. Exc Depth)	Route Mile
10.05.121	At-Grade Track-bed in Cut - 2 Track (5' Avg. Exc Depth)	Route Mile
10.05.122	At-Grade Track-bed in Cut - 2 Track (10' Avg. Exc Depth)	Route Mile
10.05.123	At-Grade Track-bed in Cut - 2 Track (15' Avg. Exc Depth)	Route Mile
10.05.124	At-Grade Track-bed in Cut - 2 Track (20' Avg. Exc Depth)	Route Mile
10.05.126	At-Grade Track-bed in Cut - 2 Track (40' Avg. Exc Depth)	Route Mile
10.05.128	At-Grade Track-bed in Cut - 2 Track (60' Avg. Exc Depth)	Route Mile
10.05.130	At-Grade Track-bed in Cut - 2 Track (80' Avg. Exc Depth)	Route Mile
10.05.132	At-Grade Track-bed in Cut - 2 Track (100' Avg. Exc Depth)	Route Mile
10.05.211	At-Grade Track-bed in Fill - 1 Track (5' Avg. Fill Ht)	Route Mile
10.05.212	At-Grade Track-bed in Fill - 1 Track (10' Avg. Fill Ht)	Route Mile
10.05.213	At-Grade Track-bed in Fill - 1 Track (15' Avg. Fill Ht)	Route Mile
10.05.214	At-Grade Track-bed in Fill - 1 Track (20' Avg. Fill Ht)	Route Mile
10.05.221	At-Grade Track-bed in Fill - 2 Track (5' Avg. Fill Ht)	Route Mile
10.05.222	At-Grade Track-bed in Fill - 2 Track (10' Avg. Fill Ht)	Route Mile
10.05.223	At-Grade Track-bed in Fill - 2 Track (15' Avg. Fill Ht)	Route Mile
10.05.224	At-Grade Track-bed in Fill - 2 Track (20' Avg. Fill Ht)	Route Mile
10.05.226	At-Grade Track-bed in Fill - 2 Track (40' Avg. Fill Ht)	Route Mile
10.05.228	At-Grade Track-bed in Fill - 2 Track (60' Avg. Fill Ht)	Route Mile
10.05.230	At-Grade Track-bed in Fill - 2 Track (80' Avg. Fill Ht)	Route Mile
10.05.232	At-Grade Track-bed in Fill - 2 Track (100' Avg. Fill Ht)	Route Mile
10.06	Track structure: At-grade (grading and subgrade stabilization)	
10.06.210	At-Grade Track-bed with Closed Drainage - 1 Track	Route Mile
10.06.220	At-Grade Track-bed with Closed Drainage - 2 Track	Route Mile
10.06.230	At-Grade Track-bed with Closed Drainage - 3 Track	Route Mile
10.06.240	At-Grade Track-bed with Closed Drainage - 4 Track	Route Mile
10.07	Track structure: Tunnel	
10.07.101	TBM Single Track Twin Tunnel 30ft ID Unpressurized TBM in hard rock	Route Mile
10.07.102	TBM Single Track Twin Tunnel 30ft ID Slurry TBM in hard rock	Route Mile
10.07.103	TBM Single Track Twin Tunnel 30ft ID in soft ground	Route Mile
10.07.104	TBM Double Track Tunnel 50ft ID in soft ground	Route Mile

No.	DESCRIPTION	UNIT
10.07.105	TBM Double Track Tunnel 40ft ID in soft ground	Route Mile
10.07.201	D&B Single Track Twin Tunnel 30ft ID in hard rock	Route Mile
10.07.202	D&B Single Track Twin Tunnel 30ft ID in rock	Route Mile
10.07.203	D&B Double Track Tunnel 40ft ID in hard rock	Route Mile
10.07.204	D&B Double Track Tunnel 40ft ID in rock	Route Mile
10.07.205	D&B Double Track Tunnel 50ft ID in hard rock	Route Mile
10.07.206	D&B Double Track Tunnel 50ft ID in rock	Route Mile
10.07.301	SEM Single Track Twin Tunnel 30ft ID in soft ground	Route Mile
10.07.302	SEM Single Track Twin Tunnel 30ft ID in soft ground	Route Mile
10.07.303	SEM Double Track Tunnel 40ft ID in soft ground	Route Mile
10.07.304	SEM Double Track Tunnel 40ft ID in soft ground	Route Mile
10.07.305	SEM Double Track Tunnel 50ft ID in soft ground	Route Mile
10.07.306	SEM Double Track Tunnel 50ft ID in soft ground	Route Mile
10.07.401	RH Single Track Twin Tunnel 30ft ID in soft rock	Route Mile
10.07.402	RH Single Track Twin Tunnel 30ft ID in soft rock	Route Mile
10.07.403	RH Double Track Tunnel 40ft ID in soft rock	Route Mile
10.07.404	RH Double Track Tunnel 40ft ID in soft rock	Route Mile
10.07.405	RH Double Track Tunnel 50ft ID in soft rock	Route Mile
10.07.406	RH Double Track Tunnel 50ft ID in soft rock	Route Mile
10.07.207	D&B Cross Passage conservative cost in rock	Linear Feet
10.07.407	RH Cross Passage conservative cost in soft rock	Linear Feet
10.07.501	Cross Passage in Soft Ground	Linear Feet
10.07.502	Cross Passage in Soft Ground, including jet grout	Linear Feet
10.07.114	Cut & Cover Box - 1 Track/ 1 Box (40' Avg. Exc Depth)	Route Mile
10.07.115	Cut & Cover Box - 1 Track/ 1 Box (50' Avg. Exc Depth)	Route Mile
10.07.116	Cut & Cover Box - 1 Track/ 1 Box (60' Avg. Exc Depth)	Route Mile
10.07.214	Cut & Cover Box - 2 Track / 1 Box (40' Avg. Exc Depth)	Route Mile
10.07.215	Cut & Cover Box - 2 Track / 1 Box (50' Avg. Exc Depth)	Route Mile
10.07.216	Cut & Cover Box - 2 Track / 1 Box (60' Avg. Exc Depth)	Route Mile
10.07.224	Cut & Cover Box - 2 Track/ 2 Box (40' Avg. Exc Depth)	Route Mile
10.07.225	Cut & Cover Box - 2 Track / 2 Box (50' Avg. Exc Depth)	Route Mile
10.07.226	Cut & Cover Box - 2 Track / 2 Box (60' Avg. Exc Depth)	Route Mile
10.07.414	Cut & Cover Box - 4 Track / 1 Box (40' Avg. Exc Depth)	Route Mile
10.07.415	Cut & Cover Box - 4 Track / 1 Box (50' Avg. Exc Depth)	Route Mile
10.07.416	Cut & Cover Box - 4 Track / 1 Box (60' Avg. Exc Depth)	Route Mile

10.07.801	Ventilation Shaft	VF
10.07.802	Mid-Line Ventilation Structure	LS
10.07.803	Tunnel Portal Structure	LS
10.07.805	Emergency Access Shaft	VF
10.07.850	Pumping Station	EA
10.07.901	Mechanical & Electrical Allowance for Underground (Single)	Route Mile
10.07.902	Mechanical & Electrical Allowance for Underground (Double)	Route Mile
10.07.920	Ventilation Equipment Allowance	EA
10.07.922	Double Deck - 2 Track Trench on Top of 2 Track C&C Box	Route Mile
10.07.950	Allowance for Construction Monitoring	Route Mile
10.08	Track structure: Retaining walls and systems	
10.08.211	Retained Cut, Trench - 1 Track (10' Avg. Exc Depth)	Route Mile
10.08.212	Retained Cut, Trench - 1 Track (20' Avg. Exc Depth)	Route Mile
10.08.213	Retained Cut, Trench - 1 Track (30' Avg. Exc Depth)	Route Mile
10.08.221	Retained Cut, Trench - 2 Track (10' Avg. Exc Depth)	Route Mile
10.08.222	Retained Cut, Trench - 2 Track (20' Avg. Exc Depth)	Route Mile
10.08.223	Retained Cut, Trench - 2 Track (30' Avg. Exc Depth)	Route Mile
10.08.241	Retained Cut, Trench - 4 Track (10' Avg. Exc Depth)	Route Mile
10.08.242	Retained Cut, Trench - 4 Track (20' Avg. Exc Depth)	Route Mile
10.08.243	Retained Cut, Trench - 4 Track (30' Avg. Exc Depth)	Route Mile
10.08.344	Retained Cut, Staged Trench - 4 Track (40' Avg. Exc Depth)	Route Mile
10.08.346	Retained Cut, Staged Trench - 4 Track (60' Avg. Exc Depth)	Route Mile
10.08.411	Retained Fill, Walls Both Sides - 1 Tracks (10' Avg. Wall Ht)	Route Mile
10.08.412	Retained Fill, Walls Both Sides - 1 Tracks (20' Avg. Wall Ht)	Route Mile
10.08.413	Retained Fill, Walls Both Sides - 1 Tracks (30' Avg. Wall Ht)	Route Mile
10.08.421	Retained Fill, Walls Both Sides - 2 Tracks (10' Avg. Wall Ht)	Route Mile
10.08.422	Retained Fill, Walls Both Sides - 2 Tracks (20' Avg. Wall Ht)	Route Mile
10.08.423	Retained Fill, Walls Both Sides - 2 Tracks (30' Avg. Wall Ht)	Route Mile
10.09	Track new construction: Conventional ballasted	
10.09.110	Ballasted Track - 1 Track	Route Mile
10.09.112	Ballasted Track (Track Laying Machine) - 1 Track	Route Mile
10.09.120	Ballasted Track - 2 Track	Route Mile
10.09.122	Ballasted Track (Track Laying Machine) - 2 Track	Route Mile
10.09.240	Ballasted Track - 2 Track (Station Track)	Route Mile
10.09.810	Ballasted Freight Track - 1 Track	Route Mile

No.	DESCRIPTION	UNIT
10.09.820	Ballasted Freight Track - 2 Track	Route Mile
10.09.910	Ballasted Track Relocation - 1 Track (Temporary)	Route Mile
10.09.920	Ballasted Track Relocation - 1 Track (Permanent)	Route Mile
10.10	Track new construction: Non-ballasted	
10.10.110	Direct Fixation Track - 1 Track	Route Mile
10.10.120	Direct Fixation Track - 2 Track	Route Mile
10.10.140	Direct Fixation Track - 4 Track	Route Mile
10.10.210	Independent Dual Block Track - 1 Track	Route Mile
10.10.220	Independent Dual Block Track - 2 Track	Route Mile
10.10.240	Independent Dual Block Track - 4 Track	Route Mile
10.14	Track: Special track work (switches, turnouts, insulated joints)	
10.14.100	Direct Fixation Turnout (60 MPH)	EA
10.14.105	Direct Fixation Turnout (80 MPH)	EA
10.14.110	Direct Fixation Turnout (110 MPH)	EA
10.14.115	Direct Fixation Turnout (150 MPH)	EA
10.14.130	Direct Fixation Crossover (60 MPH)	EA
10.14.135	Direct Fixation Crossover (80 MPH)	EA
10.14.140	Direct Fixation Crossover (110 MPH)	EA
10.14.145	Direct Fixation Crossover (150 MPH)	EA
10.14.200	Ballasted Turnout (60 MPH)	EA
10.14.205	Ballasted Turnout (80 MPH)	EA
10.14.210	Ballasted Turnout (110 MPH)	EA
10.14.215	Ballasted Turnout (150 MPH)	EA
10.14.300	Ballasted Crossover (60 MPH)	EA
10.14.305	Ballasted Crossover (80 MPH)	EA
10.14.310	Ballasted Crossover (110 MPH)	EA
10.14.315	Ballasted Crossover (150 MPH)	EA
10.14.400	Terminal - Bumping Post	
20.01	Station buildings: Intercity passenger rail only	
20.01.105	Millbrae Station	LS
20.01.105	Millbrae Station - Site Elements	LS
20.02.200	Redwood/Palo Alto Station	LS
20.02.201	Redwood/Palo Alto Station - Site Elements	LS
20.02.215	Gilroy Station	LS

No.	DESCRIPTION	UNIT
20.02.216	Gilroy Station - Site Elements	LS
20.02.225	San Jose Station	LS
20.02.226	San Jose Station-Site Elements	LS
20.01.100	Artic Station	LS
20.01.110	LA Union Station	LS
20.02.205	Norwalk Station	LS
20.02.206	Norwalk Station - Site Elements	LS
20.02.210	Tulare Station	LS
20.02.211	Tulare Station - Site Elements	LS
20.02.220	Burbank Station	LS
20.02.221	Burbank Station - Site Elements	LS
20.02.230	Merced Station	LS
20.02.231	Merced Station - Site Elements	LS
20.02.235	Fresno Station	LS
20.02.236	Fresno Station - Site Elements	LS
20.02.240	Bakersfield Station	LS
20.02.241	Bakersfield Station - Site Elements	LS
20.02.245	Palmdale Station	LS
20.02.246	Palmdale Station - Site Elements	LS
20.02.250	Sylmar Station	LS
20.02.251	Sylmar Station - Site Elements	LS
20.06	Pedestrian / bike access and accommodation, landscaping, parking lots	
20.06.120	Pedestrian Access (Cut & Cover)	LF
20.06.140	Pedestrian Plaza	SF
20.06.160	Pedestrian Access, Vertical Structure, 30' Height	EA
20.06.210	Parking - At Grade	STL
20.06.250	Parking - Structured (Above Grade)	STL
20.06.800	Landscaping Allowance	SF
20.06.810	Landscaping Allowance, Guideway	Route Mile
20.07	Automobile, bus, van accessways including roads	
20.07.010	Roadway Modification, New AC Paving	SF
20.07.020	Roadway Modification, New AC Paving (including Curb & Sidewalk)	SF
20.07.710	Permanent Service/Emergency Access Road (20' Wide)	Route Mile

20.07.715	Access Road Entrance Point	EA
20.07.800	Streetscaping Allowance	ESF
30.02	Light maintenance facility	
30.02.010	Light Maintenance Facility (LMF)	EA
30.03	Heavy maintenance facility	
30.03.010	Heavy Maintenance Facility (HMF)	EA
30.04	Storage or maintenance-of-way building/bases	
30.04.010	Maintenance of Way Facility (MOWF)	EA
30.05	Yard and yard track	
30.05.110	Ballasted Track - Yard Track	Route Mile
30.05.200	Ballasted Turnout, No. 15	EA
30.05.210	Ballasted Diamond Crossover, No. 15	EA
30.05.250	Heavy Duty Rubber Grade Crossing	TF
40.01	Demolition, clearing, site preparation	
40.01.010	Demolition Allowance, Bridge	SF
40.01.050	Demolition Allowance, Building (1 Story)	SF
40.01.060	Demolition Allowance, Building (2 Story)	SF
40.01.110	Demolition Allowance, Asphalt Pavement	SY
40.01.140	Demolition Allowance, Concrete Curb	LF
40.01.150	Demolition Allowance, Concrete Sidewalk	SY
40.01.810	Demolition Allowance, Remove Railroad Track	Route Mile
40.01.900	Miscellaneous Excavation & Support Items	LS
40.02	Site utilities, utility relocation	
40.02.001	Utility Relocation Allowance, Level 1	Route Mile
40.02.002	Utility Relocation Allowance, Level 2	Route Mile
40.02.003	Utility Relocation Allowance, Level 3	Route Mile
40.02.004	Utility Relocation Allowance, Level 4	Route Mile
40.02.005	Utility Relocation Allowance, Level 5	Route Mile
40.02.050	Site Utility Allowance	Route Mile
40.03	Hazardous material, contaminated soil removal/mitigation, ground water treatments	
40.03.100	Hazardous Material Removal Allowance, Light	Route Mile
40.03.105	Hazardous Material Removal Allowance, Medium	Route Mile
40.03.110	Hazardous Material Removal Allowance, Heavy	Route Mile
40.03.150	Removal of Contaminated Soil	CF

40.04	Environmental mitigation: wetlands, historic/archeology, parks	
40.04.100	Environmental Mitigation Allowance, Light	Route Mile
40.04.105	Environmental Mitigation Allowance, Medium	Route Mile
40.04.110	Environmental Mitigation Allowance, Heavy	Route Mile
40.05	Site structures including retaining walls, sound walls	
40.05.012	Retaining Wall - 1 Wall (12' Avg. Height)	LF
40.05.111	Containment (Crash) Wall - 1 Wall (6' Avg. Height Above Rail)	LF
40.05.120	Blast Wall (At Stations) - 1 Wall (20' Avg. Height Above Platform)	LF
40.05.211	Sound Wall - 1 Wall (8' Avg. Height)	LF
40.05.310	Intrusion Protection Berm	LF
40.06	Temporary facilities and other indirect costs during construction	
40.07	Purchase or lease of real estate	
	Right-of-Way Required for Segment	
40.07.100	Dense Urban	Acre
40.07.101	Urban	Acre
40.07.102	Dense Suburban	Acre
40.07.103	Suburban	Acre
40.07.104	Farmland	Acre
40.07.105	Undeveloped	Acre
	Right-of-Way Required for Stations and Maintenance Facilities	
40.07.200	Dense Urban	Acre
40.07.201	Urban	Acre
40.07.202	Dense Suburban	Acre
40.07.203	Suburban	Acre
40.07.204	Undeveloped	Acre
40.08	Highway/pedestrian overpass/grade separations	
40.08.322	Roadway Overcrossing HSR - 2 lane retained fill roadway over 2 tracks	EA
40.08.324	Roadway Overcrossing HSR - 4 lane retained fill roadway over 2 tracks	EA
40.08.326	Roadway Overcrossing HSR - 6 lane retained fill roadway over 2 tracks	EA

No.	DESCRIPTION	UNIT
40.08.342	Roadway Overcrossing HSR - 2 lane retained fill roadway over 4 tracks	EA
40.08.344	Roadway Overcrossing HSR - 4 lane retained fill roadway over 4 tracks	EA
40.08.346	Roadway Overcrossing HSR - 6 lane retained fill roadway over 4 tracks	EA
40.08.422	Roadway Overcrossing HSR - 2 lane roadway on embankment over 2 tracks	EA
40.08.424	Roadway Overcrossing HSR - 4 lane roadway on embankment over 2 tracks	EA
40.08.426	Roadway Overcrossing HSR - 6 lane roadway on embankment over 2 tracks	EA
50.01	Wayside signaling equipment	
50.01.010	Train Controls (ATC)	Route Mile
50.01.020	Wayside Protection System	Route Mile
50.01.030	Train Control, Wayside Facility Site Work	EA
50.05	Communications	
50.05.010	Communications (w/Fiber Optic Backbone)	Route Mile
60.02	Traction power supply: Substations	
60.02.100	Traction Power Supply	Route Mile
60.02.010	Traction Power, Supply Station Site Work	EA
60.02.020	Traction Power, Switching Station Site Work	EA
60.02.030	Traction Power, Paralleling Station Site Work	EA
60.03	Traction power distribution: Catenary and third rail	
60.03.100	Traction Power Distribution	Route Mile

APPENDIX C DETAILED COST BUDGET

Detail Cost Budget Data (By Major Task)

Alt	SCC-	Description	Grand Total
01. E1		E1 End to End Alternative 2018\$	
	10	Track Structures and Track	13,266,990,872
	20	Stations, Terminal, and Intermodal	572,796,618
	40	Sitework, Right of Way, Land, and Existing Conditions	4,459,247,639
	50	Communications and Signaling	172,532,679
	60	Electric Traction	236,775,858
	80	Professional Services	2,985,396,645
	90	Unallocated Contingency	803,059,043
		01. E1 E1 End to End Alternative 2018\$	22,496,799,354
02.E2		E2 End to End Alternative 2018\$	
	10.00	Track Structures and Track	13,526,362,082
	20.00	Stations, Terminal, and Intermodal	660,740,546
	40.00	Sitework, Right of Way, Land, and Existing Conditions	4,073,403,124
	50.00	Communications and Signaling	163,906,451
	60.00	Electric Traction	213,365,572
	80.00	Professional Services	3,036,076,532
	90.00	Unallocated Contingency	799,106,879
		02.E2 E2 End to End Alternative 2018\$	22,472,961,185
03.SR14		SR14 End to End Alternative 2018\$	
	10.00	Track Structures and Track	12,722,491,737
	20.00	Stations, Terminal, and Intermodal	555,842,540
	40.00	Sitework, Right of Way, Land, and Existing Conditions	4,945,494,075
	50.00	Communications and Signaling	175,343,038
	60.00	Electric Traction	249,311,838
	80.00	Professional Services	2,950,483,916
	90.00	Unallocated Contingency	801,487,442
		03.SR14 SR14 End to End Alternative 2018\$	22,400,454,587
E1A.		E1A End to End Alternative 2018\$	
	10.00	Track Structures and Track	13,866,780,489
	20.00	Stations, Terminal, and Intermodal	532,509,845
	40.00	Sitework, Right of Way, Land, and Existing Conditions	4,607,197,580
	50.00	Communications and Signaling	182,386,373
	60.00	Electric Traction	237,642,741

E1A.	80.00	Professional Services	3,109,772,774
	90.00	Unallocated Contingency	834,103,306
		E1A. E1A End to End Alternative 2018\$	23,370,393,109
05.E2A		E2A End to End Alternative 2018\$	
	10.00	Track Structures and Track	14,086,190,775
	20.00	Stations, Terminal, and Intermodal	623,703,040
	40.00	Sitework, Right of Way, Land, and Existing Conditions	4,139,341,024
	50.00	Communications and Signaling	158,743,611
	60.00	Electric Traction	213,749,344
	80.00	Professional Services	3,138,129,007
	90.00	Unallocated Contingency	824,405,811
		05.E2A E2A End to End Alternative 2018\$	23,184,262,613
06.SR14 A		SR14A End to End Alternative 2018\$	
	10.00	Track Structures and Track	13,568,217,951
	20.00	Stations, Terminal, and Intermodal	560,082,564
	40.00	Sitework, Right of Way, Land, and Existing Conditions	5,471,602,364
	50.00	Communications and Signaling	188,707,845
	60.00	Electric Traction	256,373,701
	80.00	Professional Services	3,168,514,380
	90.00	Unallocated Contingency	861,025,179
		06.SR14A SR14A End to End Alternative 2018\$	24,074,523,984

Detail Cost Budget Data

Alternatives	Sub Section	UPE	Description	Takeoff Quantity		Grand Total Price		Grand Total (2018\$)
01. E1			E1 End to End Alternative 2018\$					
	01.PLM		Palmdale Subsection					
		10.01.001 A	Steel Truss HSR viaduct, 1 track Sierra Hwy platform track 2x215' Span	2.00	EA	11,270,276.86	/EA	22,540,554
		10.01.002 A	Steel Truss HSR viaduct, 2 track Sierra Hwy platform track 2x215' Span	1.00	EA	13,464,913.09	/EA	13,464,913
		10.01.122 B	Elevated Structure Ave Q Platform Track - 1 Track (22' Avg. Pier Ht) Avg 105' span	2.00	EA	4,323,161.81	/EA	8,646,324
		10.01.222 A	Elevated Structure Tuxford st - 2 Track U-Shape girder (20' Avg. Pier Ht) Avg 110' span	1.00	EA	6,312,265.73	/EA	6,312,266
		10.02.060 A	Sierra Hwy Underpass (SCRAA) Bridge Structure - Two Span Steel Plate Girder Structure with 1 Track - 2 190' spans	1.00	EA	7,066,023.19	/EA	7,066,023
		10.02.060 B	Sierra Hwy Underpass (UPRR) Bridge Structure - Two Span Steel Plate Girder Structure with 1 Track 2-190' spans substructure for enlargement	1.00	EA	8,395,483.55	/EA	8,395,484
		10.02.060 E	Ave Q Underpass Railroad Bridge Structure - Single Span Steel Plate Girder Structure with 1 Track 1-105'span	3.00	EA	1,667,494.65	/EA	5,002,484
		10.04.100 A	36" Drainage Pipe	1,341.00	LF	315.93	/LF	423,667
		10.05.111	At-Grade Track-bed in Cut - 1 Track (5' Avg. Exc Depth)	0.68	RM	5,185,505.97	/RM	3,526,144
		10.05.112	At-Grade Track-bed in Cut - 1 Track (10' Avg. Exc Depth)	0.78	RM	6,839,919.44	/RM	5,335,137
		10.05.113	At-Grade Track-bed in Cut - 1 Track (15' Avg. Exc Depth)	0.08	RM	8,787,924.00	/RM	703,034
		10.05.114	At-Grade Track-bed in Cut - 1 Track (20' Avg. Exc Depth)	0.25	RM	11,029,519.28	/RM	2,757,380
		10.05.121	At-Grade Track-bed in Cut - 2 Track (5' Avg. Exc Depth)	0.66	RM	8,001,053.80	/RM	5,280,696
		10.05.122	At-Grade Track-bed in Cut - 2 Track (10' Avg. Exc Depth)	0.63	RM	9,875,660.52	/RM	6,221,666
		10.05.123	At-Grade Track-bed in Cut - 2 Track (15' Avg. Exc Depth)	0.07	RM	12,043,857.86	/RM	843,070
		10.05.124	At-Grade Track-bed in Cut - 2 Track (20' Avg. Exc Depth)	0.12	RM	14,510,786.08	/RM	1,741,294
		10.05.211	At-Grade Track-bed in Fill - 1 Track (5' Avg. Fill Ht)	2.63	RM	3,431,999.11	/RM	9,026,158
		10.05.212	At-Grade Track-bed in Fill - 1 Track (10' Avg. Fill Ht)	0.76	RM	4,352,435.11	/RM	3,307,851
		10.05.221	At-Grade Track-bed in Fill - 2 Track (5' Avg. Fill Ht)	1.64	RM	5,953,955.98	/RM	9,764,488
		10.05.222	At-Grade Track-bed in Fill - 2 Track (10' Avg. Fill Ht)	0.63	RM	7,094,585.25	/RM	4,469,589
		10.07.114 A	Cut & Cover LMF crossing - 2 Tracks	1.00	EA	29,043,615.21	/EA	29,043,615
		10.08.213	Retained Cut, Trench - 1 Track (30' Avg. Exc Depth)	0.51	RM	178,901,583.69	/RM	91,239,808
		10.08.411	Retained Fill, Walls Both Sides - 1 Tracks (10' Avg. Wall Ht)	1.10	RM	13,740,304.70	/RM	15,114,335
		10.09.110	Ballasted Track - 1 Track	6.28	RM	2,231,954.99	/RM	14,016,677

Alternatives	Sub Section	UPE	Description	Takeoff Quantity		Grand Total Price		Grand Total (2018\$)
		10.09.110 A	SCRRA Ballasted Track - 1 Track	1.42	RM	2,059,744.60	/RM	2,924,837
		10.09.120	Ballasted Track - 2 Track	3.13	RM	4,025,610.88	/RM	12,600,162
		10.09.120 A	SCRRA Ballasted Track - 2 Track	0.83	RM	3,953,750.54	/RM	3,281,613
		10.09.240	Ballasted Track - 2 Track (Station Track)	1.76	RM	8,051,222.11	/RM	14,170,151
		10.09.920	Ballasted Track Relocation - 1 Track (Permanent)	0.91	RM	2,802,459.44	/RM	2,550,238
		10.14.200	Ballasted Turnout (60MPH)	7.00	EA	449,901.15	/EA	3,149,308
		10.14.200 A	Ballasted Turnout (25MPH)	2.00	EA	265,384.42	/EA	530,769
		10.14.200 b	Ballasted Turnout (30MPH)	1.00	EA	94,780.15	/EA	94,780
		10.14.305	Ballasted Crossover (80MPH)	3.00	EA	1,120,459.33	/EA	3,361,378
		10.14.400	Terminal Bumping Post	2.00	EA	25,274.71	/EA	50,549
		10.14.500 A	Crossing Panels	38.00	EA	1,137.36	/EA	43,220
		20.01.247 A	Main and Secondary Station Buildings	80,182.00	sf	483.08	/sf	38,733,949
		20.01.247 B	Auxiliary Building	10,000.00	sf	289.85	/sf	2,898,452
		20.03.001 A	HSR Platform (at grade)	112,776.00	SF	552.09	/SF	62,262,065
		20.03.001 B	Metrolink Platform (at grade)	20,427.00	SF	552.09	/SF	11,277,463
		20.06.100 B	Pedestrian Bridges (Overhead) Avg 120' span x 20' wide	123,032.00	SF	654.55	/SF	80,530,035
		20.06.201 A	Parking Roadways Avg 330 sf per stall	5,853.45	sf	5,442.11	/sf	31,855,107
		20.06.201 B	Parking Walkway (Standard Sidewalks)	234,350.00	SF	19.25	/SF	4,510,907
		20.06.201 C	Parking Walkway (Enhanced Plazas)	160,283.00	SF	23.49	/SF	3,764,255
		20.06.800 A	Landscape	712,875.00	SF	18.32	/SF	13,056,632
		20.07.011 F	2 Lane Roadway Modification, New AC Paving (Foreston Dr Sta 91+00 to 132+33)	23,200.00	SF	17.94	/SF	416,125
		20.07.020	Roadway Modification, New AC Paving (including Curb & Sidewalk)	74,154.08	SF	21.27	/SF	1,577,145
		20.07.020 E	2 Lane Roadway Modification, New AC Paving including Curb & Gutter, Sidewalk, painted median (Avenue Q) (From Sta 94+00 to Sta 130+00_	8,928.00	SF	18.28	/SF	163,241
		20.07.020 G	2 Lane Roadway Modification, New AC Paving including Curb & Gutter, Sidewalk (Avenue Q9 & Q12)	28,278.00	SF	20.42	/SF	577,433
		20.07.021 A	4 Lane Roadway Modification, New AC Paving with Curb & Gutter, Sidewalk, Raised Median, Bike Path (Fifth St Sta 100+55 to 167+00)4 Lane Roadway Modification, New AC Paving with Curb & Gutter, Sidewalk, Raised Median, Bike Path (Fifth St Sta 100+55 to 167+00)	627,200.00	SF	31.96	/SF	20,048,251
		20.07.021 B	4 Lane Roadway Modification, New AC Paving with Curb & Gutter, Sidewalk, Raised Median (Fifth St Sta 168+22 to 197+00)	332,831.52	SF	22.40	/SF	7,455,362

Alternatives	Sub Section	UPE	Description	Takeoff Quantity		Grand Total Price		Grand Total (2018\$)
		20.07.021 C	4 Lane Roadway Modification, New AC Paving with Curb & Gutter, Sidewalk, Raised Median (Avenue R Sta 91+53 to 128+48)	245,055.54	SF	38.19	/SF	9,359,120
		20.07.021 D	4 Lane Roadway Modification, New AC Paving with Curb & Gutter, Sidewalk, (Sixth St Sta 10+00 to 50+15.07)	337,265.88	SF	20.24	/SF	6,827,679
		20.07.022 A	6 Lane Roadway Modification, New AC Paving with Curb & Gutter, Sidewalk, Raised Median, Bike Path (Sierra Hwy Sta 500+00 to 625.88)	345,600.00	SF	29.76	/SF	10,284,502
		20.07.022 B	6 Lane Roadway Modification, New AC Paving with Curb & Gutter, Sidewalk, Raised Median (Palmdale Blvd Sta 91+63 to 127+65)	1,611,264.00	SF	32.16	/SF	51,810,743
		20.07.022 C	6 Lane Roadway Modification, New AC Paving with Curb & Gutter, Sidewalk, Raised Median, Bike Path (Avenue S, Sta 82+50 to 117+80)	311,289.90	SF	29.19	/SF	9,086,573
		40.01.010 A	Demolition Allowance, Masonry/Sound Wall	22,020.00	LF	33.48	/LF	737,330
		40.01.050	Demolition Allowance, Building 1 Story	1,795,428.00	SF	32.50	/SF	58,358,719
		40.01.110	Demolition Allowance, Asphalt Pavement	1,278,163.00	SY	62.35	/SY	79,691,639
		40.01.110 A	Demolition Allowance, Concrete Pavement	55,794.67	SY	40.37	/SY	2,252,503
		40.01.140	Demolition Allowance, Concrete Curb	64,343.00	LF	19.12	/LF	1,229,980
		40.01.140 A	Demolition Allowance, Concrete Curb & Gutter	64,895.00	LF	20.58	/LF	1,335,708
		40.01.150	Demolition Allowance, Concrete Sidewalk	364,718.00	SY	132.43	/SY	48,300,597
		40.01.810	Demolition Allowance, Remove Railroad Track	4,350.00	LF	37.17	/LF	161,686
		40.01.900 A	Clearing & Grubbing Landscape Areas	1,218,518.00	SY	25.49	/SY	31,063,164
		40.02.107 A	Natural Gas Pipeline, 3" to 8" Dia.	2,128.00	LF	327.12	/LF	696,107
		40.02.108 A	Natural Gas Pipeline, 10" to 18" Dia.	790.00	LF	354.72	/LF	280,231
		40.02.116 A	Potable Water Pipeline, <10"	160.00	LF	327.12	/LF	52,339
		40.02.116 B	Potable Water Pipeline, 10" to 16"	21,728.00	LF	339.95	/LF	7,386,461
		40.02.117 A	Potable Water Pipeline, 18" to 24"	825.00	LF	520.07	/LF	429,057
		40.02.121 A	Overhead Power Trans Facility (≥ 69 kV)	7,375.00	LF	7,851.30	/LF	57,903,351
		40.02.122 A	Overhead Power Trans Facility (< 69 kV)	4,490.00	LF	621.10	/LF	2,788,725
		40.02.127 A	Sewer, Gravity Pipeline, <10" Dia.	15,351.00	LF	431.47	/LF	6,623,534
		40.02.127 B	Sewer, Gravity Pipeline, 10" to 18" Dia.	4,642.00	LF	472.74	/LF	2,194,443
		40.02.129 A	Sewer, Gravity Pipeline, 48" to 66" Dia.	3,410.00	LF	637.39	/LF	2,173,494
		40.02.150 A	Electrical/Telephone Ductbank	800.00	LF	368.75	/LF	295,000
		40.02.150 B	Fiber Optic Ductbank	2.00	LF	370.08	/LF	740
		40.02.150 C	Tel San Fernando Rd: East of CL	1,320.00	LF	368.75	/LF	486,750

Alternatives	Sub Section	UPE	Description	Takeoff Quantity		Grand Total Price		Grand Total (2018\$)
		40.02.150 D	Tel San Fernando Rd: West of CL	5,057.00	LF	368.75	/LF	1,864,768
		40.03.105	Hazardous Material Removal Allowance, Medium	1.67	RM	474,449.02	/RM	792,330
		40.03.110	Hazardous Material Removal Allowance, Heavy	0.51	RM	474,449.00	/RM	241,969
		40.03.150	Removal of Contaminated Soil	1,025,000.0 0	CF	4.35	/CF	4,461,811
		40.04.105	Environmental Mitigation Allowance				/LS	175,232,754
		40.05.012 A	Retaining Wall - 1 Wall (Var. Height)	2,277.00	LF	44,475.78	/LF	101,271,351
		40.05.211	Sound Wall - 1 Wall (8' Avg. Height)	2,690.00	LF	868.67	/LF	2,336,727
		40.05.400 A	Basin at Avenue O	1.00	EA	286,931.88	/EA	286,932
		40.05.400 B	Basin at Avenue R	1.00	EA	16,794,259.48	/EA	16,794,259
		40.05.500 B	36" Drainage Pipe	414.00	LF	345.05	/LF	142,852
		40.05.500 C	48" Drainage Pipe	9,247.00	LF	642.99	/LF	5,945,770
		40.05.500 E	60" Drainage Pipe	1,090.00	LF	953.54	/LF	1,039,362
		40.05.600 C	10'x10' Drainage Box	1,120.00	LF	6,210.97	/LF	6,956,285
		40.05.600 D	Triple 21.5'x12' Drainage Box	3,333.00	LF	11,386.78	/LF	37,952,126
		40.05.700 A	12'x12' Open Channel	5,319.00	LF	3,105.48	/LF	16,518,072
		40.05.700 B	25'x12.5' Open Channel	2,095.00	LF	6,210.97	/LF	13,011,980
		40.05.800 A	Pumping Station	2.00	EA	345,053.83	/EA	690,108
		40.05.800 B	Basin Sump Pump	2.00	EA	345,053.83	/EA	690,108
		40.06.100	Temporary Facilities	1.00	LS	214,173,365.63	/LS	214,173,366
		40.07.010	Right of Way	1.00	LS	245,579,112.53	/LS	245,579,113
		40.08.425 A	Avenue R Overhead. Roadway Overcrossing - 4 lane - 6 spans	1.00	EA	15,006,161.70	/EA	15,006,162
		40.08.425 B	Palmdale blvd Overhead. Roadway Overcrossing - 6 lane, 10' shoulders, 8' sidewalks - 5 spans	1.00	EA	24,108,848.03	/EA	24,108,848
		40.08.425 C	Palmdale blvd Overcorssing. Roadway Overcrossing - 6 lane, 10' shoulders, 8' sidewalks - 1 span	1.00	EA	3,641,870.98	/EA	3,641,871
		50.01.000	Wayside Signaling Equipment	3.13	RM	1,225,425.95	/RM	3,835,583
		50.04.000	Traffic Control and Dispatching Systems	3.13	RM	118,849.24	/RM	371,998
		50.04.010 A	New Traffic Signal	11.00	EA	1,077,129.60	/EA	11,848,426
		50.04.020 A	Traffic Signal Modification	2.00	EA	4,679,603.17	/EA	9,359,206

Alternatives	Sub Section	UPE	Description	Takeoff Quantity		Grand Total Price		Grand Total (2018\$)
		50.05.000	Communications	3.13	RM	1,125,265.26	/RM	3,522,080
		50.07.000	Hazard Detectors	3.13	RM	998,620.90	/RM	3,125,683
		60.02.000	Traction Power Supply	3.13	RM	2,967,687.88	/RM	9,288,863
		60.03.000	Traction Power Distribution	3.13	RM	3,136,142.49	/RM	9,816,126
		60.04.000	Traction Power Control	3.13	RM	4,937.91	/RM	15,456
		80.00.010	Professional Services	1.00	LS	995,132,214.89	/LS	995,132,215
		90.00.00	Unallocated Contingency	1.00	LS	267,686,347.53	/LS	267,686,348
			01.PLM Palmdale Subsection					3,190,677,161
	02.E1 Cen		E1 Central					
		10.01.122 A	Elevated Structure North of Foreston Drive - 1 Track (10' Avg. Pier Ht) Avg 115' span	1.00	EA	30,195,166.51	/EA	30,195,167
		10.01.123 A	Elevated Structure South of Foreston Drive - 1 Track (37' Avg. Pier Ht) Avg 115' span	1.00	EA	64,742,895.04	/EA	64,742,895
		10.01.222 A	Elevated Structure Tuxford st - 2 Track U-Shape girder (20' Avg. Pier Ht) Avg 110' span	2.00	EA	6,312,265.74	/EA	12,624,531
		10.01.222 B	Elevated Structure Hansen Dam spillway - 2 Track 2 U-Shape girder ave 110' span	1.00	EA	4,694,561.87	/EA	4,694,562
		10.01.222 C	Elevated Structure Sheldon St - 2 Track 2 U-Shape girder ave 110' span	1.00	EA	6,260,728.95	/EA	6,260,729
		10.01.223 A	Elevated Structure Aliso Canyon - 2 Track Train Detention Zone (20' Avg. Pier Ht) Box culvert @ abutment	1.00	EA	43,382,526.91	/EA	43,382,527
		10.02.060 F	Vulcan Mine Hopper facility Steel Structure - Steel portal frames Structure with 1 Track 4-21' spans	1.00	EA	12,665,564.81	/EA	12,665,565
		10.04.100 A	36" Drainage Pipe	8,928.00	LF	315.93	/LF	2,820,657
		10.04.100 B	48" Drainage Pipe	2,584.00	LF	568.68	/LF	1,469,471
		10.04.100 C	72" Drainage Pipe	2,033.00	LF	1,074.18	/LF	2,183,798
		10.05.121	At-Grade Track-bed in Cut - 2 Track (5' Avg. Exc Depth)	0.43	RM	8,001,053.88	/RM	3,440,453
		10.05.122	At-Grade Track-bed in Cut - 2 Track (10' Avg. Exc Depth)	1.44	RM	9,875,660.51	/RM	14,220,951
		10.05.123	At-Grade Track-bed in Cut - 2 Track (15' Avg. Exc Depth)	0.36	RM	12,043,858.19	/RM	4,335,789
		10.05.124	At-Grade Track-bed in Cut - 2 Track (20' Avg. Exc Depth)	1.64	RM	14,510,786.01	/RM	23,797,689
		10.05.126	At-Grade Track-bed in Cut - 2 Track (40' Avg. Exc Depth)	0.69	RM	27,853,887.01	/RM	19,219,182
		10.05.128	At-Grade Track-bed in Cut - 2 Track (60' Avg. Exc Depth)	1.05	RM	46,287,128.18	/RM	48,601,485
		10.05.130	At-Grade Track-bed in Cut - 2 Track (80' Avg. Exc Depth)	0.65	RM	69,509,206.68	/RM	45,180,984
		10.05.132	At-Grade Track-bed in Cut - 2 Track (100' Avg. Exc Depth)	0.43	RM	98,500,328.91	/RM	42,355,141
		10.05.221	At-Grade Track-bed in Fill - 2 Track (5' Avg. Fill Ht)	1.04	RM	5,953,956.00	/RM	6,192,114

Alternatives	Sub Section	UPE	Description	Takeoff Quantity		Grand Total Price		Grand Total (2018\$)
		10.05.222	At-Grade Track-bed in Fill - 2 Track (10' Avg. Fill Ht)	0.66	RM	7,094,585.20	/RM	4,682,426
		10.05.223	At-Grade Track-bed in Fill - 2 Track (15' Avg. Fill Ht)	0.45	RM	8,533,944.53	/RM	3,840,275
		10.05.224	At-Grade Track-bed in Fill - 2 Track (20' Avg. Fill Ht)	0.48	RM	10,261,755.75	/RM	4,925,643
		10.05.228	At-Grade Track-bed in Fill - 2 Track (60' Avg. Fill Ht)	1.20	RM	34,911,414.04	/RM	41,893,697
		10.07.100	TBM Single Track Twin Tunnels	18.04	RM	273,405,038.93	/RM	4,932,226,902
		10.07.107 A	Double Fault Chamber (for twin tunnels)	1.29	RM	657,892,448.90	/RM	848,681,259
		10.07.214	Cut & Cover Box - 2 Track / 1 Box (40' Avg. Exc Depth) (Add Mech & Elec from 10.07.902)	0.14	RM	245,100,799.70	/RM	33,088,608
		10.07.215	Cut & Cover Box - 2 Track / 1 Box (50' Avg. Exc Depth) (Add Mech & Elec from 10.07.902)	0.12	RM	285,768,813.25	/RM	35,149,564
		10.07.216	Cut & Cover Box - 2 Track / 1 Box (60' Avg. Exc Depth) (Add Mech & Elec from 10.07.902)	0.06	RM	349,017,856.61	/RM	21,639,107
		10.07.224 A	UG Structure Barrel Springs rd - Two portal boxes for 2 + 2 roadway lanes + external shoulders 2x40'6 Horizontal Clearance	1.00	RF	8,323,922.03	/RF	8,323,922
		10.07.224 B	Aliso canyon acc. rd south. UG Structure - Two portal boxes for 2 + 2 roadway lanes + external shoulders 2x41'6 Horizontal Clearance	1.00	EA	12,012,516.55	/EA	12,012,517
		10.07.225	Cut & Cover Box - 2 Track / 2 Box (50' Avg. Exc Depth) (Add Mech & Elec from 10.07.902)	0.06	RM	400,918,930.33	/RM	24,055,136
		10.07.226	Cut & Cover Box - 2 Track / 2 Box (60' Avg. Exc Depth) (Add Mech & Elec from 10.07.902)	0.14	RM	496,048,371.00	/RM	69,446,772
		10.07.227 A	Cut & Cover Box -2 Tracks/ 2 Boxes (70' Exc Depth)	0.36	RM	601,769,201.53	/RM	216,636,913
		10.07.301	SEM Tunnels	1.23	RM	545,494,432.98	/RM	670,958,153
		10.07.450	Mined Single Track Twin Tunnels	5.28	RM	389,715,159.68	/RM	2,057,696,043
		10.07.503	Crosspassages	176.00	EA	2,131,822.66	/EA	375,200,789
		10.07.504	Underground Paralleling/Switching Station	4.00	Ea	7,194,023.87	/Ea	28,776,095
		10.07.803 A	TBM Launching Twin Tunnels	1.00	Ea	206,684,692.48	/Ea	206,684,692
		10.07.806 A	Mountain Portal Construction	3.00	Ea	5,734,794.66	/Ea	17,204,384
		10.07.808 A	Adit mountain portal construction	1.00	Ea	2,867,397.33	/Ea	2,867,397
		10.07.809	ADIT Construction	0.76	mile	553,913,540.80	/mile	420,974,291
		10.07.809 F	Underground TBM Dissassembly chamber	4.00	Ea	19,006,914.00	/Ea	76,027,656
		10.07.810 A	Tunnel Portal facilities, as described in TM 2.4.6. TSEFCZ excluded	4.00	EA	5,527,762.36	/EA	22,111,049
		10.07.811 A	Train Surface Evacuation and Fire Control Zone (TSEFCZ)	3.00	EA	132,713.01	/EA	398,139
		10.07.812	Binocular shafts	1.00	EA	102,383,742.95	/EA	102,383,743
		10.07.850	Pumping Station	3.00	ea	345,053.83	/ea	1,035,161

Alternatives	Sub Section	UPE	Description	Takeoff Quantity		Grand Total Price		Grand Total (2018\$)
		10.07.920 A	Tunnel Ventilation System - A	23.06	RM	25,131,859.28	/RM	579,590,939
		10.07.920 C	Tunnel Ventilation System - C	2.22	RM	25,131,859.28	/RM	55,792,728
		10.07.950 A	Construction Monitoring inside TBM twin tunnels	18.04	RM	2,252,345.78	/RM	40,632,318
		10.07.950 C	Construction Monitoring inside Cross Passages	176.00	EA	181,429.30	/EA	31,931,558
		10.07.950 D	Construction Monitoring inside Mined or SEM Single tunnel, incl adits	7.25	Mile	4,532,075.03	/Mile	32,857,544
		10.07.950 E	Construction Monitoring inside Mined Underground Paralleling Station	5.00	EA	725,717.22	/EA	3,628,586
		10.07.950 G	Surface and Building Monitoring	3.46	RM	2,751,252.21	/RM	9,519,333
		10.08.221	Retained Cut, Trench - 2 Track (10' Avg. Exc Depth)	0.46	RM	64,164,108.53	/RM	29,258,833
		10.08.222	Retained Cut, Trench - 2 Track (20' Avg. Exc Depth)	0.79	RM	135,003,094.24	/RM	106,112,432
		10.08.223	Retained Cut, Trench - 2 Track (30' Avg. Exc Depth)	0.79	RM	227,989,037.76	/RM	179,199,384
		10.08.421	Retained Fill, Wall Both Sides - 2 Tracks (10' Avg. Wall Ht)	1.79	RM	16,439,365.72	/RM	29,426,465
		10.08.422	Retained Fill, Walls Both Sides - 2 Tracks (20' Avg. Wall Ht)	0.31	RM	27,830,505.11	/RM	8,710,948
		10.08.423	Retained Fill, Walls Both Sides - 2 Tracks (30' Avg. Wall Ht)	0.44	RM	48,767,907.78	/RM	21,262,808
		10.09.110	Ballasted Track - 1 Track	0.17	RM	2,231,957.65	/RM	379,433
		10.09.110 A	SCRRA Ballasted Track - 1 Track	1.62	RM	2,059,744.57	/RM	3,336,786
		10.09.120	Ballasted Track - 2 Track	17.22	RM	4,025,610.99	/RM	69,321,021
		10.09.120 A	SCRRA Ballasted Track - 2 Track	0.66	RM	3,953,750.79	/RM	2,609,476
		10.09.910	Ballasted Track Relocation - 1 Track (Temporary)	0.26	RM	2,802,459.42	/RM	728,639
		10.09.920	Ballasted Track Relocation - 1 Track (Permanent)	0.45	RM	2,802,459.47	/RM	1,261,107
		10.10.120	Direct Fixation - 2 Track	17.86	RM	3,574,679.33	/RM	63,843,773
		10.14.200 b	Ballasted Turnout (30MPH)	2.00	EA	94,780.15	/EA	189,560
		10.14.200 C	Ballasted Turnout (50MPH)	1.00	EA	265,384.41	/EA	265,384
		10.14.305	Ballasted Crossover (80MPH)	1.00	EA	1,120,459.33	/EA	1,120,459
		20.07.010 A	1 Lane Roadway Modification, New AC Paving (SR14 EB On/Off Ramps at Pearblossom, Sta 90+40 to 122+25)	74,952.00	SF	16.69	/SF	1,251,299
		20.07.011 A	2 Lane Roadway Modification, New AC Paving (Sierra Hwy south of Ave S, Sta 728+00 to 775+12)	148,224.00	SF	27.84	/SF	4,125,933
		20.07.011 B	2 Lane Roadway Modification, New AC Paving (Realigned Sierra Hwy at Pearblossom, Sta 86+70 to 114+66)	111,440.00	SF	16.69	/SF	1,859,495
		20.07.011 C	2 Lane Roadway Modification, New AC Paving, painted median (Angeles Forest Hwy, Sta 1+33 to 48+86)	266,168.00	SF	31.39	/SF	8,353,823

Alternatives	Sub Section	UPE	Description	Takeoff Quantity		Grand Total Price		Grand Total (2018\$)
		20.07.011 D	2 Lane Roadway Modification, New AC Paving, painted median (Mountain Springs Rd Sta 85+88 to 98+96)	67,912.00	SF	37.82	/SF	2,568,204
		20.07.011 E	2 Lane Roadway Modification, New AC Paving (Carson Mesa Rd Sta 8+50 to 19+74)	59,800.00	SF	38.93	/SF	2,328,185
		20.07.011 F	2 Lane Roadway Modification, New AC Paving (Foreston Dr Sta 91+00 to 132+33)	122,592.00	SF	17.94	/SF	2,198,861
		20.07.011 G	2 Lane Roadway Modification, New AC Paving (Foreston Dr Sta 91+00 to 132+33)	134,060.00	SF	60.62	/SF	8,126,093
		20.07.020 A	2 Lane Roadway Modification, New AC Paving with Curb & Gutter, Sidewalk (Avenue O St Sta 10+00 to 16+64)	67,688.00	SF	17.77	/SF	1,203,009
		20.07.020 B	2 Lane Roadway Modification, New AC Paving with Curb & Gutter, Sidewalk (Cul-de-Sacs, private streets 36' to 40' wide)	148,240.00	SF	19.95	/SF	2,957,003
		20.07.020 C	2 Lane Roadway Modification, New AC Paving including Curb & Sidewalk (E Avenue R11/Valley Forge from Sta 10+36 to Sta 18+38)	49,453.00	SF	21.25	/SF	1,050,894
		20.07.020 D	2 Lane Roadway Modification, New AC Paving including one-sided Curb & Sidewalk, painted median (Sierra Hwy north of Ave S, Sta 708+63 to 728+00)	80,482.00	SF	18.79	/SF	1,512,025
		20.07.021 E	4 Lane Roadway Modification, New AC Paving with partial Curb & Gutter, Sidewalk (Tenth St at Ave S, Sta 10+49 to 32+38)	170,821.50	SF	22.03	/SF	3,763,429
		20.07.021 F	4 Lane Roadway Modification, New AC Paving, raised/painted median (Sierra Hwy at Pearblossom Int., Sta 4+27 to 34+50)	263,514.00	SF	16.62	/SF	4,378,339
		20.07.023 A	2 Lane Roadway Modification, New AC Paving including Curb & Sidewalk (E Avenue R11/Valley Forge)	379,752.00	SF	22.01	/SF	8,357,732
		20.07.024 A	2 Lane Roadway Modification, New AC Paving, Curb & Gutter (Sixth St at Barrel Springs Sta 7+66 to 13+60)	58,400.00	SF	22.45	/SF	1,311,191
		20.07.024 B	4 Lane Roadway Modification, New AC Paving, raised/painted median (Barrel Springs, Sta 16+30 to 47+30)	53,314.00	SF	29.36	/SF	1,565,301
		20.07.025 A	6 Lane Roadway Modification, New AC Paving with Curb & Gutter, Sidewalk, Raised Median, Bike Path (Avenue S, Sta 82+50 to 117+80)	93,240.00	SF	29.19	/SF	2,721,682
		20.07.026 A	2 Lane Roadway Modification, New AC Paving, Curb & Gutter (Private Road 1) (From Sta 12+64 to Sta 27+24)	32,852.00	SF	17.40	/SF	571,709
		20.07.026 B	2 Lane Roadway Modification, New AC Paving, Curb & Gutter (Ralston Avenue) (Froms Sta 10+31 to Sta 24+34)	54,534.00	SF	17.23	/SF	939,689
		20.07.026 C	2 Lane Roadway Modification, New AC Paving, Curb & Gutter (Wicks St Cul-de-sac)	5,115.00	SF	19.59	/SF	100,182
		20.07.026 D	4 Lane Roadway Modification, New AC Paving, Curb & Gutter, Sidewalks (Branford St) (From Sta 13+34 to Sta 25+80)	60,670.00	SF	20.67	/SF	1,253,995
		20.07.026 E	4 Lane Roadway Modification, New AC Paving, Curb & Gutter, Sidewalks, Painted/Raised Median (Sheldon St) (From Sta 8+88 to Sta 12+70)	25,593.00	SF	19.75	/SF	505,389
		40.01.010	Demolition Allowance, Bridge	14,495.00	sf	44.77	/sf	648,894
		40.01.010 A	Demolition Allowance, Masonry/Sound Wall	3,927.00	LF	33.48	/LF	131,494
		40.01.050	Demolition Allowance, Building 1 Story	969,700.00	SF	32.50	/SF	31,519,197
		40.01.110	Demolition Allowance, Asphalt Pavement	353,841.00	SY	62.35	/SY	22,061,481
		40.01.110 A	Demolition Allowance, Concrete Pavement	14,661.00	SY	40.37	/SY	591,884
		40.01.140	Demolition Allowance, Concrete Curb	9,220.00	LF	19.12	/LF	176,249
		40.01.140 A	Demolition Allowance, Concrete Curb & Gutter	14,593.00	LF	20.58	/LF	300,362
		40.01.150	Demolition Allowance, Concrete Sidewalk	14,211.00	SY	132.43	/SY	1,882,001

Alternatives	Sub Section	UPE	Description	Takeoff Quantity		Grand Total Price		Grand Total (2018\$)
		40.01.810	Demolition Allowance, Remove Railroad Track	21,381.00	LF	37.17	/LF	794,715
		40.02.107 A	Natural Gas Pipeline, 3" to 8" Dia.	9,728.00	LF	327.12	/LF	3,182,203
		40.02.108 A	Natural Gas Pipeline, 10" to 18" Dia.	1,570.00	LF	354.72	/LF	556,914
		40.02.110 A	Natural Gas Pipeline, 30" to 42" Dia.	4,850.00	LF	515.24	/LF	2,498,907
		40.02.116 A	Potable Water Pipeline, <10"	17,360.00	LF	327.12	/LF	5,678,767
		40.02.116 B	Potable Water Pipeline, 10" to 16"	32,450.00	LF	339.95	/LF	11,031,419
		40.02.117 A	Potable Water Pipeline, 18" to 24"	11,050.00	LF	520.07	/LF	5,746,767
		40.02.118 A	Potable Water Pipeline, 27" to 33"	400.00	LF	728.21	/LF	291,283
		40.02.119 A	Efluent Water Pipeline, 36" to 48" Dia.	520.00	LF	982.97	/LF	511,145
		40.02.119 B	Runoff Water Pipeline, 48" Dia.	1,500.00	LF	982.97	/LF	1,474,456
		40.02.121 A	Overhead Power Trans Facility (≥ 69 kV)	12,715.00	LF	7,851.30	/LF	99,829,302
		40.02.122 A	Overhead Power Trans Facility (< 69 kV)	37,697.00	LF	621.10	/LF	23,413,490
		40.02.123 A	Underground Power Trans Facility (12 kV)	4,674.00	LF	368.75	/LF	1,723,536
		40.02.123 B	Underground Power Trans Facility (>69 kV)	1,270.00	LF	451.06	/LF	572,845
		40.02.127 A	Sewer, Gravity Pipeline, <10" Dia.	4,795.00	LF	431.33	/LF	2,068,206
		40.02.127 B	Sewer, Gravity Pipeline, 10" to 18" Dia.	1,876.00	LF	471.76	/LF	885,028
		40.02.150 A	Electrical/Telephone Ductbank	500.00	LF	368.75	/LF	184,375
		40.02.150 B	Fiber Optic Ductbank	1.00	LF	366.74	/LF	367
		40.02.150 C	Tel San Fernando Rd: East of CL	15,556.00	LF	368.75	/LF	5,736,276
		40.02.150 D	Tel San Fernando Rd: West of CL	15,465.00	LF	368.75	/LF	5,702,722
		40.02.200 A	Tel San Fernando Rd: West of CL	1.00	LF		/LF	
		40.03.100	Hazardous Material Removal Allowance, Light	0.89	RM	474,449.03	/RM	422,260
		40.03.105	Hazardous Material Removal Allowance, Medium	3.98	RM	474,449.02	/RM	1,885,935
		40.03.110	Hazardous Material Removal Allowance, Heavy	4.72	RM	474,449.01	/RM	2,237,027
		40.03.150	Removal of Contaminated Soil	117,589,211 .00	CF	4.35	/CF	511,864,281
		40.04.105	Environmental Mitigation Allowance	1.00	LS	175,232,753.68	/LS	175,232,754
		40.05.012 A	Retaining Wall - 1 Wall (Var. Height)	2,898.00	LF	44,475.78	/LF	128,890,810

Alternatives	Sub Section	UPE	Description	Takeoff Quantity		Grand Total Price		Grand Total (2018\$)
		40.05.211	Sound Wall - 1 Wall (8' Avg. Height)	3,820.00	LF	868.67	/LF	3,318,326
		40.05.401 C	Basin E1/E2 Sta 620+44	1.00	EA	359,459.32	/EA	359,459
		40.05.401 D	Basin E1/E2 Sta 633+70	1.00	EA	438,559.18	/EA	438,559
		40.05.401 E	Basin E1/E2 Sta 729+58	1.00	EA	356,322.67	/EA	356,323
		40.05.401 F	Basin E1/E2 Sta 745+60	1.00	EA	330,759.41	/EA	330,759
		40.05.401 G	Drainage course re-routing	1.00	EA	5,622,169.29	/EA	5,622,169
		40.05.403 A	Basin E1 Sta 1895+39	1.00	EA	576,939.08	/EA	576,939
		40.05.403 B	Basin E1 Sta 1909+87	1.00	EA	584,366.19	/EA	584,366
		40.05.500 A	24" Drainage Pipe	3,050.00	LF	310.55	/LF	947,173
		40.05.500 C	48" Drainage Pipe	5,200.00	LF	642.99	/LF	3,343,572
		40.05.500 E	60" Drainage Pipe	2,766.00	LF	953.54	/LF	2,637,501
		40.05.500 F	72" Drainage Pipe	66.00	LF	1,173.18	/LF	77,430
		40.05.600 B	10.5'x6.5' Drainage Box	1,342.00	LF	3,450.54	/LF	4,630,622
		40.05.800 A	Pumping Station	1.00	EA	345,053.83	/EA	345,054
		40.06.100	Temporary Facilities	1.00	LS	214,173,365.62	/LS	214,173,366
		40.07.010	Right of Way	1.00	LS	631,537,239.92	/LS	631,537,240
		40.08.422 A	Mountain Springs rd West Overhead. Roadway Overcrossing - 2 lane roadway over 3 tracks	1.00	EA	4,687,045.03	/EA	4,687,045
		40.08.422 B	Foreston drive Overhead. Roadway Overcrossing - 2 lane roadway over highway	1.00	EA	6,640,399.75	/EA	6,640,400
		40.08.422 C	Foreston South Access Road. Access road bridge to tunnel portal - 2 lane roadway	1.00	EA	21,047,786.81	/EA	21,047,787
		40.08.422 D	Aliso canyon Access Road north. Access road bridge to tunnel portal - 2 lane roadway	1.00	EA	9,145,824.42	/EA	9,145,824
		40.08.422 E	Adit access road E1 STA 1485. Access road bridge to tunnel portal - 2 lane roadway	1.00	EA	6,642,417.09	/EA	6,642,417
		40.08.425 D	Avenue S Overcrossing. Roadway Overcrossing - 6 lane, 10' shoulders, 8' sidewalks, 10' bike lane - 1 span	1.00	EA	5,512,250.58	/EA	5,512,251
		40.08.425 E	Avenue S Overhead. Roadway Overcrossing - 6 lane, 10' shoulders, 8' sidewalks, 10' bike lane - 3 spans	1.00	EA	11,770,539.51	/EA	11,770,540
		40.08.425 G	Brandford st Overhead. Roadway Overcrossing - 4 lane - 1 span	1.00	EA	4,609,846.53	/EA	4,609,847
		50.01.000	Wayside Signaling Equipment	35.08	RM	1,225,425.94	/RM	42,987,942
		50.04.000	Traffic Control and Dispatching Systems	35.08	RM	118,849.24	/RM	4,169,232
		50.04.010 A	New Traffic Signal	5.00	EA	1,077,129.60	/EA	5,385,648

Alternatives	Sub Section	UPE	Description	Takeoff Quantity		Grand Total Price		Grand Total (2018\$)
		50.04.020 A	Traffic Signal Modification	2.00	EA	4,679,603.17	/EA	9,359,206
		50.05.000	Communications	35.08	RM	1,125,265.25	/RM	39,474,305
		50.07.000	Hazard Detectors	35.08	RM	998,620.90	/RM	35,031,621
		60.02.000	Traction Power Supply	35.08	RM	2,967,687.87	/RM	104,106,491
		60.03.000	Traction Power Distribution	35.08	RM	3,136,142.49	/RM	110,015,879
		60.04.000	Traction Power Control	35.08	RM	4,937.91	/RM	173,222
		80.00.010	Professional Services	1.00	LS	995,132,214.85	/LS	995,132,215
		90.00.00	Unallocated Contingency	1.00	LS	267,686,347.53	/LS	267,686,348
			02.E1 Cen E1 Central					15,563,871,427
	05.BUR (E1/SR 14)		Burbank E1/SR14					
		10.07.214	Cut & Cover Box - 2 Track / 1 Box (40' Avg. Exc Depth) (Add Mech & Elec from 10.07.902)	0.10	RM	245,100,799.80	/RM	24,510,080
		10.07.215	Cut & Cover Box - 2 Track / 1 Box (50' Avg. Exc Depth) (Add Mech & Elec from 10.07.902)	0.09	RM	285,768,854.33	/RM	25,719,197
		10.07.216	Cut & Cover Box - 2 Track / 1 Box (60' Avg. Exc Depth) (Add Mech & Elec from 10.07.902)	0.08	RM	349,017,822.50	/RM	27,921,426
		10.07.219 A	Cut & Cover Box - 2 Track / 1 Box (100' Avg. Exc Depth)	0.38	RM	596,702,803.21	/RM	226,747,065
		10.07.250 A	Cut & Cover Box -Burbank Station (85' Avg. Exc Depth)	0.27	RM	1,054,655,510.44	/RM	284,744,932
		10.07.250 B	Cut & Cover Box - 4track/1Box (100' Avg. Exc Depth)	0.01	RM	1,206,898,832.86	/RM	16,895,868
		10.07.250 C	Cut & Cover Box - 3track/1Box (100' Avg. Exc Depth)	0.02	RM	1,206,898,832.73	/RM	26,550,650
		10.07.250 D	Cut & Cover Box - 5track/1Box (100' Avg. Exc Depth)	0.15	RM	1,206,898,832.95	/RM	179,820,313
		10.07.301	SEM Tunnels	0.23	RM	791,408,913.00	/RM	182,024,050
		10.07.920 C	Tunnel Ventilation System - C	0.12	RM	25,131,859.34	/RM	3,066,087
		10.07.950 D	Construction Monitoring inside Mined or SEM Single tunnel, incl adits	0.12	Mile	4,532,075.00	/Mile	552,913
		10.07.950 G	Surface and Building Monitoring	0.12	RM	2,751,252.25	/RM	330,150
		10.08.221	Retained Cut, Trench - 2 Track (10' Avg. Exc Depth)	0.07	RM	64,164,112.71	/RM	4,491,488
		10.08.222	Retained Cut, Trench - 2 Track (20' Avg. Exc Depth)	0.10	RM	135,003,091.50	/RM	13,500,309
		10.08.223	Retained Cut, Trench - 2 Track (30' Avg. Exc Depth)	0.11	RM	227,989,038.09	/RM	25,078,794
		10.10.110	Direct Fixation - 1 Track	1.69	RM	1,787,636.79	/RM	3,021,106
		10.10.120	Direct Fixation - 2 Track	0.55	RM	3,574,679.36	/RM	1,966,074

Alternatives	Sub Section	UPE	Description	Takeoff Quantity		Grand Total Price		Grand Total (2018\$)
		10.14.200	Ballasted Turnout (60MPH)	4.00	EA	449,901.15	/EA	1,799,605
		10.14.200 A	Ballasted Turnout (25MPH)	2.00	EA	265,384.42	/EA	530,769
		10.14.200 b	Ballasted Turnout (30MPH)	1.00	EA	94,780.15	/EA	94,780
		10.14.305	Ballasted Crossover (80MPH)	2.00	EA	1,120,459.33	/EA	2,240,919
		10.14.400	Terminal Bumping Post	4.00	EA	25,274.71	/EA	101,099
		20.01.247 A	Main and Secondary Station Buildings	141,954.00	sf	483.08	/sf	68,574,480
		20.01.247 B	Auxiliary Building	10,000.00	sf	289.85	/sf	2,898,452
		20.03.001 C	HSR Platform (underground)	84,600.00	SF	552.09	/SF	46,706,487
		20.06.201 B	Parking Walkway (Standard Sidewalks)	316,516.00	SF	19.25	/SF	6,092,486
		20.06.201 C	Parking Walkway (Enhanced Plazas)	410,764.00	SF	23.49	/SF	9,646,815
		20.06.800 A	Landscape	512,103.00	SF	18.32	/SF	9,379,401
		40.01.010	Demolition Allowance, Bridge	4,028.00	sf	44.77	/sf	180,321
		40.01.010 A	Demolition Allowance, Masonry/Sound Wall	1,873.00	LF	33.48	/LF	62,717
		40.01.010 B	Demolition Allowance, Retaining Wall	3,967.00	LF	33.48	/LF	132,833
		40.01.050	Demolition Allowance, Building 1 Story	661,944.00	SF	32.50	/SF	21,515,875
		40.01.110	Demolition Allowance, Asphalt Pavement	189,536.95	SY	62.35	/SY	11,817,358
		40.01.110 A	Demolition Allowance, Concrete Pavement	12,154.00	SY	40.37	/SY	490,673
		40.01.140	Demolition Allowance, Concrete Curb	2,877.00	LF	19.12	/LF	54,997
		40.01.140 A	Demolition Allowance, Concrete Curb & Gutter	19,107.40	LF	20.58	/LF	393,280
		40.01.150	Demolition Allowance, Concrete Sidewalk	16,012.40	SY	132.43	/SY	2,120,566
		40.01.810	Demolition Allowance, Remove Railroad Track	32,462.00	LF	37.17	/LF	1,206,587
		40.02.107 A	Natural Gas Pipeline, 3" to 8" Dia.	5,399.00	LF	327.12	/LF	1,766,110
		40.02.108 A	Natural Gas Pipeline, 10" to 18" Dia.	880.00	LF	354.72	/LF	312,156
		40.02.111 A	Oil Pipeline, 6" to 15" Dia.	11,510.00	LF	354.72	/LF	4,082,853
		40.02.112 A	Oil Pipeline, 18" to 24" Dia.	11,750.00	LF	354.72	/LF	4,167,986
		40.02.116 A	Potable Water Pipeline, <10"	2,150.00	LF	327.12	/LF	703,304
		40.02.116 B	Potable Water Pipeline, 10" to 16"	2,070.00	LF	339.95	/LF	703,699

Alternatives	Sub Section	UPE	Description	Takeoff Quantity		Grand Total Price		Grand Total (2018\$)
		40.02.117 A	Potable Water Pipeline, 18" to 24"	1,900.00	LF	520.07	/LF	988,132
		40.02.118 A	Potable Water Pipeline, 27" to 33"	501.00	LF	728.21	/LF	364,832
		40.02.119 A	Efluent Water Pipeline, 36" to 48" Dia.	5,350.00	LF	982.97	/LF	5,258,892
		40.02.122 A	Overhead Power Trans Facility (< 69 kV)	7,180.00	LF	621.10	/LF	4,459,476
		40.02.123 A	Underground Power Trans Facility (12 kV)	4,680.00	LF	368.75	/LF	1,725,750
		40.02.127 A	Sewer, Gravity Pipeline, <10" Dia.	2,080.00	LF	431.32	/LF	897,156
		40.02.127 B	Sewer, Gravity Pipeline, 10" to 18" Dia.	1,800.00	LF	471.76	/LF	849,172
		40.02.128 A	Sewer, Gravity Pipeline, 21" to 30" Dia.	200.00	LF	637.39	/LF	127,478
		40.02.150 C	Tel San Fernando Rd: East of CL	12,896.00	LF	368.75	/LF	4,755,401
		40.02.150 D	Tel San Fernando Rd: West of CL	15,740.00	LF	368.75	/LF	5,804,125
		40.03.110	Hazardous Material Removal Allowance, Heavy	0.57	RM	474,449.00	/RM	270,436
		40.03.150	Removal of Contaminated Soil	36,310,326.03	CF	4.35	/CF	158,058,369
		40.04.105	Environmental Mitigation Allowance	1.00	LS	175,232,753.70	/LS	175,232,754
		40.05.012 A	Retaining Wall - 1 Wall (Var. Height)	5,698.00	LF	44,475.78	/LF	253,422,993
		40.05.500 A	24" Drainage Pipe	744.00	LF	310.55	/LF	231,048
		40.05.500 C	48" Drainage Pipe	1,323.00	LF	643.00	/LF	850,682
		40.05.500 E	60" Drainage Pipe	867.00	LF	953.54	/LF	826,721
		40.05.500 G	42" Drainage Pipe	165.00	LF	586.59	/LF	96,788
		40.05.600 A	8.5'x5' Drainage Box	156.00	LF	2,760.43	/LF	430,627
		40.05.700 C	3'x3' Open Channel	2,108.00	LF	1,380.22	/LF	2,909,494
		40.06.100	Temporary Facilities	1.00	LS	214,173,365.63	/LS	214,173,366
		40.07.010	Right of Way	1.00	LS	395,559,834.74	/LS	395,559,835
		50.01.000	Wayside Signaling Equipment	0.55	RM	1,225,425.93	/RM	673,984
		50.04.000	Traffic Control and Dispatching Systems	0.55	RM	118,849.25	/RM	65,367
		50.04.010 A	New Traffic Signal	2.00	EA	1,077,129.60	/EA	2,154,259
		50.05.000	Communications	0.55	RM	1,125,265.27	/RM	618,896
		50.07.000	Hazard Detectors	0.55	RM	998,620.89	/RM	549,241

Alternatives	Sub Section	UPE	Description	Takeoff Quantity		Grand Total Price		Grand Total (2018\$)
		60.02.000	Traction Power Supply	0.55	RM	2,967,687.87	/RM	1,632,228
		60.03.000	Traction Power Distribution	0.55	RM	3,136,142.49	/RM	1,724,878
		60.04.000	Traction Power Control	0.55	RM	4,937.93	/RM	2,716
		80.00.010	Professional Services	1.00	LS	995,132,214.88	/LS	995,132,215
		90.00.00	Unallocated Contingency	1.00	LS	267,686,347.53	/LS	267,686,348
			05.BUR(E1/SR14) Burbank E1/SR14					3,742,250,766
			01. E1 E1 End to End Alternative 2018\$					22,496,799,354
02.E2			E2 End to End Alternative 2018\$					
	01.PLM		Palmdale Subsection					
		10.01.001 A	Steel Truss HSR viaduct, 1 track Sierra Hwy platform track 2x215' Span	2.00	EA	11,266,776.13	/EA	22,533,552
		10.01.002 A	Steel Truss HSR viaduct, 2 track Sierra Hwy platform track 2x215' Span	1.00	EA	13,460,730.67	/EA	13,460,731
		10.01.122 B	Elevated Structure Ave Q Platform Track - 1 Track (22' Avg. Pier Ht) Avg 105' span	2.00	EA	4,321,818.97	/EA	8,643,638
		10.01.222 A	Elevated Structure Tuxford st - 2 Track U-Shape girder (20' Avg. Pier Ht) Avg 110' span	1.00	EA	6,310,305.05	/EA	6,310,305
		10.02.060 A	Sierra Hwy Underpass (SCRAA) Bridge Structure - Two Span Steel Plate Girder Structure with 1 Track - 2 190' spans	1.00	EA	7,063,828.36	/EA	7,063,828
		10.02.060 B	Sierra Hwy Underpass (UPRR) Bridge Structure - Two Span Steel Plate Girder Structure with 1 Track 2-190' spans substructure for enlargement	1.00	EA	8,392,875.78	/EA	8,392,876
		10.02.060 E	Ave Q Underpass Railroad Bridge Structure - Single Span Steel Plate Girder Structure with 1 Track 1-105'span	3.00	EA	1,666,976.70	/EA	5,000,930
		10.04.100 A	36" Drainage Pipe	1,341.00	LF	315.84	/LF	423,536
		10.05.111	At-Grade Track-bed in Cut - 1 Track (5' Avg. Exc Depth)	0.68	RM	5,183,895.28	/RM	3,525,049
		10.05.112	At-Grade Track-bed in Cut - 1 Track (10' Avg. Exc Depth)	0.78	RM	6,837,794.83	/RM	5,333,480
		10.05.113	At-Grade Track-bed in Cut - 1 Track (15' Avg. Exc Depth)	0.08	RM	8,785,194.25	/RM	702,816
		10.05.114	At-Grade Track-bed in Cut - 1 Track (20' Avg. Exc Depth)	0.25	RM	11,026,093.40	/RM	2,756,523
		10.05.121	At-Grade Track-bed in Cut - 2 Track (5' Avg. Exc Depth)	0.66	RM	7,998,568.53	/RM	5,279,055
		10.05.122	At-Grade Track-bed in Cut - 2 Track (10' Avg. Exc Depth)	0.63	RM	9,872,592.97	/RM	6,219,734
		10.05.123	At-Grade Track-bed in Cut - 2 Track (15' Avg. Exc Depth)	0.07	RM	12,040,117.00	/RM	842,808
		10.05.124	At-Grade Track-bed in Cut - 2 Track (20' Avg. Exc Depth)	0.12	RM	14,506,278.75	/RM	1,740,753
		10.05.211	At-Grade Track-bed in Fill - 1 Track (5' Avg. Fill Ht)	2.63	RM	3,430,933.08	/RM	9,023,354
		10.05.212	At-Grade Track-bed in Fill - 1 Track (10' Avg. Fill Ht)	0.76	RM	4,351,083.18	/RM	3,306,823

Alternatives	Sub Section	UPE	Description	Takeoff Quantity		Grand Total Price		Grand Total (2018\$)
		10.05.221	At-Grade Track-bed in Fill - 2 Track (5' Avg. Fill Ht)	1.64	RM	5,952,106.58	/RM	9,761,455
		10.05.222	At-Grade Track-bed in Fill - 2 Track (10' Avg. Fill Ht)	0.63	RM	7,092,381.56	/RM	4,468,200
		10.07.114 A	Cut & Cover LMF crossing - 2 Tracks	1.00	EA	29,035,355.14	/EA	29,035,355
		10.08.213	Retained Cut, Trench - 1 Track (30' Avg. Exc Depth)	0.51	RM	178,846,013.98	/RM	91,211,467
		10.08.411	Retained Fill, Walls Both Sides - 1 Tracks (10' Avg. Wall Ht)	1.10	RM	13,736,036.74	/RM	15,109,640
		10.09.110	Ballasted Track - 1 Track	6.28	RM	2,231,261.71	/RM	14,012,324
		10.09.110 A	SCRRA Ballasted Track - 1 Track	1.42	RM	2,059,104.81	/RM	2,923,929
		10.09.120	Ballasted Track - 2 Track	3.13	RM	4,024,360.46	/RM	12,596,248
		10.09.120 A	SCRRA Ballasted Track - 2 Track	0.83	RM	3,952,522.43	/RM	3,280,594
		10.09.240	Ballasted Track - 2 Track (Station Track)	1.76	RM	8,048,721.27	/RM	14,165,749
		10.09.920	Ballasted Track Relocation - 1 Track (Permanent)	0.91	RM	2,801,588.95	/RM	2,549,446
		10.14.200	Ballasted Turnout (60MPH)	7.00	EA	449,761.40	/EA	3,148,330
		10.14.200 A	Ballasted Turnout (25MPH)	2.00	EA	265,301.98	/EA	530,604
		10.14.200 b	Ballasted Turnout (30MPH)	1.00	EA	94,750.71	/EA	94,751
		10.14.305	Ballasted Crossover (80MPH)	3.00	EA	1,120,111.30	/EA	3,360,334
		10.14.400	Terminal Bumping Post	2.00	EA	25,266.85	/EA	50,534
		10.14.500 A	Crossing Panels	38.00	EA	1,137.01	/EA	43,206
		20.01.247 A	Main and Secondary Station Buildings	80,182.00	sf	482.94	/sf	38,722,933
		20.01.247 B	Auxiliary Building	10,000.00	sf	289.76	/sf	2,897,628
		20.03.001 A	HSR Platform (at grade)	112,776.00	SF	551.93	/SF	62,244,358
		20.03.001 B	Metrolink Platform (at grade)	20,427.00	SF	551.93	/SF	11,274,256
		20.06.100 B	Pedestrian Bridges (Overhead) Avg 120' span x 20' wide	123,032.00	SF	654.36	/SF	80,507,132
		20.06.201 A	Parking Roadways Avg 330 sf per stall	5,853.45	sf	5,440.56	/sf	31,846,047
		20.06.201 B	Parking Walkway (Standard Sidewalks)	234,350.00	SF	19.24	/SF	4,509,624
		20.06.201 C	Parking Walkway (Enhanced Plazas)	160,283.00	SF	23.48	/SF	3,763,184
		20.06.800 A	Landscape	712,875.00	SF	18.31	/SF	13,052,918
		20.07.011 F	2 Lane Roadway Modification, New AC Paving (Foreston Dr Sta 91+00 to 132+33)	23,200.00	SF	17.93	/SF	416,007

Alternatives	Sub Section	UPE	Description	Takeoff Quantity		Grand Total Price		Grand Total (2018\$)
		20.07.020	Roadway Modification, New AC Paving (including Curb & Sidewalk)	74,154.08	SF	21.26	/SF	1,576,696
		20.07.020 E	2 Lane Roadway Modification, New AC Paving including Curb & Gutter, Sidewalk, painted median (Avenue Q) (From Sta 94+00 to Sta 130+00_	8,928.00	SF	18.28	/SF	163,194
		20.07.020 G	2 Lane Roadway Modification, New AC Paving including Curb & Gutter, Sidewalk (Avenue Q9 & Q12)	28,278.00	SF	20.41	/SF	577,269
		20.07.021 A	4 Lane Roadway Modification, New AC Paving with Curb & Gutter, Sidewalk, Raised Median, Bike Path (Fifth St Sta 100+55 to 167+00)4 Lane Roadway Modification, New AC Paving with Curb & Gutter, Sidewalk, Raised Median, Bike Path (Fifth St Sta 100+55 to 167+00)	627,200.00	SF	31.96	/SF	20,042,549
		20.07.021 B	4 Lane Roadway Modification, New AC Paving with Curb & Gutter, Sidewalk, Raised Median (Fifth St Sta 168+22 to 197+00)	332,831.52	SF	22.39	/SF	7,453,241
		20.07.021 C	4 Lane Roadway Modification, New AC Paving with Curb & Gutter, Sidewalk, Raised Median (Avenue R Sta 91+53 to 128+48)	245,055.54	SF	38.18	/SF	9,356,458
		20.07.021 D	4 Lane Roadway Modification, New AC Paving with Curb & Gutter, Sidewalk, (Sixth St Sta 10+00 to 50+15.07)	337,265.88	SF	20.24	/SF	6,825,737
		20.07.022 A	6 Lane Roadway Modification, New AC Paving with Curb & Gutter, Sidewalk, Raised Median, Bike Path (Sierra Hwy Sta 500+00 to 625.88)	345,600.00	SF	29.75	/SF	10,281,577
		20.07.022 B	6 Lane Roadway Modification, New AC Paving with Curb & Gutter, Sidewalk, Raised Median (Palmdale Blvd Sta 91+63 to 127+65)	1,611,264.00	SF	32.15	/SF	51,796,008
		20.07.022 C	6 Lane Roadway Modification, New AC Paving with Curb & Gutter, Sidewalk, Raised Median, Bike Path (Avenue S, Sta 82+50 to 117+80)	311,289.90	SF	29.18	/SF	9,083,989
		40.01.010 A	Demolition Allowance, Masonry/Sound Wall	22,020.00	LF	33.48	/LF	737,121
		40.01.050	Demolition Allowance, Building 1 Story	1,795,428.00	SF	32.49	/SF	58,342,122
		40.01.110	Demolition Allowance, Asphalt Pavement	1,278,163.00	SY	62.33	/SY	79,668,974
		40.01.110 A	Demolition Allowance, Concrete Pavement	55,794.67	SY	40.36	/SY	2,251,863
		40.01.140	Demolition Allowance, Concrete Curb	64,343.00	LF	19.11	/LF	1,229,630
		40.01.140 A	Demolition Allowance, Concrete Curb & Gutter	64,895.00	LF	20.58	/LF	1,335,328
		40.01.150	Demolition Allowance, Concrete Sidewalk	364,718.00	SY	132.40	/SY	48,286,861
		40.01.810	Demolition Allowance, Remove Railroad Track	4,350.00	LF	37.16	/LF	161,640
		40.01.900 A	Clearing & Grubbing Landscape Areas	1,218,518.00	SY	25.49	/SY	31,054,329
		40.02.107 A	Natural Gas Pipeline, 3" to 8" Dia.	2,128.00	LF	327.02	/LF	695,909
		40.02.108 A	Natural Gas Pipeline, 10" to 18" Dia.	790.00	LF	354.62	/LF	280,151
		40.02.116 A	Potable Water Pipeline, <10"	160.00	LF	327.03	/LF	52,324
		40.02.116 B	Potable Water Pipeline, 10" to 16"	21,728.00	LF	339.85	/LF	7,384,361
		40.02.117 A	Potable Water Pipeline, 18" to 24"	825.00	LF	519.92	/LF	428,935
		40.02.121 A	Overhead Power Trans Facility (≥ 69 kV)	7,375.00	LF	7,849.07	/LF	57,886,883
		40.02.122 A	Overhead Power Trans Facility (< 69 kV)	4,490.00	LF	620.92	/LF	2,787,932

Alternatives	Sub Section	UPE	Description	Takeoff Quantity		Grand Total Price		Grand Total (2018\$)
		40.02.127 A	Sewer, Gravity Pipeline, <10" Dia.	15,351.00	LF	431.35	/LF	6,621,650
		40.02.127 B	Sewer, Gravity Pipeline, 10" to 18" Dia.	4,642.00	LF	472.60	/LF	2,193,819
		40.02.129 A	Sewer, Gravity Pipeline, 48" to 66" Dia.	3,410.00	LF	637.21	/LF	2,172,876
		40.02.150 A	Electrical/Telephone Ductbank	800.00	LF	368.65	/LF	294,916
		40.02.150 B	Fiber Optic Ductbank	2.00	LF	369.98	/LF	740
		40.02.150 C	Tel San Fernando Rd: East of CL	1,320.00	LF	368.65	/LF	486,612
		40.02.150 D	Tel San Fernando Rd: West of CL	5,057.00	LF	368.64	/LF	1,864,238
		40.03.105	Hazardous Material Removal Allowance, Medium	1.67	RM	474,314.09	/RM	792,105
		40.03.110	Hazardous Material Removal Allowance, Heavy	0.51	RM	474,314.06	/RM	241,900
		40.03.150	Removal of Contaminated Soil	1,025,000.00	CF	4.35	/CF	4,460,543
		40.04.105	Environmental Mitigation Allowance				/LS	178,660,566
		40.05.012 A	Retaining Wall - 1 Wall (Var. Height)	2,277.00	LF	44,463.13	/LF	101,242,549
		40.05.211	Sound Wall - 1 Wall (8' Avg. Height)	2,690.00	LF	868.42	/LF	2,336,062
		40.05.400 A	Basin at Avenue O	1.00	EA	286,850.26	/EA	286,850
		40.05.400 B	Basin at Avenue R	1.00	EA	16,789,483.16	/EA	16,789,483
		40.05.500 B	36" Drainage Pipe	414.00	LF	344.96	/LF	142,812
		40.05.500 C	48" Drainage Pipe	9,247.00	LF	642.81	/LF	5,944,079
		40.05.500 E	60" Drainage Pipe	1,090.00	LF	953.27	/LF	1,039,066
		40.05.600 C	10'x10' Drainage Box	1,120.00	LF	6,209.20	/LF	6,954,307
		40.05.600 D	Triple 21.5'x12' Drainage Box	3,333.00	LF	11,383.54	/LF	37,941,332
		40.05.700 A	12'x12' Open Channel	5,319.00	LF	3,104.60	/LF	16,513,374
		40.05.700 B	25'x12.5' Open Channel	2,095.00	LF	6,209.20	/LF	13,008,279
		40.05.800 A	Pumping Station	2.00	EA	344,955.70	/EA	689,911
		40.05.800 B	Basin Sump Pump	2.00	EA	344,955.70	/EA	689,911
		40.06.100	Temporary Facilities	1.00	LS	218,362,913.68	/LS	218,362,914
		40.07.010	Right of Way	1.00	LS	245,496,876.13	/LS	245,496,876
		40.08.425 A	Avenue R Overhead. Roadway Overcrossing - 4 lane - 6 spans	1.00	EA	15,001,893.92	/EA	15,001,894

Alternatives	Sub Section	UPE	Description	Takeoff Quantity		Grand Total Price		Grand Total (2018\$)
		40.08.425 B	Palmdale blvd Overhead. Roadway Overcrossing - 6 lane, 10' shoulders, 8' sidewalks - 5 spans	1.00	EA	24,101,991.41	/EA	24,101,991
		40.08.425 C	Palmdale blvd Overcrossing. Roadway Overcrossing - 6 lane, 10' shoulders, 8' sidewalks - 1 span	1.00	EA	3,640,835.22	/EA	3,640,835
		50.01.000	Wayside Signaling Equipment	3.13	RM	1,224,996.54	/RM	3,834,239
		50.04.000	Traffic Control and Dispatching Systems	3.13	RM	118,807.59	/RM	371,868
		50.04.010 A	New Traffic Signal	11.00	EA	1,076,752.16	/EA	11,844,274
		50.04.020 A	Traffic Signal Modification	2.00	EA	4,677,963.38	/EA	9,355,927
		50.05.000	Communications	3.13	RM	1,124,870.95	/RM	3,520,846
		50.07.000	Hazard Detectors	3.13	RM	998,270.97	/RM	3,124,588
		60.02.000	Traction Power Supply	3.13	RM	2,966,647.96	/RM	9,285,608
		60.03.000	Traction Power Distribution	3.13	RM	3,135,043.55	/RM	9,812,686
		60.04.000	Traction Power Control	3.13	RM	4,936.18	/RM	15,450
		80.00.010	Professional Services	1.00	LS	1,012,025,510.69	/LS	1,012,025,511
		90.00.00	Unallocated Contingency	1.00	LS	266,368,959.55	/LS	266,368,960
			01.PLM Palmdale Subsection					3,213,409,570
	03.E2 Cen		E2 Central					
		10.01.122 A	Elevated Structure North of Foreston Drive - 1 Track (10' Avg. Pier Ht) Avg 115' span	1.00	EA	30,185,787.39	/EA	30,185,787
		10.01.123 A	Elevated Structure South of Foreston Drive - 1 Track (37' Avg. Pier Ht) Avg 115' span	1.00	EA	64,722,784.86	/EA	64,722,785
		10.01.126 C	Tujunga - I-210 - 2 Track, Train Detention Zone, Steel arch (50' Avg. Pier Ht) avg 158' span	1.00	EA	161,910,980.84	/EA	161,910,981
		10.01.223 A	Elevated Structure Aliso Canyon - 2 Track Train Detention Zone (20' Avg. Pier Ht) Box culvert @ abutment	1.00	EA	43,369,051.59	/EA	43,369,052
		10.04.100 A	36" Drainage Pipe	8,750.00	LF	315.84	/LF	2,763,562
		10.04.100 B	48" Drainage Pipe	2,584.00	LF	568.50	/LF	1,469,015
		10.04.100 C	72" Drainage Pipe	2,033.00	LF	1,073.84	/LF	2,183,120
		10.05.121	At-Grade Track-bed in Cut - 2 Track (5' Avg. Exc Depth)	0.30	RM	7,998,568.57	/RM	2,399,571
		10.05.122	At-Grade Track-bed in Cut - 2 Track (10' Avg. Exc Depth)	0.47	RM	9,872,592.94	/RM	4,640,119
		10.05.123	At-Grade Track-bed in Cut - 2 Track (15' Avg. Exc Depth)	0.36	RM	12,040,117.17	/RM	4,334,442
		10.05.124	At-Grade Track-bed in Cut - 2 Track (20' Avg. Exc Depth)	1.30	RM	14,506,278.72	/RM	18,858,162
		10.05.126	At-Grade Track-bed in Cut - 2 Track (40' Avg. Exc Depth)	0.70	RM	27,845,235.13	/RM	19,491,665
		10.05.128	At-Grade Track-bed in Cut - 2 Track (60' Avg. Exc Depth)	1.09	RM	46,272,750.65	/RM	50,437,298

Alternatives	Sub Section	UPE	Description	Takeoff Quantity		Grand Total Price		Grand Total (2018\$)
		10.05.130	At-Grade Track-bed in Cut - 2 Track (80' Avg. Exc Depth)	0.50	RM	69,487,616.00	/RM	34,743,808
		10.05.132	At-Grade Track-bed in Cut - 2 Track (100' Avg. Exc Depth)	0.43	RM	98,469,733.14	/RM	42,341,985
		10.05.221	At-Grade Track-bed in Fill - 2 Track (5' Avg. Fill Ht)	0.26	RM	5,952,106.58	/RM	1,547,548
		10.05.222	At-Grade Track-bed in Fill - 2 Track (10' Avg. Fill Ht)	0.18	RM	7,092,381.61	/RM	1,276,629
		10.05.223	At-Grade Track-bed in Fill - 2 Track (15' Avg. Fill Ht)	0.05	RM	8,531,293.60	/RM	426,565
		10.05.224	At-Grade Track-bed in Fill - 2 Track (20' Avg. Fill Ht)	0.05	RM	10,258,568.60	/RM	512,928
		10.05.226	At-Grade Track-bed in Fill - 2 Track (40' Avg. Fill Ht)	0.39	RM	20,321,339.67	/RM	7,925,322
		10.05.228	At-Grade Track-bed in Fill - 2 Track (60' Avg. Fill Ht)	0.74	RM	34,900,569.99	/RM	25,826,422
		10.07.100	TBM Single Track Twin Tunnels	14.33	RM	242,447,798.58	/RM	3,474,276,954
		10.07.107 A	Double Fault Chamber (for twin tunnels)	1.72	RM	657,681,500.06	/RM	1,131,212,180
		10.07.224 A	UG Structure Barrel Springs rd - Two portal boxes for 2 + 2 roadway lanes + external shoulders 2x40'6 Horizontal Clearance	1.00	RF	8,321,554.69	/RF	8,321,555
		10.07.224 B	Aliso canyon acc. rd south. UG Structure - Two portal boxes for 2 + 2 roadway lanes + external shoulders 2x41'6 Horizontal Clearance	1.00	EA	12,009,100.16	/EA	12,009,100
		10.07.225	Cut & Cover Box - 2 Track / 2 Box (50' Avg. Exc Depth) (Add Mech & Elec from 10.07.902)	0.06	RM	400,804,908.00	/RM	24,048,294
		10.07.226	Cut & Cover Box - 2 Track / 2 Box (60' Avg. Exc Depth) (Add Mech & Elec from 10.07.902)	0.14	RM	495,907,293.57	/RM	69,427,021
		10.07.227 A	Cut & Cover Box -2 Tracks/ 2 Boxes (70' Exc Depth)	0.36	RM	601,598,056.97	/RM	216,575,301
		10.07.301	SEM Tunnels	4.66	RM	687,942,720.70	/RM	3,205,813,078
		10.07.450	Mined Single Track Twin Tunnels	3.96	RM	328,132,572.27	/RM	1,299,404,986
		10.07.503	Crosspassages	155.00	EA	2,140,621.36	/EA	331,796,310
		10.07.504	Underground Paralleling/Switching Station	3.00	Ea	7,671,164.97	/Ea	23,013,495
		10.07.806 A	Mountain Portal Construction	5.00	Ea	5,733,163.67	/Ea	28,665,818
		10.07.808 A	Adit mountain portal construction	1.00	Ea	2,866,581.83	/Ea	2,866,582
		10.07.809	ADIT Construction	2.04	mile	345,222,368.24	/mile	704,253,631
		10.07.809 F	Underground TBM Dissassembly chamber	4.00	Ea	19,000,819.56	/Ea	76,003,278
		10.07.810 A	Tunnel Portal facilities, as described in TM 2.4.6. TSEFCZ excluded	5.00	EA	5,526,190.25	/EA	27,630,951
		10.07.811 A	Train Surface Evacuation and Fire Control Zone (TSEFCZ)	3.00	EA	132,675.27	/EA	398,026
		10.07.812	Binocular shafts	1.00	EA	59,953,029.76	/EA	59,953,030
		10.07.920 A	Tunnel Ventilation System - A	2.46	RM	25,124,001.19	/RM	61,805,043

Alternatives	Sub Section	UPE	Description	Takeoff Quantity		Grand Total Price		Grand Total (2018\$)
		10.07.920 B	Tunnel Ventilation System - B	15.24	RM	25,124,001.19	/RM	382,889,778
		10.07.920 C	Tunnel Ventilation System - C	6.83	RM	25,124,001.19	/RM	171,596,928
		10.07.950 A	Construction Monitoring inside TBM twin tunnels	14.33	RM	2,251,705.21	/RM	32,266,936
		10.07.950 B	Construction Monitoring inside Mined or SEM twin tunnels	2.63	RM	4,072,684.93	/RM	10,711,161
		10.07.950 C	Construction Monitoring inside Cross Passages	155.00	EA	181,377.71	/EA	28,113,544
		10.07.950 D	Construction Monitoring inside Mined or SEM Single tunnel, incl adits	7.57	Mile	4,530,786.10	/Mile	34,298,051
		10.07.950 E	Construction Monitoring inside Mined Underground Paralleling Station	4.00	EA	725,510.82	/EA	2,902,043
		10.07.950 G	Surface and Building Monitoring	4.20	RM	2,750,469.75	/RM	11,551,973
		10.08.221	Retained Cut, Trench - 2 Track (10' Avg. Exc Depth)	0.46	RM	64,144,178.09	/RM	29,249,745
		10.08.222	Retained Cut, Trench - 2 Track (20' Avg. Exc Depth)	0.31	RM	134,961,157.55	/RM	41,837,959
		10.08.223	Retained Cut, Trench - 2 Track (30' Avg. Exc Depth)	0.44	RM	227,918,220.86	/RM	100,284,017
		10.08.421	Retained Fill, Wall Both Sides - 2 Tracks (10' Avg. Wall Ht)	1.79	RM	16,434,259.39	/RM	29,417,324
		10.08.422	Retained Fill, Walls Both Sides - 2 Tracks (20' Avg. Wall Ht)	0.31	RM	27,821,860.48	/RM	8,708,242
		10.08.423	Retained Fill, Walls Both Sides - 2 Tracks (30' Avg. Wall Ht)	0.44	RM	48,752,759.72	/RM	21,256,203
		10.09.110	Ballasted Track - 1 Track	0.17	RM	2,231,264.24	/RM	379,315
		10.09.110 A	SCRRA Ballasted Track - 1 Track	1.39	RM	2,059,104.37	/RM	2,862,155
		10.09.120	Ballasted Track - 2 Track	19.57	RM	4,024,360.56	/RM	78,756,736
		10.09.120 A	SCRRA Ballasted Track - 2 Track	0.66	RM	3,952,522.70	/RM	2,608,665
		10.09.910	Ballasted Track Relocation - 1 Track (Temporary)	0.26	RM	2,801,588.92	/RM	728,413
		10.09.920	Ballasted Track Relocation - 1 Track (Permanent)	0.38	RM	2,801,588.95	/RM	1,064,604
		10.10.120	Direct Fixation - 2 Track	11.69	RM	3,573,568.99	/RM	41,775,021
		10.14.200 b	Ballasted Turnout (30MPH)	2.00	EA	94,750.71	/EA	189,501
		10.14.200 C	Ballasted Turnout (50MPH)	1.00	EA	265,301.99	/EA	265,302
		10.14.305	Ballasted Crossover (80MPH)	1.00	EA	1,120,111.29	/EA	1,120,111
		20.07.010 A	1 Lane Roadway Modification, New AC Paving (SR14 EB On/Off Ramps at Pearblossom, Sta 90+40 to 122+25)	74,952.00	SF	16.69	/SF	1,250,943
		20.07.011 A	2 Lane Roadway Modification, New AC Paving (Sierra Hwy south of Ave S, Sta 728+00 to 775+12)	148,224.00	SF	27.83	/SF	4,124,760
		20.07.011 B	2 Lane Roadway Modification, New AC Paving (Realigned Sierra Hwy at Pearblossom, Sta 86+70 to 114+66)	111,440.00	SF	16.68	/SF	1,858,966

Alternatives	Sub Section	UPE	Description	Takeoff Quantity		Grand Total Price		Grand Total (2018\$)
		20.07.011 C	2 Lane Roadway Modification, New AC Paving, painted median (Angeles Forest Hwy, Sta 1+33 to 48+86)	266,168.00	SF	31.38	/SF	8,351,447
		20.07.011 D	2 Lane Roadway Modification, New AC Paving, painted median (Mountain Springs Rd Sta 85+88 to 98+96)	67,912.00	SF	37.81	/SF	2,567,473
		20.07.011 E	2 Lane Roadway Modification, New AC Paving (Carson Mesa Rd Sta 8+50 to 19+74)	59,800.00	SF	38.92	/SF	2,327,523
		20.07.011 F	2 Lane Roadway Modification, New AC Paving (Foreston Dr Sta 91+00 to 132+33)	122,592.00	SF	17.93	/SF	2,198,236
		20.07.011 G	2 Lane Roadway Modification, New AC Paving (Foreston Dr Sta 91+00 to 132+33)	134,060.00	SF	60.60	/SF	8,123,782
		20.07.020 A	2 Lane Roadway Modification, New AC Paving with Curb & Gutter, Sidewalk (Avenue O St Sta 10+00 to 16+64)	67,688.00	SF	17.77	/SF	1,202,667
		20.07.020 B	2 Lane Roadway Modification, New AC Paving with Curb & Gutter, Sidewalk (Cul-de-Sacs, private streets 36' to 40' wide)	148,240.00	SF	19.94	/SF	2,956,162
		20.07.020 C	2 Lane Roadway Modification, New AC Paving including Curb & Sidewalk (E Avenue R11/Valley Forge from Sta 10+36 to Sta 18+38)	49,453.00	SF	21.24	/SF	1,050,595
		20.07.020 D	2 Lane Roadway Modification, New AC Paving including one-sided Curb & Sidewalk, painted median (Sierra Hwy north of Ave S, Sta 708+63 to 728+00)	80,482.00	SF	18.78	/SF	1,511,595
		20.07.021 E	4 Lane Roadway Modification, New AC Paving with partial Curb & Gutter, Sidewalk (Tenth St at Ave S, Sta 10+49 to 32+38)	170,821.50	SF	22.03	/SF	3,762,359
		20.07.021 G	4 Lane Roadway Modification, New AC Paving with Curb & Gutter, Sidewalk, Painted Median (Wentworth St, Sta 80+00 to 116+00)	184,470.00	SF	24.52	/SF	4,523,399
		20.07.023 A	2 Lane Roadway Modification, New AC Paving including Curb & Sidewalk (E Avenue R11/Valley Forge)	379,752.00	SF	22.00	/SF	8,355,355
		20.07.027 A	2 Lane Roadway Modification, New AC Paving with Curb & Gutter, One sided Sidewalk (San Fernando Blvd, Penrose to Sunland)	41,415.00	SF	18.61	/SF	770,778
		20.07.027 B	4 Lane Roadway Modification, New AC Paving, Curb & Gutter, Sidewalk, painted/raised median (Tuxford St) (From Sta 105+00 to Sta 117+00)	117,198.00	SF	22.65	/SF	2,654,644
		20.07.027 C	2 to 4 Lane Roadway Modification, New AC Paving, Curb & Gutter, Sidewalk, painted/raised median (Olinda St) (From Sta 13+50 to Sta 15+00)	33,450.00	SF	21.06	/SF	704,362
		20.07.027 D	4 Lane Roadway Modification, New AC Paving, Curb & Gutter, Sidewalk, painted/raised median (Sunland Blvd)	119,420.00	SF	21.19	/SF	2,529,914
		20.07.027 E	4 Lane Roadway Modification, New AC Paving, Curb & Gutter, Sidewalk, painted median (San Fernando Road)	467,324.00	SF	185.15	/SF	86,524,025
		20.07.711 A	2 Lane Roadway Modification, New AC Paving (Access Rd at Water Treatment Plant) (Froms Sta 3+38 to 11+11+45.52)	19,380.48	SF	16.83	/SF	326,111
		20.07.711 M	2 Lane Roadway Modification, New AC Paving (Adit Access Rd SR14-1736W)	7,935.00	SF	15.99	/SF	126,907
		20.07.711 N	2 Lane Roadway Modification, New AC Paving (Adit Access Rd SR14-1750E)	7,947.25	SF	18.26	/SF	145,140
		20.07.712 A	2 Lane Roadway Modification, New AC Paving (Access Rd Burnell, Sta 10+00 to Sta 13+17)	7,935.50	SF	15.99	/SF	126,891
		20.07.712 B	2 Lane Roadway Modification, New AC Paving (Access Rd P-3, Sta 0+00 to Sta 7+30)	18,250.00	SF	15.99	/SF	291,824
		20.07.712 C	2 Lane Roadway Modification, New AC Paving with Curb & Gutter (Acc Rd Carson Mesa Rd, Sta 1+00 to Sta 17+28)	40,700.00	SF	17.30	/SF	704,181
		20.07.712 D	2 Lane Roadway Modification, New AC Paving with Curb & Gutter (Acc Rd West Adit, Sta 10+04.88 to Sta 14+94.75)	34,290.90	SF	17.30	/SF	593,292
		20.07.712 E	2 Lane Roadway Modification, New AC Paving (Access Rd P-4, Sta 8+00 to Sta 16+88)	22,200.00	SF	32.98	/SF	732,098
		20.07.712 F	2 Lane Roadway Modification, New AC Paving (Access Rd P-5, Sta 0+00 to Sta 8+92.13)	22,303.00	SF	31.25	/SF	696,946
		40.01.010	Demolition Allowance, Bridge	14,495.00	sf	44.75	/sf	648,710

Alternatives	Sub Section	UPE	Description	Takeoff Quantity		Grand Total Price		Grand Total (2018\$)
		40.01.010 A	Demolition Allowance, Masonry/Sound Wall	1,794.00	LF	33.48	/LF	60,054
		40.01.010 B	Demolition Allowance, Retaining Wall	1,619.00	LF	33.48	/LF	54,196
		40.01.050	Demolition Allowance, Building 1 Story	108,368.00	SF	32.49	/SF	3,521,399
		40.01.110	Demolition Allowance, Asphalt Pavement	270,835.00	SY	62.33	/SY	16,881,373
		40.01.110 A	Demolition Allowance, Concrete Pavement	6,380.00	SY	40.36	/SY	257,496
		40.01.140	Demolition Allowance, Concrete Curb	13,900.00	LF	19.11	/LF	265,637
		40.01.140 A	Demolition Allowance, Concrete Curb & Gutter	10,001.00	LF	20.58	/LF	205,788
		40.01.150	Demolition Allowance, Concrete Sidewalk	10,359.00	SY	132.40	/SY	1,371,480
		40.01.810	Demolition Allowance, Remove Railroad Track	9,417.00	LF	37.16	/LF	349,923
		40.02.107 A	Natural Gas Pipeline, 3" to 8" Dia.	2,480.00	LF	327.02	/LF	811,022
		40.02.108 A	Natural Gas Pipeline, 10" to 18" Dia.	1,570.00	LF	354.62	/LF	556,756
		40.02.110 A	Natural Gas Pipeline, 30" to 42" Dia.	4,850.00	LF	515.09	/LF	2,498,197
		40.02.116 A	Potable Water Pipeline, <10"	14,940.00	LF	327.02	/LF	4,885,752
		40.02.116 B	Potable Water Pipeline, 10" to 16"	37,290.00	LF	339.85	/LF	12,673,178
		40.02.117 A	Potable Water Pipeline, 18" to 24"	13,550.00	LF	519.92	/LF	7,044,936
		40.02.118 A	Potable Water Pipeline, 27" to 33"	670.00	LF	728.00	/LF	487,761
		40.02.119 A	Effluent Water Pipeline, 36" to 48" Dia.	1,770.00	LF	982.69	/LF	1,739,363
		40.02.119 B	Runoff Water Pipeline, 48" Dia.	1,500.00	LF	982.69	/LF	1,474,036
		40.02.121 A	Overhead Power Trans Facility (≥ 69 kV)	5,340.00	LF	7,849.07	/LF	41,914,028
		40.02.122 A	Overhead Power Trans Facility (< 69 kV)	31,138.00	LF	620.92	/LF	19,334,215
		40.02.123 A	Underground Power Trans Facility (12 kV)	430.00	LF	368.65	/LF	158,517
		40.02.127 A	Sewer, Gravity Pipeline, <10" Dia.	2,620.00	LF	431.20	/LF	1,129,749
		40.02.127 B	Sewer, Gravity Pipeline, 10" to 18" Dia.	1,170.00	LF	471.63	/LF	551,805
		40.02.150 C	Tel San Fernando Rd: East of CL	10,960.00	LF	368.65	/LF	4,040,351
		40.02.150 D	Tel San Fernando Rd: West of CL	9,795.00	LF	368.65	/LF	3,610,882
		40.02.200 A	Tel San Fernando Rd: West of CL	1.00	LF		/LF	
		40.03.100	Hazardous Material Removal Allowance, Light	1.93	RM	474,314.08	/RM	915,426

Alternatives	Sub Section	UPE	Description	Takeoff Quantity		Grand Total Price		Grand Total (2018\$)
		40.03.105	Hazardous Material Removal Allowance, Medium	1.47	RM	474,314.08	/RM	697,242
		40.03.110	Hazardous Material Removal Allowance, Heavy	3.60	RM	474,314.08	/RM	1,707,531
		40.03.150	Removal of Contaminated Soil	94,849,302.00	CF	4.35	/CF	412,760,335
		40.04.105	Environmental Mitigation Allowance	1.00	LS	178,660,565.75	/LS	178,660,566
		40.05.012 A	Retaining Wall - 1 Wall (Var. Height)	4,938.00	LF	44,463.13	/LF	219,558,940
		40.05.211	Sound Wall - 1 Wall (8' Avg. Height)	11,130.00	LF	868.42	/LF	9,665,566
		40.05.401 C	Basin E1/E2 Sta 620+44	1.00	EA	359,357.09	/EA	359,357
		40.05.401 D	Basin E1/E2 Sta 633+70	1.00	EA	438,434.43	/EA	438,434
		40.05.401 E	Basin E1/E2 Sta 729+58	1.00	EA	356,221.34	/EA	356,221
		40.05.401 F	Basin E1/E2 Sta 745+60	1.00	EA	330,665.36	/EA	330,665
		40.05.401 G	Drainage course re-routing	1.00	EA	5,620,570.31	/EA	5,620,570
		40.05.500 A	24" Drainage Pipe	2,079.00	LF	310.46	/LF	645,447
		40.05.500 B	36" Drainage Pipe	348.00	LF	344.96	/LF	120,045
		40.05.500 C	48" Drainage Pipe	4,366.00	LF	642.81	/LF	2,806,517
		40.05.500 E	60" Drainage Pipe	2,766.00	LF	953.27	/LF	2,636,751
		40.05.500 F	72" Drainage Pipe	66.00	LF	1,172.85	/LF	77,408
		40.06.100	Temporary Facilities	1.00	LS	218,362,913.67	/LS	218,362,914
		40.07.010	Right of Way	1.00	LS	275,584,799.31	/LS	275,584,799
		40.08.422 A	Mountain Springs rd West Overhead. Roadway Overcrossing - 2 lane roadway over 3 tracks	1.00	EA	4,685,712.01	/EA	4,685,712
		40.08.422 B	Foreston drive Overhead. Roadway Overcrossing - 2 lane roadway over highway	1.00	EA	6,638,511.22	/EA	6,638,511
		40.08.422 C	Foreston South Access Road. Access road bridge to tunnel portal - 2 lane roadway	1.00	EA	21,041,800.77	/EA	21,041,801
		40.08.422 D	Aliso canyon Access Road north. Access road bridge to tunnel portal - 2 lane roadway	1.00	EA	9,143,223.32	/EA	9,143,223
		40.08.422 F	Adit access road E2 STA 1460. Access road bridge to tunnel portal - 2 lane roadway	1.00	EA	3,776,579.99	/EA	3,776,580
		40.08.425 D	Avenue S Overcrossing. Roadway Overcrossing - 6 lane, 10' shoulders, 8' sidewalks, 10' bike lane - 1 span	1.00	EA	5,510,682.90	/EA	5,510,683
		40.08.425 E	Avenue S Overhead. Roadway Overcrossing - 6 lane, 10' shoulders, 8' sidewalks, 10' bike lane - 3 spans	1.00	EA	11,767,191.95	/EA	11,767,192
		40.08.425 H	Wentworth st Overcrossing. Roadway Overcrossing - 4 lane - 11 spans	1.00	EA	23,973,005.83	/EA	23,973,006
		50.01.000	Wayside Signaling Equipment	31.26	RM	1,224,996.54	/RM	38,293,392

Alternatives	Sub Section	UPE	Description	Takeoff Quantity		Grand Total Price		Grand Total (2018\$)
		50.04.000	Traffic Control and Dispatching Systems	31.26	RM	118,807.60	/RM	3,713,926
		50.04.010 A	New Traffic Signal	5.00	EA	1,076,752.16	/EA	5,383,761
		50.04.020 A	Traffic Signal Modification	1.00	EA	4,677,963.38	/EA	4,677,963
		50.05.000	Communications	31.26	RM	1,124,870.95	/RM	35,163,466
		50.07.000	Hazard Detectors	31.26	RM	998,270.98	/RM	31,205,951
		60.02.000	Traction Power Supply	31.26	RM	2,966,647.96	/RM	92,737,415
		60.03.000	Traction Power Distribution	31.26	RM	3,135,043.55	/RM	98,001,461
		60.04.000	Traction Power Control	31.26	RM	4,936.18	/RM	154,305
		80.00.010	Professional Services	1.00	LS	1,012,025,510.67	/LS	1,012,025,511
		90.00.00	Unallocated Contingency	1.00	LS	266,368,959.56	/LS	266,368,960
			03.E2 Cen E2 Central					15,596,861,659
	06.BUR (E2)		Burbank E2					
		10.07.250 A	Cut & Cover Box -Burbank Station (85' Avg. Exc Depth)	0.27	RM	1,054,310,925.70	/RM	284,663,950
		10.07.250 C	Cut & Cover Box - 3track/1Box (100' Avg. Exc Depth)	0.13	RM	1,206,504,506.38	/RM	156,845,586
		10.07.250 D	Cut & Cover Box - 5track/1Box (100' Avg. Exc Depth)	0.37	RM	1,206,504,506.16	/RM	442,787,154
		10.09.920	Ballasted Track Relocation - 1 Track (Permanent)	0.62	RM	2,801,588.95	/RM	1,736,985
		10.10.110	Direct Fixation - 1 Track	1.69	RM	1,787,081.52	/RM	3,020,168
		10.10.120	Direct Fixation - 2 Track	0.55	RM	3,573,569.02	/RM	1,965,463
		10.14.200	Ballasted Turnout (60MPH)	4.00	EA	449,761.40	/EA	1,799,046
		10.14.200 A	Ballasted Turnout (25MPH)	2.00	EA	265,301.98	/EA	530,604
		10.14.200 b	Ballasted Turnout (30MPH)	1.00	EA	94,750.71	/EA	94,751
		10.14.305	Ballasted Crossover (80MPH)	2.00	EA	1,120,111.29	/EA	2,240,223
		10.14.400	Terminal Bumping Post	4.00	EA	25,266.86	/EA	101,067
		20.01.247 A	Main and Secondary Station Buildings	141,954.00	sf	482.94	/sf	68,554,977
		20.01.247 B	Auxiliary Building	10,000.00	sf	289.76	/sf	2,897,628
		20.03.001 C	HSR Platform (underground)	84,600.00	SF	551.93	/SF	46,693,203
		20.06.201 B	Parking Walkway (Standard Sidewalks)	316,516.00	SF	19.24	/SF	6,090,754
		20.06.201 C	Parking Walkway (Enhanced Plazas)	410,764.00	SF	23.48	/SF	9,644,071

Alternatives	Sub Section	UPE	Description	Takeoff Quantity		Grand Total Price		Grand Total (2018\$)
		20.06.800 A	Landscape	512,103.00	SF	18.31	/SF	9,376,733
		40.01.010	Demolition Allowance, Bridge	4,028.00	sf	44.75	/sf	180,269
		40.01.010 A	Demolition Allowance, Masonry/Sound Wall	1,873.00	LF	33.48	/LF	62,699
		40.01.010 B	Demolition Allowance, Retaining Wall	3,967.00	LF	33.48	/LF	132,796
		40.01.050	Demolition Allowance, Building 1 Story	661,944.00	SF	32.49	/SF	21,509,755
		40.01.110	Demolition Allowance, Asphalt Pavement	189,536.95	SY	62.33	/SY	11,813,998
		40.01.110 A	Demolition Allowance, Concrete Pavement	12,154.00	SY	40.36	/SY	490,533
		40.01.140	Demolition Allowance, Concrete Curb	2,877.00	LF	19.11	/LF	54,981
		40.01.140 A	Demolition Allowance, Concrete Curb & Gutter	19,107.40	LF	20.58	/LF	393,168
		40.01.150	Demolition Allowance, Concrete Sidewalk	16,012.40	SY	132.40	/SY	2,119,963
		40.01.810	Demolition Allowance, Remove Railroad Track	32,462.00	LF	37.16	/LF	1,206,243
		40.02.107 A	Natural Gas Pipeline, 3" to 8" Dia.	5,399.00	LF	327.02	/LF	1,765,607
		40.02.108 A	Natural Gas Pipeline, 10" to 18" Dia.	880.00	LF	354.62	/LF	312,067
		40.02.111 A	Oil Pipeline, 6" to 15" Dia.	11,510.00	LF	354.62	/LF	4,081,692
		40.02.112 A	Oil Pipeline, 18" to 24" Dia.	11,750.00	LF	354.62	/LF	4,166,801
		40.02.116 A	Potable Water Pipeline, <10"	2,150.00	LF	327.02	/LF	703,104
		40.02.116 B	Potable Water Pipeline, 10" to 16"	2,070.00	LF	339.85	/LF	703,499
		40.02.117 A	Potable Water Pipeline, 18" to 24"	1,900.00	LF	519.92	/LF	987,851
		40.02.118 A	Potable Water Pipeline, 27" to 33"	501.00	LF	728.00	/LF	364,728
		40.02.119 A	Efluent Water Pipeline, 36" to 48" Dia.	5,350.00	LF	982.69	/LF	5,257,396
		40.02.122 A	Overhead Power Trans Facility (< 69 kV)	7,180.00	LF	620.92	/LF	4,458,207
		40.02.123 A	Underground Power Trans Facility (12 kV)	4,680.00	LF	368.65	/LF	1,725,259
		40.02.127 A	Sewer, Gravity Pipeline, <10" Dia.	2,080.00	LF	431.20	/LF	896,900
		40.02.127 B	Sewer, Gravity Pipeline, 10" to 18" Dia.	1,800.00	LF	471.63	/LF	848,931
		40.02.128 A	Sewer, Gravity Pipeline, 21" to 30" Dia.	200.00	LF	637.21	/LF	127,441
		40.02.150 C	Tel San Fernando Rd: East of CL	12,896.00	LF	368.65	/LF	4,754,049
		40.02.150 D	Tel San Fernando Rd: West of CL	15,740.00	LF	368.65	/LF	5,802,474

Alternatives	Sub Section	UPE	Description	Takeoff Quantity		Grand Total Price		Grand Total (2018\$)
		40.03.110	Hazardous Material Removal Allowance, Heavy	0.57	RM	474,314.09	/RM	270,359
		40.03.150	Removal of Contaminated Soil	46,450,715.00	CF	4.35	/CF	202,141,843
		40.04.105	Environmental Mitigation Allowance	1.00	LS	178,660,565.73	/LS	178,660,566
		40.05.012 A	Retaining Wall - 1 Wall (Var. Height)	5,698.00	LF	44,463.13	/LF	253,350,919
		40.05.500 A	24" Drainage Pipe	744.00	LF	310.46	/LF	230,982
		40.05.500 C	48" Drainage Pipe	1,323.00	LF	642.81	/LF	850,441
		40.05.500 E	60" Drainage Pipe	867.00	LF	953.27	/LF	826,486
		40.05.500 G	42" Drainage Pipe	165.00	LF	586.42	/LF	96,760
		40.05.600 A	8.5'x5' Drainage Box	156.00	LF	2,759.65	/LF	430,505
		40.05.700 C	3'x3' Open Channel	2,108.00	LF	1,379.82	/LF	2,908,666
		40.06.100	Temporary Facilities	1.00	LS	218,362,913.68	/LS	218,362,914
		40.07.010	Right of Way	1.00	LS	395,427,374.72	/LS	395,427,375
		50.01.000	Wayside Signaling Equipment	0.55	RM	1,224,996.55	/RM	673,748
		50.04.000	Traffic Control and Dispatching Systems	0.55	RM	118,807.60	/RM	65,344
		50.04.010 A	New Traffic Signal	2.00	EA	1,076,752.16	/EA	2,153,504
		50.04.020 A	Traffic Signal Modification	2.00	EA	4,677,963.38	/EA	9,355,927
		50.05.000	Communications	0.55	RM	1,124,870.96	/RM	618,679
		50.07.000	Hazard Detectors	0.55	RM	998,270.98	/RM	549,049
		60.02.000	Traction Power Supply	0.55	RM	2,966,647.95	/RM	1,631,656
		60.03.000	Traction Power Distribution	0.55	RM	3,135,043.55	/RM	1,724,274
		60.04.000	Traction Power Control	0.55	RM	4,936.20	/RM	2,715
		80.00.010	Professional Services	1.00	LS	1,012,025,510.67	/LS	1,012,025,511
		90.00.00	Unallocated Contingency	1.00	LS	266,368,959.55	/LS	266,368,960
			06.BUR (E2) Burbank E2					3,662,689,956
			02.E2 E2 End to End Alternative 2018\$					22,472,961,185
03.SR14			SR14 End to End Alternative 2018\$					
	01.PLM		Palmdale Subsection					

Alternatives	Sub Section	UPE	Description	Takeoff Quantity		Grand Total Price		Grand Total (2018\$)
		10.01.001 A	Steel Truss HSR viaduct, 1 track Sierra Hwy platform track 2x215' Span	2.00	EA	11,270,798.01	/EA	22,541,596
		10.01.002 A	Steel Truss HSR viaduct, 2 track Sierra Hwy platform track 2x215' Span	1.00	EA	13,465,535.73	/EA	13,465,536
		10.01.122 B	Elevated Structure Ave Q Platform Track - 1 Track (22' Avg. Pier Ht) Avg 105' span	2.00	EA	4,323,361.72	/EA	8,646,723
		10.01.222 A	Elevated Structure Tuxford st - 2 Track U-Shape girder (20' Avg. Pier Ht) Avg 110' span	1.00	EA	6,312,557.62	/EA	6,312,558
		10.02.060 A	Sierra Hwy Underpass (SCRAA) Bridge Structure - Two Span Steel Plate Girder Structure with 1 Track - 2 190' spans	1.00	EA	7,066,349.93	/EA	7,066,350
		10.02.060 B	Sierra Hwy Underpass (UPRR) Bridge Structure - Two Span Steel Plate Girder Structure with 1 Track 2-190' spans substructure for enlargement	1.00	EA	8,395,871.76	/EA	8,395,872
		10.02.060 E	Ave Q Underpass Railroad Bridge Structure - Single Span Steel Plate Girder Structure with 1 Track 1-105'span	3.00	EA	1,667,571.76	/EA	5,002,715
		10.04.100 A	36" Drainage Pipe	1,341.00	LF	315.95	/LF	423,687
		10.05.111	At-Grade Track-bed in Cut - 1 Track (5' Avg. Exc Depth)	0.68	RM	5,185,745.76	/RM	3,526,307
		10.05.112	At-Grade Track-bed in Cut - 1 Track (10' Avg. Exc Depth)	0.78	RM	6,840,235.72	/RM	5,335,384
		10.05.113	At-Grade Track-bed in Cut - 1 Track (15' Avg. Exc Depth)	0.08	RM	8,788,330.25	/RM	703,066
		10.05.114	At-Grade Track-bed in Cut - 1 Track (20' Avg. Exc Depth)	0.25	RM	11,030,029.36	/RM	2,757,507
		10.05.121	At-Grade Track-bed in Cut - 2 Track (5' Avg. Exc Depth)	0.66	RM	8,001,423.77	/RM	5,280,940
		10.05.122	At-Grade Track-bed in Cut - 2 Track (10' Avg. Exc Depth)	0.63	RM	9,876,117.17	/RM	6,221,954
		10.05.123	At-Grade Track-bed in Cut - 2 Track (15' Avg. Exc Depth)	0.07	RM	12,044,414.86	/RM	843,109
		10.05.124	At-Grade Track-bed in Cut - 2 Track (20' Avg. Exc Depth)	0.12	RM	14,511,457.08	/RM	1,741,375
		10.05.211	At-Grade Track-bed in Fill - 1 Track (5' Avg. Fill Ht)	2.63	RM	3,432,157.81	/RM	9,026,575
		10.05.212	At-Grade Track-bed in Fill - 1 Track (10' Avg. Fill Ht)	0.76	RM	4,352,636.38	/RM	3,308,004
		10.05.221	At-Grade Track-bed in Fill - 2 Track (5' Avg. Fill Ht)	1.64	RM	5,954,231.29	/RM	9,764,939
		10.05.222	At-Grade Track-bed in Fill - 2 Track (10' Avg. Fill Ht)	0.63	RM	7,094,913.30	/RM	4,469,795
		10.07.114 A	Cut & Cover LMF crossing - 2 Tracks	1.00	EA	29,044,844.89	/EA	29,044,845
		10.08.213	Retained Cut, Trench - 1 Track (30' Avg. Exc Depth)	0.51	RM	178,909,856.31	/RM	91,244,027
		10.08.411	Retained Fill, Walls Both Sides - 1 Tracks (10' Avg. Wall Ht)	1.10	RM	13,740,940.06	/RM	15,115,034
		10.09.110	Ballasted Track - 1 Track	6.28	RM	2,232,058.20	/RM	14,017,325
		10.09.110 A	SCRRA Ballasted Track - 1 Track	1.42	RM	2,059,839.85	/RM	2,924,973
		10.09.120	Ballasted Track - 2 Track	3.13	RM	4,025,797.03	/RM	12,600,745
		10.09.120 A	SCRRA Ballasted Track - 2 Track	0.83	RM	3,953,933.35	/RM	3,281,765
		10.09.240	Ballasted Track - 2 Track (Station Track)	1.76	RM	8,051,594.41	/RM	14,170,806

Alternatives	Sub Section	UPE	Description	Takeoff Quantity		Grand Total Price		Grand Total (2018\$)
		10.09.920	Ballasted Track Relocation - 1 Track (Permanent)	0.91	RM	2,802,589.02	/RM	2,550,356
		10.14.200	Ballasted Turnout (60MPH)	7.00	EA	449,921.95	/EA	3,149,454
		10.14.200 A	Ballasted Turnout (25MPH)	2.00	EA	265,396.69	/EA	530,793
		10.14.200 b	Ballasted Turnout (30MPH)	1.00	EA	94,784.53	/EA	94,785
		10.14.305	Ballasted Crossover (80MPH)	3.00	EA	1,120,511.14	/EA	3,361,533
		10.14.400	Terminal Bumping Post	2.00	EA	25,275.88	/EA	50,552
		10.14.500 A	Crossing Panels	38.00	EA	1,137.41	/EA	43,222
		20.01.247 A	Main and Secondary Station Buildings	80,182.00	sf	483.10	/sf	38,735,589
		20.01.247 B	Auxiliary Building	10,000.00	sf	289.86	/sf	2,898,575
		20.03.001 A	HSR Platform (at grade)	112,776.00	SF	552.11	/SF	62,264,701
		20.03.001 B	Metrolink Platform (at grade)	20,427.00	SF	552.11	/SF	11,277,941
		20.06.100 B	Pedestrian Bridges (Overhead) Avg 120' span x 20' wide	123,032.00	SF	654.57	/SF	80,533,444
		20.06.201 A	Parking Roadways Avg 330 sf per stall	5,853.45	sf	5,442.34	/sf	31,856,456
		20.06.201 B	Parking Walkway (Standard Sidewalks)	234,350.00	SF	19.25	/SF	4,511,098
		20.06.201 C	Parking Walkway (Enhanced Plazas)	160,283.00	SF	23.49	/SF	3,764,414
		20.06.800 A	Landscape	712,875.00	SF	18.32	/SF	13,057,184
		20.07.011 F	2 Lane Roadway Modification, New AC Paving (Foreston Dr Sta 91+00 to 132+33)	23,200.00	SF	17.94	/SF	416,142
		20.07.020	Roadway Modification, New AC Paving (including Curb & Sidewalk)	74,154.08	SF	21.27	/SF	1,577,211
		20.07.020 E	2 Lane Roadway Modification, New AC Paving including Curb & Gutter, Sidewalk, painted median (Avenue Q) (From Sta 94+00 to Sta 130+00)	8,928.00	SF	18.28	/SF	163,247
		20.07.020 G	2 Lane Roadway Modification, New AC Paving including Curb & Gutter, Sidewalk (Avenue Q9 & Q12)	28,278.00	SF	20.42	/SF	577,457
		20.07.021 A	4 Lane Roadway Modification, New AC Paving with Curb & Gutter, Sidewalk, Raised Median, Bike Path (Fifth St Sta 100+55 to 167+00)4 Lane Roadway Modification, New AC Paving with Curb & Gutter, Sidewalk, Raised Median, Bike Path (Fifth St Sta 100+55 to 167+00)	627,200.00	SF	31.97	/SF	20,049,099
		20.07.021 B	4 Lane Roadway Modification, New AC Paving with Curb & Gutter, Sidewalk, Raised Median (Fifth St Sta 168+22 to 197+00)	332,831.52	SF	22.40	/SF	7,455,677
		20.07.021 C	4 Lane Roadway Modification, New AC Paving with Curb & Gutter, Sidewalk, Raised Median (Avenue R Sta 91+53 to 128+48)	245,055.54	SF	38.19	/SF	9,359,516
		20.07.021 D	4 Lane Roadway Modification, New AC Paving with Curb & Gutter, Sidewalk, (Sixth St Sta 10+00 to 50+15.07)	337,265.88	SF	20.25	/SF	6,827,968
		20.07.022 A	6 Lane Roadway Modification, New AC Paving with Curb & Gutter, Sidewalk, Raised Median, Bike Path (Sierra Hwy Sta 500+00 to 625.88)	345,600.00	SF	29.76	/SF	10,284,938
		20.07.022 B	6 Lane Roadway Modification, New AC Paving with Curb & Gutter, Sidewalk, Raised Median (Palmdale Blvd Sta 91+63 to 127+65)	1,611,264.00	SF	32.16	/SF	51,812,937

Alternatives	Sub Section	UPE	Description	Takeoff Quantity		Grand Total Price		Grand Total (2018\$)
		20.07.022 C	6 Lane Roadway Modification, New AC Paving with Curb & Gutter, Sidewalk, Raised Median, Bike Path (Avenue S, Sta 82+50 to 117+80)	311,289.90	SF	29.19	/SF	9,086,958
		40.01.010 A	Demolition Allowance, Masonry/Sound Wall	22,020.00	LF	33.49	/LF	737,362
		40.01.050	Demolition Allowance, Building 1 Story	1,795,428.00	SF	32.51	/SF	58,361,190
		40.01.110	Demolition Allowance, Asphalt Pavement	1,278,163.00	SY	62.35	/SY	79,695,013
		40.01.110 A	Demolition Allowance, Concrete Pavement	55,794.67	SY	40.37	/SY	2,252,599
		40.01.140	Demolition Allowance, Concrete Curb	64,343.00	LF	19.12	/LF	1,230,032
		40.01.140 A	Demolition Allowance, Concrete Curb & Gutter	64,895.00	LF	20.58	/LF	1,335,764
		40.01.150	Demolition Allowance, Concrete Sidewalk	364,718.00	SY	132.44	/SY	48,302,642
		40.01.810	Demolition Allowance, Remove Railroad Track	4,350.00	LF	37.17	/LF	161,693
		40.01.900 A	Clearing & Grubbing Landscape Areas	1,218,518.00	SY	25.49	/SY	31,064,479
		40.02.107 A	Natural Gas Pipeline, 3" to 8" Dia.	2,128.00	LF	327.13	/LF	696,136
		40.02.108 A	Natural Gas Pipeline, 10" to 18" Dia.	790.00	LF	354.74	/LF	280,242
		40.02.116 A	Potable Water Pipeline, <10"	160.00	LF	327.13	/LF	52,341
		40.02.116 B	Potable Water Pipeline, 10" to 16"	21,728.00	LF	339.97	/LF	7,386,774
		40.02.117 A	Potable Water Pipeline, 18" to 24"	825.00	LF	520.09	/LF	429,075
		40.02.121 A	Overhead Power Trans Facility (≥ 69 kV)	7,375.00	LF	7,851.63	/LF	57,905,802
		40.02.122 A	Overhead Power Trans Facility (< 69 kV)	4,490.00	LF	621.12	/LF	2,788,843
		40.02.127 A	Sewer, Gravity Pipeline, <10" Dia.	15,351.00	LF	431.49	/LF	6,623,814
		40.02.127 B	Sewer, Gravity Pipeline, 10" to 18" Dia.	4,642.00	LF	472.76	/LF	2,194,536
		40.02.129 A	Sewer, Gravity Pipeline, 48" to 66" Dia.	3,410.00	LF	637.42	/LF	2,173,586
		40.02.150 A	Electrical/Telephone Ductbank	800.00	LF	368.77	/LF	295,012
		40.02.150 B	Fiber Optic Ductbank	2.00	LF	370.10	/LF	740
		40.02.150 C	Tel San Fernando Rd: East of CL	1,320.00	LF	368.77	/LF	486,771
		40.02.150 D	Tel San Fernando Rd: West of CL	5,057.00	LF	368.77	/LF	1,864,847
		40.03.105	Hazardous Material Removal Allowance, Medium	1.67	RM	474,469.11	/RM	792,363
		40.03.110	Hazardous Material Removal Allowance, Heavy	0.51	RM	474,469.10	/RM	241,979
		40.03.150	Removal of Contaminated Soil	1,025,000.00	CF	4.35	/CF	4,462,000

Alternatives	Sub Section	UPE	Description	Takeoff Quantity		Grand Total Price		Grand Total (2018\$)
		40.04.105	Environmental Mitigation Allowance				/LS	172,948,975
		40.05.012 A	Retaining Wall - 1 Wall (Var. Height)	2,277.00	LF	44,477.66	/LF	101,275,638
		40.05.211	Sound Wall - 1 Wall (8' Avg. Height)	2,690.00	LF	868.71	/LF	2,336,826
		40.05.400 A	Basin at Avenue O	1.00	EA	286,944.01	/EA	286,944
		40.05.400 B	Basin at Avenue R	1.00	EA	16,794,970.54	/EA	16,794,971
		40.05.500 B	36" Drainage Pipe	414.00	LF	345.07	/LF	142,858
		40.05.500 C	48" Drainage Pipe	9,247.00	LF	643.02	/LF	5,946,022
		40.05.500 E	60" Drainage Pipe	1,090.00	LF	953.58	/LF	1,039,406
		40.05.600 C	10'x10' Drainage Box	1,120.00	LF	6,211.23	/LF	6,956,580
		40.05.600 D	Triple 21.5'x12' Drainage Box	3,333.00	LF	11,387.26	/LF	37,953,733
		40.05.700 A	12'x12' Open Channel	5,319.00	LF	3,105.62	/LF	16,518,771
		40.05.700 B	25'x12.5' Open Channel	2,095.00	LF	6,211.23	/LF	13,012,531
		40.05.800 A	Pumping Station	2.00	EA	345,068.44	/EA	690,137
		40.05.800 B	Basin Sump Pump	2.00	EA	345,068.43	/EA	690,137
		40.06.100	Temporary Facilities	1.00	LS	211,382,080.59	/LS	211,382,081
		40.07.010	Right of Way	1.00	LS	245,591,355.01	/LS	245,591,355
		40.08.425 A	Avenue R Overhead. Roadway Overcrossing - 4 lane - 6 spans	1.00	EA	15,006,797.05	/EA	15,006,797
		40.08.425 B	Palmdale blvd Overhead. Roadway Overcrossing - 6 lane, 10' shoulders, 8' sidewalks - 5 spans	1.00	EA	24,109,868.77	/EA	24,109,869
		40.08.425 C	Palmdale blvd Overcrossing. Roadway Overcrossing - 6 lane, 10' shoulders, 8' sidewalks - 1 span	1.00	EA	3,642,025.17	/EA	3,642,025
		50.01.000	Wayside Signaling Equipment	3.13	RM	1,225,489.87	/RM	3,835,783
		50.04.000	Traffic Control and Dispatching Systems	3.13	RM	118,855.44	/RM	372,018
		50.04.010 A	New Traffic Signal	11.00	EA	1,077,185.79	/EA	11,849,044
		50.04.020 A	Traffic Signal Modification	2.00	EA	4,679,847.29	/EA	9,359,695
		50.05.000	Communications	3.13	RM	1,125,323.95	/RM	3,522,264
		50.07.000	Hazard Detectors	3.13	RM	998,673.00	/RM	3,125,846
		60.02.000	Traction Power Supply	3.13	RM	2,967,842.68	/RM	9,289,348
		60.03.000	Traction Power Distribution	3.13	RM	3,136,306.09	/RM	9,816,638

Alternatives	Sub Section	UPE	Description	Takeoff Quantity		Grand Total Price		Grand Total (2018\$)
		60.04.000	Traction Power Control	3.13	RM	4,938.17	/RM	15,456
		80.00.010	Professional Services	1.00	LS	983,494,638.83	/LS	983,494,639
		90.00.00	Unallocated Contingency	1.00	LS	267,162,480.69	/LS	267,162,481
			01.PLM Palmdale Subsection					3,173,509,263
	04.SR1 4 Cen		SR14 Central					
		10.01.003 A	Escondido Canyon - 2 Track, Train Detention Zone , Steel arch (26' Avg. Pier Ht) ave 151' span	1.00	EA	130,909,584.86	/EA	130,909,585
		10.01.004 A	Santa Clara - 2 Track, Vble depth, Train Detention Zone, Steel arch (70' Avg. Pier Ht) Avg 167span	1.00	EA	146,052,618.04	/EA	146,052,618
		10.01.123 B	Elevated Structure ST 1052+97- 1 Track (30' Avg. Pier Ht) Avg 105' span	1.00	EA	11,604,709.06	/EA	11,604,709
		10.01.124 A	Elevated Structure ST 996+47 - 2 Track Train Detention Zone (27' Avg. Pier Ht) Avg 118' span	1.00	EA	111,847,303.64	/EA	111,847,304
		10.01.126 A	Elevated Structure ST 1031+38 - 1 Track (57' Avg. Pier Ht) Avg 120' span	1.00	EA	98,262,464.28	/EA	98,262,464
		10.01.126 B	Elevated Structure ST 1060+90 - 1 Track (49' Avg. Pier Ht) ave 140' span	1.00	EA	18,060,816.39	/EA	18,060,816
		10.01.127 A	Elevated Structure ST 1118+46 - 1 Track (89' Avg. Pier Ht) avg 119' span	1.00	EA	107,569,425.48	/EA	107,569,425
		10.01.127 B	Elevated Structure AGUA DULCE - 1 Track & 2 Track TDZ (147' Avg. Pier Ht) ave 121' span	1.00	EA	134,120,324.51	/EA	134,120,325
		10.01.222 A	Elevated Structure Tuxford st - 2 Track U-Shape girder (20' Avg. Pier Ht) Avg 110' span	2.00	EA	6,312,557.63	/EA	12,625,115
		10.01.222 B	Elevated Structure Hansen Dam spillway - 2 Track 2 U-Shape girder ave 110' span	1.00	EA	4,694,778.95	/EA	4,694,779
		10.01.222 C	Elevated Structure Sheldon St - 2 Track 2 U-Shape girder ave 110' span	1.00	EA	6,261,018.46	/EA	6,261,018
		10.01.223 B	Elevated Structure ST 1235+35 - 2 Track Train Detention Zone (27' Avg. Pier Ht) avg 120' span	1.00	EA	37,044,083.77	/EA	37,044,084
		10.02.060 F	Vulcan Mine Hopper facility Steel Structure - Steel portal frames Structure with 1 Track 4-21' spans	1.00	EA	12,666,150.48	/EA	12,666,150
		10.04.100 A	36" Drainage Pipe	16,181.00	LF	315.95	/LF	5,112,362
		10.04.100 B	48" Drainage Pipe	200.00	LF	568.71	/LF	113,741
		10.04.100 C	72" Drainage Pipe	1,985.00	LF	1,074.22	/LF	2,132,336
		10.05.121	At-Grade Track-bed in Cut - 2 Track (5' Avg. Exc Depth)	0.46	RM	8,001,423.74	/RM	3,680,655
		10.05.122	At-Grade Track-bed in Cut - 2 Track (10' Avg. Exc Depth)	0.75	RM	9,876,117.19	/RM	7,407,088
		10.05.123	At-Grade Track-bed in Cut - 2 Track (15' Avg. Exc Depth)	0.62	RM	12,044,415.10	/RM	7,467,537
		10.05.124	At-Grade Track-bed in Cut - 2 Track (20' Avg. Exc Depth)	0.84	RM	14,511,457.00	/RM	12,189,624
		10.05.126	At-Grade Track-bed in Cut - 2 Track (40' Avg. Exc Depth)	0.66	RM	27,855,174.97	/RM	18,384,415
		10.05.128	At-Grade Track-bed in Cut - 2 Track (60' Avg. Exc Depth)	0.51	RM	46,289,268.55	/RM	23,607,527

Alternatives	Sub Section	UPE	Description	Takeoff Quantity		Grand Total Price		Grand Total (2018\$)
		10.05.130	At-Grade Track-bed in Cut - 2 Track (80' Avg. Exc Depth)	0.29	RM	69,512,420.86	/RM	20,158,602
		10.05.221	At-Grade Track-bed in Fill - 2 Track (5' Avg. Fill Ht)	1.25	RM	5,954,231.30	/RM	7,442,789
		10.05.222	At-Grade Track-bed in Fill - 2 Track (10' Avg. Fill Ht)	0.79	RM	7,094,913.29	/RM	5,604,982
		10.05.223	At-Grade Track-bed in Fill - 2 Track (15' Avg. Fill Ht)	1.09	RM	8,534,339.17	/RM	9,302,430
		10.05.224	At-Grade Track-bed in Fill - 2 Track (20' Avg. Fill Ht)	0.38	RM	10,262,230.32	/RM	3,899,648
		10.05.226	At-Grade Track-bed in Fill - 2 Track (40' Avg. Fill Ht)	0.16	RM	20,328,593.75	/RM	3,252,575
		10.05.228	At-Grade Track-bed in Fill - 2 Track (60' Avg. Fill Ht)	0.06	RM	34,913,027.83	/RM	2,094,782
		10.07.100	TBM Single Track Twin Tunnels	21.59	RM	232,930,461.45	/RM	5,028,968,663
		10.07.107 A	Double Fault Chamber (for twin tunnels)	2.39	RM	657,923,852.40	/RM	1,572,438,007
		10.07.214	Cut & Cover Box - 2 Track / 1 Box (40' Avg. Exc Depth) (Add Mech & Elec from 10.07.902)	0.14	RM	245,111,176.89	/RM	33,090,009
		10.07.215	Cut & Cover Box - 2 Track / 1 Box (50' Avg. Exc Depth) (Add Mech & Elec from 10.07.902)	0.12	RM	285,780,912.36	/RM	35,151,052
		10.07.216	Cut & Cover Box - 2 Track / 1 Box (60' Avg. Exc Depth) (Add Mech & Elec from 10.07.902)	0.06	RM	349,032,633.55	/RM	21,640,023
		10.07.224 A	UG Structure Barrel Springs rd - Two portal boxes for 2 + 2 roadway lanes + external shoulders 2x40'6 Horizontal Clearance	1.58	RF	8,324,274.47	/RF	13,152,354
		10.07.301	SEM Tunnels	1.23	RM	545,520,471.58	/RM	670,990,180
		10.07.450	Mined Single Track Twin Tunnels	2.64	RM	342,570,256.20	/RM	904,385,476
		10.07.503	Crosspassages	182.00	EA	2,131,819.28	/EA	387,991,109
		10.07.504	Underground Paralleling/Switching Station	2.00	Ea	5,755,493.81	/Ea	11,510,988
		10.07.803 A	TBM Launching Twin Tunnels	1.00	Ea	206,694,558.35	/Ea	206,694,558
		10.07.806 A	Mountain Portal Construction	9.00	Ea	5,735,037.47	/Ea	51,615,337
		10.07.807 A	Portal landscape restoration for Portal P9 - SR14	1.00	Ea	3,141,400.84	/Ea	3,141,401
		10.07.808 A	Adit mountain portal construction	1.00	Ea	2,867,518.74	/Ea	2,867,519
		10.07.809	ADIT Construction	0.66	mile	415,873,981.41	/mile	274,476,828
		10.07.809 F	Underground TBM Dissassembly chamber	4.00	Ea	19,007,821.28	/Ea	76,031,285
		10.07.810 A	Tunnel Portal facilities, as described in TM 2.4.6. TSEFCZ excluded	10.00	EA	5,527,996.40	/EA	55,279,964
		10.07.811 A	Train Surface Evacuation and Fire Control Zone (TSEFCZ)	7.00	EA	132,718.63	/EA	929,030
		10.07.812	Binocular shafts	1.00	EA	42,413,507.95	/EA	42,413,508
		10.07.850	Pumping Station	3.00	ea	345,068.44	/ea	1,035,205

Alternatives	Sub Section	UPE	Description	Takeoff Quantity		Grand Total Price		Grand Total (2018\$)
		10.07.920 B	Tunnel Ventilation System - B	21.29	RM	25,133,029.11	/RM	535,082,190
		10.07.920 C	Tunnel Ventilation System - C	4.82	RM	25,133,029.11	/RM	121,141,200
		10.07.950 A	Construction Monitoring inside TBM twin tunnels	21.59	RM	2,252,441.14	/RM	48,630,204
		10.07.950 C	Construction Monitoring inside Cross Passages	182.00	EA	181,436.99	/EA	33,021,531
		10.07.950 D	Construction Monitoring inside Mined or SEM Single tunnel, incl adits	4.52	Mile	4,532,266.92	/Mile	20,485,846
		10.07.950 E	Construction Monitoring inside Mined Underground Paralleling Station	2.00	EA	725,747.94	/EA	1,451,496
		10.07.950 G	Surface and Building Monitoring	6.52	RM	2,751,368.70	/RM	17,938,924
		10.08.344	Retained Cut, Staged Trench - 4 Track (40' Avg Exc Depth)	0.16	RM	213,210,335.94	/RM	34,113,654
		10.08.346	Retained Cut, Staged Trench - 4 Track (60' Avg Exc Depth)	0.11	RM	336,053,665.09	/RM	36,965,903
		10.09.110	Ballasted Track - 1 Track	0.23	RM	2,232,056.52	/RM	513,373
		10.09.110 A	SCRRRA Ballasted Track - 1 Track	1.59	RM	2,059,839.42	/RM	3,275,145
		10.09.120	Ballasted Track - 2 Track	13.68	RM	4,025,797.10	/RM	55,072,904
		10.09.120 A	SCRRRA Ballasted Track - 2 Track	0.66	RM	3,953,933.62	/RM	2,609,596
		10.09.920	Ballasted Track Relocation - 1 Track (Permanent)	0.23	RM	2,802,589.04	/RM	644,595
		10.10.120	Direct Fixation - 2 Track	23.45	RM	3,574,844.63	/RM	83,830,107
		10.14.200 b	Ballasted Turnout (30MPH)	2.00	EA	94,784.53	/EA	189,569
		10.14.200 C	Ballasted Turnout (50MPH)	1.00	EA	265,396.69	/EA	265,397
		10.14.305	Ballasted Crossover (80MPH)	1.00	EA	1,120,511.14	/EA	1,120,511
		20.07.012 A	2 Lane Roadway Modification, New AC Paving (Sierra Hwy south of Ave S, Sta 728+00 to 775+12)	66,600.00	SF	25.41	/SF	1,692,193
		20.07.023 B	2 Lane Roadway Modification, New AC Paving including one-sided Curb & Sidewalk, painted median (Sierra Hwy north of Ave S, Sta 708+63 to 728+00)	19,840.00	SF	19.00	/SF	376,976
		20.07.023 C	2 Lane Roadway Modification, New AC Paving, Curb & Gutter (Sixth St at Barrel Springs Sta 7+66 to 13+60)	216,510.00	SF	18.77	/SF	4,063,984
		20.07.024 A	2 Lane Roadway Modification, New AC Paving, Curb & Gutter (Sixth St at Barrel Springs Sta 7+66 to 13+60)	58,400.00	SF	22.45	/SF	1,311,246
		20.07.024 B	4 Lane Roadway Modification, New AC Paving, raised/painted median (Barrel Springs, Sta 16+30 to 47+30)	53,314.00	SF	29.36	/SF	1,565,367
		20.07.025 A	6 Lane Roadway Modification, New AC Paving with Curb & Gutter, Sidewalk, Raised Median, Bike Path (Avenue S, Sta 82+50 to 117+80)	93,240.00	SF	29.19	/SF	2,721,797
		20.07.026 A	2 Lane Roadway Modification, New AC Paving, Curb & Gutter (Private Road 1) (From Sta 12+64 to Sta 27+24)	32,852.00	SF	17.40	/SF	571,733
		20.07.026 B	2 Lane Roadway Modification, New AC Paving, Curb & Gutter (Ralston Avenue) (Froms Sta 10+31 to Sta 24+34)	54,534.00	SF	17.23	/SF	939,729
		20.07.026 C	2 Lane Roadway Modification, New AC Paving, Curb & Gutter (Wicks St Cul-de-sac)	5,115.00	SF	19.59	/SF	100,186

Alternatives	Sub Section	UPE	Description	Takeoff Quantity		Grand Total Price		Grand Total (2018\$)
		20.07.026 D	4 Lane Roadway Modification, New AC Paving, Curb & Gutter, Sidewalks (Branford St) (From Sta 13+34 to Sta 25+80)	60,670.00	SF	20.67	/SF	1,254,048
		20.07.026 E	4 Lane Roadway Modification, New AC Paving, Curb & Gutter, Sidewalks, Painted/Raised Median (Sheldon St) (From Sta 8+88 to Sta 12+70)	25,593.00	SF	19.75	/SF	505,410
		20.07.711 B	2 Lane Roadway Modification, New AC Paving (Access Rd P-1)	74,146.75	SF	17.66	/SF	1,309,736
		20.07.711 C	2 Lane Roadway Modification, New AC Paving (Access Rd P-2)	25,100.25	SF	24.88	/SF	624,604
		20.07.711 D	2 Lane Roadway Modification, New AC Paving (Access Rd P-3A)	25,460.25	SF	30.17	/SF	768,191
		20.07.711 E	2 Lane Roadway Modification, New AC Paving (Access Rd P-3B)	23,374.00	SF	18.05	/SF	421,843
		20.07.711 F	2 Lane Roadway Modification, New AC Paving (Access Rd P-4)	26,326.75	SF	41.67	/SF	1,096,962
		20.07.711 G	2 Lane Roadway Modification, New AC Paving (Access Rd P-5)	246,001.00	SF	39.39	/SF	9,690,962
		20.07.711 H	2 Lane Roadway Modification, New AC Paving (Access Rd P-6A)	159,979.00	SF	44.30	/SF	7,086,865
		20.07.711 I	2 Lane Roadway Modification, New AC Paving (Access Rd P-6B)	31,714.75	SF	31.84	/SF	1,009,819
		20.07.711 J	2 Lane Roadway Modification, New AC Paving (Access Rd P-7)	41,994.25	SF	32.01	/SF	1,344,363
		20.07.711 K	2 Lane Roadway Modification, New AC Paving (Access Rd P-8)	139,040.50	SF	39.99	/SF	5,559,598
		20.07.711 L	2 Lane Roadway Modification, New AC Paving (Access Rd P-9)	28,437.50	SF	21.69	/SF	616,794
		20.07.711 M	2 Lane Roadway Modification, New AC Paving (Adit Access Rd SR14-1736W)	7,935.00	SF	16.00	/SF	126,948
		20.07.711 N	2 Lane Roadway Modification, New AC Paving (Adit Access Rd SR14-1750E)	7,947.25	SF	18.27	/SF	145,188
		20.07.712 A	2 Lane Roadway Modification, New AC Paving (Access Rd Burnell, Sta 10+00 to Sta 13+17)	7,935.00	SF	16.00	/SF	126,925
		20.07.712 B	2 Lane Roadway Modification, New AC Paving (Access Rd P-3, Sta 0+00 to Sta 7+30)	18,250.00	SF	16.00	/SF	291,919
		20.07.712 C	2 Lane Roadway Modification, New AC Paving with Curb & Gutter (Acc Rd Carson Mesa Rd, Sta 1+00 to Sta 17+28)	40,700.00	SF	17.31	/SF	704,411
		40.01.010 A	Demolition Allowance, Masonry/Sound Wall	3,999.00	LF	33.49	/LF	133,911
		40.01.050	Demolition Allowance, Building 1 Story	1,030,131.00	SF	32.51	/SF	33,484,869
		40.01.070 A	Demolition Allowance, Concrete Structure (Swimming Pools, unknown structures)	363.00	SF	44.09	/SF	16,003
		40.01.110	Demolition Allowance, Asphalt Pavement	267,760.00	SY	62.35	/SY	16,695,161
		40.01.110 A	Demolition Allowance, Concrete Pavement	17,402.00	SY	40.37	/SY	702,571
		40.01.140	Demolition Allowance, Concrete Curb	8,897.00	LF	19.12	/LF	170,082
		40.01.140 A	Demolition Allowance, Concrete Curb & Gutter	17,241.00	LF	20.58	/LF	354,880
		40.01.150	Demolition Allowance, Concrete Sidewalk	13,883.00	SY	132.44	/SY	1,838,641
		40.01.810	Demolition Allowance, Remove Railroad Track	21,556.00	LF	37.17	/LF	801,253

Alternatives	Sub Section	UPE	Description	Takeoff Quantity		Grand Total Price		Grand Total (2018\$)
		40.02.107 A	Natural Gas Pipeline, 3" to 8" Dia.	9,718.00	LF	327.13	/LF	3,179,067
		40.02.108 A	Natural Gas Pipeline, 10" to 18" Dia.	1,570.00	LF	354.74	/LF	556,937
		40.02.110 A	Natural Gas Pipeline, 30" to 42" Dia.	4,850.00	LF	515.26	/LF	2,499,013
		40.02.116 A	Potable Water Pipeline, <10"	12,070.00	LF	327.13	/LF	3,948,481
		40.02.116 B	Potable Water Pipeline, 10" to 16"	99,301.00	LF	339.97	/LF	33,758,931
		40.02.117 A	Potable Water Pipeline, 18" to 24"	8,270.00	LF	520.09	/LF	4,301,156
		40.02.118 A	Potable Water Pipeline, 27" to 33"	400.00	LF	728.24	/LF	291,296
		40.02.119 A	Efluent Water Pipeline, 36" to 48" Dia.	630.00	LF	983.01	/LF	619,298
		40.02.121 A	Overhead Power Trans Facility (≥ 69 kV)	9,405.00	LF	7,851.63	/LF	73,844,620
		40.02.122 A	Overhead Power Trans Facility (< 69 kV)	60,212.00	LF	621.12	/LF	37,399,070
		40.02.123 A	Underground Power Trans Facility (12 kV)	9,944.00	LF	368.77	/LF	3,667,004
		40.02.123 B	Underground Power Trans Facility (>69 kV)	1,270.00	LF	451.08	/LF	572,869
		40.02.127 A	Sewer, Gravity Pipeline, <10" Dia.	4,315.00	LF	431.34	/LF	1,861,248
		40.02.127 B	Sewer, Gravity Pipeline, 10" to 18" Dia.	1,876.00	LF	471.78	/LF	885,065
		40.02.150 A	Electrical/Telephone Ductbank	500.00	LF	368.77	/LF	184,383
		40.02.150 B	Fiber Optic Ductbank	1.00	LF	366.77	/LF	367
		40.02.150 C	Tel San Fernando Rd: East of CL	17,016.00	LF	368.77	/LF	6,274,917
		40.02.150 D	Tel San Fernando Rd: West of CL	14,585.00	LF	368.77	/LF	5,378,450
		40.02.200 B	Temporary California Aqueduct Impact (HSR alignment crosses in mined tunnel)	1.00	LF		/LF	
		40.03.100	Hazardous Material Removal Allowance, Light	0.76	RM	474,469.11	/RM	360,597
		40.03.105	Hazardous Material Removal Allowance, Medium	4.73	RM	474,469.10	/RM	2,244,239
		40.03.110	Hazardous Material Removal Allowance, Heavy	5.66	RM	474,469.10	/RM	2,685,495
		40.03.150	Removal of Contaminated Soil	211,855,211.00	CF	4.35	/CF	922,241,979
		40.04.105	Environmental Mitigation Allowance	1.00	LS	172,948,975.03	/LS	172,948,975
		40.05.012 A	Retaining Wall - 1 Wall (Var. Height)	3,095.00	LF	44,477.66	/LF	137,658,367
		40.05.211	Sound Wall - 1 Wall (8' Avg. Height)	4,820.00	LF	868.71	/LF	4,187,175
		40.05.402 A	Basin SR14 Sta 373+44	1.00	EA	382,226.84	/EA	382,227

Alternatives	Sub Section	UPE	Description	Takeoff Quantity		Grand Total Price		Grand Total (2018\$)
		40.05.402 B	Basin SR14 Sta 777+75	1.00	EA	354,183.90	/EA	354,184
		40.05.402 C	Basin SR14 Sta 814+60	1.00	EA	422,201.55	/EA	422,202
		40.05.402 D	Basin SR14 Sta 996+93	1.00	EA	399,090.24	/EA	399,090
		40.05.402 E	Basin SR14 Sta 1007+12	1.00	EA	414,671.57	/EA	414,672
		40.05.402 F	Basin SR14 Sta 1048+11	1.00	EA	330,542.68	/EA	330,543
		40.05.402 G	Basin SR14 Sta 1057+15	1.00	EA	300,909.92	/EA	300,910
		40.05.402 H	Basin SR14 Sta 1066+21	1.00	EA	326,115.27	/EA	326,115
		40.05.402I	Basin SR14 Sta 1102+51	1.00	EA	360,799.34	/EA	360,799
		40.05.402 J	Basin SR14 Sta 1138+99	1.00	EA	326,106.72	/EA	326,107
		40.05.402 K	Basin SR14 Sta 1175+90	1.00	EA	486,014.05	/EA	486,014
		40.05.402 L	Basin SR14 Sta 1240+72	1.00	EA	456,791.59	/EA	456,792
		40.05.402 M	Basin SR14 Sta 1318+56	1.00	EA	318,713.50	/EA	318,714
		40.05.500 A	24" Drainage Pipe	2,896.00	LF	310.56	/LF	899,386
		40.05.500 C	48" Drainage Pipe	4,588.00	LF	643.02	/LF	2,950,181
		40.05.500 E	60" Drainage Pipe	944.00	LF	953.58	/LF	900,181
		40.05.500 F	72" Drainage Pipe	100.00	LF	1,173.23	/LF	117,323
		40.05.600 B	10.5'x6.5' Drainage Box	1,342.00	LF	3,450.68	/LF	4,630,818
		40.05.800 A	Pumping Station	1.00	EA	345,068.44	/EA	345,068
		40.06.100	Temporary Facilities	1.00	LS	211,382,080.59	/LS	211,382,081
		40.07.010	Right of Way	1.00	LS	749,443,986.34	/LS	749,443,986
		40.08.425 D	Avenue S Overcrossing. Roadway Overcrossing - 6 lane, 10' shoulders, 8' sidewalks, 10' bike lane - 1 span	1.00	EA	5,512,483.97	/EA	5,512,484
		40.08.425 E	Avenue S Overhead. Roadway Overcrossing - 6 lane, 10' shoulders, 8' sidewalks, 10' bike lane - 3 spans	1.00	EA	11,771,037.86	/EA	11,771,038
		40.08.425 F	Avenue S Overhead. Roadway Overcrossing - 6 lane, 10' shoulders, 8' sidewalks, 10' bike lane - 3 spans	1.00	EA	12,195,132.68	/EA	12,195,133
		40.08.425 G	Brandford st Overhead. Roadway Overcrossing - 4 lane - 1 span	1.00	EA	4,610,041.69	/EA	4,610,042
		50.01.000	Wayside Signaling Equipment	37.13	RM	1,225,489.87	/RM	45,502,439
		50.04.000	Traffic Control and Dispatching Systems	37.13	RM	118,855.44	/RM	4,413,103
		50.04.010 A	New Traffic Signal	1.00	EA	1,077,185.79	/EA	1,077,186

Alternatives	Sub Section	UPE	Description	Takeoff Quantity		Grand Total Price		Grand Total (2018\$)
		50.04.020 A	Traffic Signal Modification	2.00	EA	4,679,847.29	/EA	9,359,695
		50.05.000	Communications	37.13	RM	1,125,323.95	/RM	41,783,278
		50.07.000	Hazard Detectors	37.13	RM	998,673.00	/RM	37,080,728
		60.02.000	Traction Power Supply	37.13	RM	2,967,842.68	/RM	110,195,999
		60.03.000	Traction Power Distribution	37.13	RM	3,136,306.09	/RM	116,451,045
		60.04.000	Traction Power Control	37.13	RM	4,938.17	/RM	183,354
		80.00.010	Professional Services	1.00	LS	983,494,638.83	/LS	983,494,639
		90.00.00	Unallocated Contingency	1.00	LS	267,162,480.69	/LS	267,162,481
			04.SR14 Cen SR14 Central					15,501,838,329
	05.BUR (E1/SR 14)		Burbank E1/SR14					
		10.07.214	Cut & Cover Box - 2 Track / 1 Box (40' Avg. Exc Depth) (Add Mech & Elec from 10.07.902)	0.10	RM	245,111,177.20	/RM	24,511,118
		10.07.215	Cut & Cover Box - 2 Track / 1 Box (50' Avg. Exc Depth) (Add Mech & Elec from 10.07.902)	0.09	RM	285,780,953.44	/RM	25,720,286
		10.07.216	Cut & Cover Box - 2 Track / 1 Box (60' Avg. Exc Depth) (Add Mech & Elec from 10.07.902)	0.08	RM	349,032,599.63	/RM	27,922,608
		10.07.219 A	Cut & Cover Box - 2 Track / 1 Box (100' Avg. Exc Depth)	0.38	RM	596,728,066.82	/RM	226,756,665
		10.07.250 A	Cut & Cover Box -Burbank Station (85' Avg. Exc Depth)	0.27	RM	1,054,573,122.04	/RM	284,756,988
		10.07.250 B	Cut & Cover Box - 4track/1Box (100' Avg. Exc Depth)	0.01	RM	1,206,804,550.45	/RM	16,896,584
		10.07.250 C	Cut & Cover Box - 3track/1Box (100' Avg. Exc Depth)	0.02	RM	1,206,804,550.45	/RM	26,551,774
		10.07.250 D	Cut & Cover Box - 5track/1Box (100' Avg. Exc Depth)	0.15	RM	1,206,804,551.48	/RM	179,827,926
		10.07.301	SEM Tunnels	0.23	RM	791,446,690.13	/RM	182,032,739
		10.07.920 C	Tunnel Ventilation System - C	0.12	RM	25,133,029.10	/RM	3,066,230
		10.07.950 D	Construction Monitoring inside Mined or SEM Single tunnel, incl adits	0.12	Mile	4,532,266.89	/Mile	552,937
		10.07.950 G	Surface and Building Monitoring	0.12	RM	2,751,368.75	/RM	330,164
		10.08.221	Retained Cut, Trench - 2 Track (10' Avg. Exc Depth)	0.07	RM	64,167,079.71	/RM	4,491,696
		10.08.222	Retained Cut, Trench - 2 Track (20' Avg. Exc Depth)	0.10	RM	135,009,334.20	/RM	13,500,933
		10.08.223	Retained Cut, Trench - 2 Track (30' Avg. Exc Depth)	0.11	RM	227,999,580.55	/RM	25,079,954
		10.10.110	Direct Fixation - 1 Track	1.69	RM	1,787,719.46	/RM	3,021,246
		10.10.120	Direct Fixation - 2 Track	0.55	RM	3,574,844.67	/RM	1,966,165

Alternatives	Sub Section	UPE	Description	Takeoff Quantity		Grand Total Price		Grand Total (2018\$)
		10.14.200	Ballasted Turnout (60MPH)	4.00	EA	449,921.95	/EA	1,799,688
		10.14.200 A	Ballasted Turnout (25MPH)	2.00	EA	265,396.69	/EA	530,793
		10.14.200 b	Ballasted Turnout (30MPH)	1.00	EA	94,784.53	/EA	94,785
		10.14.305	Ballasted Crossover (80MPH)	2.00	EA	1,120,511.15	/EA	2,241,022
		10.14.400	Terminal Bumping Post	4.00	EA	25,275.88	/EA	101,104
		20.01.247 A	Main and Secondary Station Buildings	141,954.00	sf	483.10	/sf	68,577,383
		20.01.247 B	Auxiliary Building	10,000.00	sf	289.86	/sf	2,898,575
		20.03.001 C	HSR Platform (underground)	84,600.00	SF	552.11	/SF	46,708,464
		20.06.201 B	Parking Walkway (Standard Sidewalks)	316,516.00	SF	19.25	/SF	6,092,744
		20.06.201 C	Parking Walkway (Enhanced Plazas)	410,764.00	SF	23.49	/SF	9,647,223
		20.06.800 A	Landscape	512,103.00	SF	18.32	/SF	9,379,798
		40.01.010	Demolition Allowance, Bridge	4,028.00	sf	44.77	/sf	180,328
		40.01.010 A	Demolition Allowance, Masonry/Sound Wall	1,873.00	LF	33.49	/LF	62,719
		40.01.010 B	Demolition Allowance, Retaining Wall	3,967.00	LF	33.49	/LF	132,839
		40.01.050	Demolition Allowance, Building 1 Story	661,944.00	SF	32.51	/SF	21,516,786
		40.01.110	Demolition Allowance, Asphalt Pavement	189,536.95	SY	62.35	/SY	11,817,859
		40.01.110 A	Demolition Allowance, Concrete Pavement	12,154.00	SY	40.37	/SY	490,694
		40.01.140	Demolition Allowance, Concrete Curb	2,877.00	LF	19.12	/LF	54,999
		40.01.140 A	Demolition Allowance, Concrete Curb & Gutter	19,107.40	LF	20.58	/LF	393,297
		40.01.150	Demolition Allowance, Concrete Sidewalk	16,012.40	SY	132.44	/SY	2,120,655
		40.01.810	Demolition Allowance, Remove Railroad Track	32,462.00	LF	37.17	/LF	1,206,638
		40.02.107 A	Natural Gas Pipeline, 3" to 8" Dia.	5,399.00	LF	327.13	/LF	1,766,185
		40.02.108 A	Natural Gas Pipeline, 10" to 18" Dia.	880.00	LF	354.74	/LF	312,169
		40.02.111 A	Oil Pipeline, 6" to 15" Dia.	11,510.00	LF	354.74	/LF	4,083,026
		40.02.112 A	Oil Pipeline, 18" to 24" Dia.	11,750.00	LF	354.74	/LF	4,168,163
		40.02.116 A	Potable Water Pipeline, <10"	2,150.00	LF	327.13	/LF	703,333
		40.02.116 B	Potable Water Pipeline, 10" to 16"	2,070.00	LF	339.97	/LF	703,729

Alternatives	Sub Section	UPE	Description	Takeoff Quantity		Grand Total Price		Grand Total (2018\$)
		40.02.117 A	Potable Water Pipeline, 18" to 24"	1,900.00	LF	520.09	/LF	988,174
		40.02.118 A	Potable Water Pipeline, 27" to 33"	501.00	LF	728.24	/LF	364,848
		40.02.119 A	Efluent Water Pipeline, 36" to 48" Dia.	5,350.00	LF	983.01	/LF	5,259,115
		40.02.122 A	Overhead Power Trans Facility (< 69 kV)	7,180.00	LF	621.12	/LF	4,459,665
		40.02.123 A	Underground Power Trans Facility (12 kV)	4,680.00	LF	368.77	/LF	1,725,823
		40.02.127 A	Sewer, Gravity Pipeline, <10" Dia.	2,080.00	LF	431.34	/LF	897,193
		40.02.127 B	Sewer, Gravity Pipeline, 10" to 18" Dia.	1,800.00	LF	471.78	/LF	849,208
		40.02.128 A	Sewer, Gravity Pipeline, 21" to 30" Dia.	200.00	LF	637.42	/LF	127,483
		40.02.150 C	Tel San Fernando Rd: East of CL	12,896.00	LF	368.77	/LF	4,755,603
		40.02.150 D	Tel San Fernando Rd: West of CL	15,740.00	LF	368.77	/LF	5,804,371
		40.03.110	Hazardous Material Removal Allowance, Heavy	0.57	RM	474,469.09	/RM	270,447
		40.03.150	Removal of Contaminated Soil	36,310,326.03	CF	4.35	/CF	158,065,061
		40.04.105	Environmental Mitigation Allowance	1.00	LS	172,948,975.03	/LS	172,948,975
		40.05.012 A	Retaining Wall - 1 Wall (Var. Height)	5,698.00	LF	44,477.66	/LF	253,433,723
		40.05.500 A	24" Drainage Pipe	744.00	LF	310.56	/LF	231,058
		40.05.500 C	48" Drainage Pipe	1,323.00	LF	643.02	/LF	850,718
		40.05.500 E	60" Drainage Pipe	867.00	LF	953.58	/LF	826,756
		40.05.500 G	42" Drainage Pipe	165.00	LF	586.62	/LF	96,792
		40.05.600 A	8.5'x5' Drainage Box	156.00	LF	2,760.55	/LF	430,645
		40.05.700 C	3'x3' Open Channel	2,108.00	LF	1,380.27	/LF	2,909,617
		40.06.100	Temporary Facilities	1.00	LS	211,382,080.59	/LS	211,382,081
		40.07.010	Right of Way	1.00	LS	395,579,553.97	/LS	395,579,554
		50.01.000	Wayside Signaling Equipment	0.55	RM	1,225,489.85	/RM	674,019
		50.04.000	Traffic Control and Dispatching Systems	0.55	RM	118,855.45	/RM	65,370
		50.04.010 A	New Traffic Signal	2.00	EA	1,077,185.79	/EA	2,154,372
		50.05.000	Communications	0.55	RM	1,125,323.96	/RM	618,928
		50.07.000	Hazard Detectors	0.55	RM	998,673.00	/RM	549,270

Alternatives	Sub Section	UPE	Description	Takeoff Quantity		Grand Total Price		Grand Total (2018\$)
		60.02.000	Traction Power Supply	0.55	RM	2,967,842.67	/RM	1,632,313
		60.03.000	Traction Power Distribution	0.55	RM	3,136,306.09	/RM	1,724,968
		60.04.000	Traction Power Control	0.55	RM	4,938.18	/RM	2,716
		80.00.010	Professional Services	1.00	LS	983,494,638.83	/LS	983,494,639
		90.00.00	Unallocated Contingency	1.00	LS	267,162,480.69	/LS	267,162,481
			05.BUR(E1/SR14) Burbank E1/SR14					3,725,106,994
			03.SR14 SR14 End to End Alternative 2018\$					22,400,454,587
E1A.			E1A End to End Alternative 2018\$					
	01.PLM		Palmdale Subsection					
		10.01.001 A	Steel Truss HSR viaduct, 1 track Sierra Hwy platform track 2x215' Span	2.00	EA	11,270,766.84	/EA	22,541,534
		10.01.002 A	Steel Truss HSR viaduct, 2 track Sierra Hwy platform track 2x215' Span	1.00	EA	13,465,498.51	/EA	13,465,499
		10.01.122 B	Elevated Structure Ave Q Platform Track - 1 Track (22' Avg. Pier Ht) Avg 105' span	2.00	EA	4,323,349.76	/EA	8,646,700
		10.01.222 A	Elevated Structure Tuxford st - 2 Track U-Shape girder (20' Avg. Pier Ht) Avg 110' span	1.00	EA	6,312,540.17	/EA	6,312,540
		10.02.060 A	Sierra Hwy Underpass (SCRAA) Bridge Structure - Two Span Steel Plate Girder Structure with 1 Track - 2 190' spans	1.00	EA	7,066,330.39	/EA	7,066,330
		10.02.060 B	Sierra Hwy Underpass (UPRR) Bridge Structure - Two Span Steel Plate Girder Structure with 1 Track 2-190' spans substructure for enlargement	1.00	EA	8,395,848.55	/EA	8,395,849
		10.02.060 E	Ave Q Underpass Railroad Bridge Structure - Single Span Steel Plate Girder Structure with 1 Track 1-105'span	3.00	EA	1,667,567.15	/EA	5,002,701
		10.04.100 A	36" Drainage Pipe	1,341.00	LF	315.95	/LF	423,686
		10.05.111	At-Grade Track-bed in Cut - 1 Track (5' Avg. Exc Depth)	0.68	RM	5,185,731.41	/RM	3,526,297
		10.05.112	At-Grade Track-bed in Cut - 1 Track (10' Avg. Exc Depth)	0.78	RM	6,840,216.81	/RM	5,335,369
		10.05.113	At-Grade Track-bed in Cut - 1 Track (15' Avg. Exc Depth)	0.08	RM	8,788,306.00	/RM	703,064
		10.05.114	At-Grade Track-bed in Cut - 1 Track (20' Avg. Exc Depth)	0.25	RM	11,029,998.88	/RM	2,757,500
		10.05.121	At-Grade Track-bed in Cut - 2 Track (5' Avg. Exc Depth)	0.66	RM	8,001,401.64	/RM	5,280,925
		10.05.122	At-Grade Track-bed in Cut - 2 Track (10' Avg. Exc Depth)	0.63	RM	9,876,089.87	/RM	6,221,937
		10.05.123	At-Grade Track-bed in Cut - 2 Track (15' Avg. Exc Depth)	0.07	RM	12,044,381.57	/RM	843,107
		10.05.124	At-Grade Track-bed in Cut - 2 Track (20' Avg. Exc Depth)	0.12	RM	14,511,416.92	/RM	1,741,370
		10.05.211	At-Grade Track-bed in Fill - 1 Track (5' Avg. Fill Ht)	2.63	RM	3,432,148.32	/RM	9,026,550
		10.05.212	At-Grade Track-bed in Fill - 1 Track (10' Avg. Fill Ht)	0.76	RM	4,352,624.34	/RM	3,307,995

Alternatives	Sub Section	UPE	Description	Takeoff Quantity		Grand Total Price		Grand Total (2018\$)
		10.05.221	At-Grade Track-bed in Fill - 2 Track (5' Avg. Fill Ht)	1.64	RM	5,954,214.83	/RM	9,764,912
		10.05.222	At-Grade Track-bed in Fill - 2 Track (10' Avg. Fill Ht)	0.63	RM	7,094,893.68	/RM	4,469,783
		10.07.114 A	Cut & Cover LMF crossing - 2 Tracks	1.00	EA	29,044,771.36	/EA	29,044,771
		10.08.213	Retained Cut, Trench - 1 Track (30' Avg. Exc Depth)	0.51	RM	178,909,361.63	/RM	91,243,774
		10.08.411	Retained Fill, Walls Both Sides - 1 Tracks (10' Avg. Wall Ht)	1.10	RM	13,740,902.07	/RM	15,114,992
		10.09.110	Ballasted Track - 1 Track	6.28	RM	2,232,052.02	/RM	14,017,287
		10.09.110 A	SCRRA Ballasted Track - 1 Track	1.42	RM	2,059,834.15	/RM	2,924,965
		10.09.120	Ballasted Track - 2 Track	3.13	RM	4,025,785.89	/RM	12,600,710
		10.09.120 A	SCRRA Ballasted Track - 2 Track	0.83	RM	3,953,922.45	/RM	3,281,756
		10.09.240	Ballasted Track - 2 Track (Station Track)	1.76	RM	8,051,572.15	/RM	14,170,767
		10.09.920	Ballasted Track Relocation - 1 Track (Permanent)	0.91	RM	2,802,581.26	/RM	2,550,349
		10.14.200	Ballasted Turnout (60MPH)	7.00	EA	449,920.71	/EA	3,149,445
		10.14.200 A	Ballasted Turnout (25MPH)	2.00	EA	265,395.96	/EA	530,792
		10.14.200 b	Ballasted Turnout (30MPH)	1.00	EA	94,784.27	/EA	94,784
		10.14.305	Ballasted Crossover (80MPH)	3.00	EA	1,120,508.04	/EA	3,361,524
		10.14.400	Terminal Bumping Post	2.00	EA	25,275.81	/EA	50,552
		10.14.500 A	Crossing Panels	38.00	EA	1,137.41	/EA	43,222
		20.01.247 A	Main and Secondary Station Buildings	80,182.00	sf	483.09	/sf	38,735,491
		20.01.247 B	Auxiliary Building	10,000.00	sf	289.86	/sf	2,898,568
		20.03.001 A	HSR Platform (at grade)	112,776.00	SF	552.11	/SF	62,264,544
		20.03.001 B	Metrolink Platform (at grade)	20,427.00	SF	552.11	/SF	11,277,912
		20.06.100 B	Pedestrian Bridges (Overhead) Avg 120' span x 20' wide	123,032.00	SF	654.57	/SF	80,533,240
		20.06.201 A	Parking Roadways Avg 330 sf per stall	5,853.45	sf	5,442.33	/sf	31,856,375
		20.06.201 B	Parking Walkway (Standard Sidewalks)	234,350.00	SF	19.25	/SF	4,511,086
		20.06.201 C	Parking Walkway (Enhanced Plazas)	160,283.00	SF	23.49	/SF	3,764,405
		20.06.800 A	Landscape	712,875.00	SF	18.32	/SF	13,057,151
		20.07.011 F	2 Lane Roadway Modification, New AC Paving (Foreston Dr Sta 91+00 to 132+33)	23,200.00	SF	17.94	/SF	416,141

Alternatives	Sub Section	UPE	Description	Takeoff Quantity		Grand Total Price		Grand Total (2018\$)
		20.07.020	Roadway Modification, New AC Paving (including Curb & Sidewalk)	74,154.08	SF	21.27	/SF	1,577,207
		20.07.020 E	2 Lane Roadway Modification, New AC Paving including Curb & Gutter, Sidewalk, painted median (Avenue Q) (From Sta 94+00 to Sta 130+00_	8,928.00	SF	18.28	/SF	163,247
		20.07.020 G	2 Lane Roadway Modification, New AC Paving including Curb & Gutter, Sidewalk (Avenue Q9 & Q12)	28,278.00	SF	20.42	/SF	577,456
		20.07.021 A	4 Lane Roadway Modification, New AC Paving with Curb & Gutter, Sidewalk, Raised Median, Bike Path (Fifth St Sta 100+55 to 167+00)4 Lane Roadway Modification, New AC Paving with Curb & Gutter, Sidewalk, Raised Median, Bike Path (Fifth St Sta 100+55 to 167+00)	627,200.00	SF	31.97	/SF	20,049,049
		20.07.021 B	4 Lane Roadway Modification, New AC Paving with Curb & Gutter, Sidewalk, Raised Median (Fifth St Sta 168+22 to 197+00)	332,831.52	SF	22.40	/SF	7,455,658
		20.07.021 C	4 Lane Roadway Modification, New AC Paving with Curb & Gutter, Sidewalk, Raised Median (Avenue R Sta 91+53 to 128+48)	245,055.54	SF	38.19	/SF	9,359,493
		20.07.021 D	4 Lane Roadway Modification, New AC Paving with Curb & Gutter, Sidewalk, (Sixth St Sta 10+00 to 50+15.07)	337,265.88	SF	20.25	/SF	6,827,950
		20.07.022 A	6 Lane Roadway Modification, New AC Paving with Curb & Gutter, Sidewalk, Raised Median, Bike Path (Sierra Hwy Sta 500+00 to 625.88)	345,600.00	SF	29.76	/SF	10,284,912
		20.07.022 B	6 Lane Roadway Modification, New AC Paving with Curb & Gutter, Sidewalk, Raised Median (Palmdale Blvd Sta 91+63 to 127+65)	1,611,264.00	SF	32.16	/SF	51,812,806
		20.07.022 C	6 Lane Roadway Modification, New AC Paving with Curb & Gutter, Sidewalk, Raised Median, Bike Path (Avenue S, Sta 82+50 to 117+80)	311,289.90	SF	29.19	/SF	9,086,935
		40.01.010 A	Demolition Allowance, Masonry/Sound Wall	22,020.00	LF	33.49	/LF	737,360
		40.01.050	Demolition Allowance, Building 1 Story	1,795,428.00	SF	32.51	/SF	58,361,042
		40.01.110	Demolition Allowance, Asphalt Pavement	1,278,163.00	SY	62.35	/SY	79,694,811
		40.01.110 A	Demolition Allowance, Concrete Pavement	55,794.67	SY	40.37	/SY	2,252,593
		40.01.140	Demolition Allowance, Concrete Curb	64,343.00	LF	19.12	/LF	1,230,029
		40.01.140 A	Demolition Allowance, Concrete Curb & Gutter	64,895.00	LF	20.58	/LF	1,335,761
		40.01.150	Demolition Allowance, Concrete Sidewalk	364,718.00	SY	132.44	/SY	48,302,520
		40.01.810	Demolition Allowance, Remove Railroad Track	4,350.00	LF	37.17	/LF	161,692
		40.01.900 A	Clearing & Grubbing Landscape Areas	1,218,518.00	SY	25.49	/SY	31,064,400
		40.02.107 A	Natural Gas Pipeline, 3" to 8" Dia.	2,128.00	LF	327.13	/LF	696,135
		40.02.108 A	Natural Gas Pipeline, 10" to 18" Dia.	790.00	LF	354.74	/LF	280,242
		40.02.116 A	Potable Water Pipeline, <10"	160.00	LF	327.13	/LF	52,341
		40.02.116 B	Potable Water Pipeline, 10" to 16"	21,728.00	LF	339.96	/LF	7,386,755
		40.02.117 A	Potable Water Pipeline, 18" to 24"	825.00	LF	520.09	/LF	429,074
		40.02.121 A	Overhead Power Trans Facility (≥ 69 kV)	7,375.00	LF	7,851.61	/LF	57,905,656
		40.02.122 A	Overhead Power Trans Facility (< 69 kV)	4,490.00	LF	621.12	/LF	2,788,836

Alternatives	Sub Section	UPE	Description	Takeoff Quantity		Grand Total Price		Grand Total (2018\$)
		40.02.127 A	Sewer, Gravity Pipeline, <10" Dia.	15,351.00	LF	431.49	/LF	6,623,797
		40.02.127 B	Sewer, Gravity Pipeline, 10" to 18" Dia.	4,642.00	LF	472.76	/LF	2,194,530
		40.02.129 A	Sewer, Gravity Pipeline, 48" to 66" Dia.	3,410.00	LF	637.41	/LF	2,173,580
		40.02.150 A	Electrical/Telephone Ductbank	800.00	LF	368.76	/LF	295,012
		40.02.150 B	Fiber Optic Ductbank	2.00	LF	370.10	/LF	740
		40.02.150 C	Tel San Fernando Rd: East of CL	1,320.00	LF	368.76	/LF	486,769
		40.02.150 D	Tel San Fernando Rd: West of CL	5,057.00	LF	368.76	/LF	1,864,842
		40.03.105	Hazardous Material Removal Allowance, Medium	1.67	RM	474,467.91	/RM	792,361
		40.03.110	Hazardous Material Removal Allowance, Heavy	0.51	RM	474,467.88	/RM	241,979
		40.03.150	Removal of Contaminated Soil	1,025,000.00	CF	4.35	/CF	4,461,989
		40.04.105	Environmental Mitigation Allowance				/LS	182,607,292
		40.05.012 A	Retaining Wall - 1 Wall (Var. Height)	2,277.00	LF	44,477.55	/LF	101,275,382
		40.05.211	Sound Wall - 1 Wall (8' Avg. Height)	2,690.00	LF	868.71	/LF	2,336,820
		40.05.400 A	Basin at Avenue O	1.00	EA	286,943.29	/EA	286,943
		40.05.400 B	Basin at Avenue R	1.00	EA	16,794,928.01	/EA	16,794,928
		40.05.500 B	36" Drainage Pipe	414.00	LF	345.07	/LF	142,858
		40.05.500 C	48" Drainage Pipe	9,247.00	LF	643.02	/LF	5,946,007
		40.05.500 E	60" Drainage Pipe	1,090.00	LF	953.58	/LF	1,039,403
		40.05.600 C	10'x10' Drainage Box	1,120.00	LF	6,211.22	/LF	6,956,562
		40.05.600 D	Triple 21.5'x12' Drainage Box	3,333.00	LF	11,387.23	/LF	37,953,637
		40.05.700 A	12'x12' Open Channel	5,319.00	LF	3,105.61	/LF	16,518,729
		40.05.700 B	25'x12.5' Open Channel	2,095.00	LF	6,211.22	/LF	13,012,498
		40.05.800 A	Pumping Station	2.00	EA	345,067.57	/EA	690,135
		40.05.800 B	Basin Sump Pump	2.00	EA	345,067.57	/EA	690,135
		40.06.100	Temporary Facilities	1.00	LS	334,780,036.03	/LS	334,780,036
		40.07.010	Right of Way	1.00	LS	245,590,622.95	/LS	245,590,623
		40.08.425 A	Avenue R Overhead. Roadway Overcrossing - 4 lane - 6 spans	1.00	EA	15,006,759.05	/EA	15,006,759

Alternatives	Sub Section	UPE	Description	Takeoff Quantity		Grand Total Price		Grand Total (2018\$)
		40.08.425 B	Palmdale blvd Overhead. Roadway Overcrossing - 6 lane, 10' shoulders, 8' sidewalks - 5 spans	1.00	EA	24,109,807.73	/EA	24,109,808
		40.08.425 C	Palmdale blvd Overcrossing. Roadway Overcrossing - 6 lane, 10' shoulders, 8' sidewalks - 1 span	1.00	EA	3,642,015.96	/EA	3,642,016
		50.01.000	Wayside Signaling Equipment	3.13	RM	1,225,486.05	/RM	3,835,771
		50.04.000	Traffic Control and Dispatching Systems	3.13	RM	118,855.07	/RM	372,016
		50.04.010 A	New Traffic Signal	11.00	EA	1,077,182.43	/EA	11,849,007
		50.04.020 A	Traffic Signal Modification	2.00	EA	4,679,832.68	/EA	9,359,665
		50.05.000	Communications	3.13	RM	1,125,320.44	/RM	3,522,253
		50.07.000	Hazard Detectors	3.13	RM	998,669.88	/RM	3,125,837
		60.02.000	Traction Power Supply	3.13	RM	2,967,833.43	/RM	9,289,319
		60.03.000	Traction Power Distribution	3.13	RM	3,136,296.30	/RM	9,816,607
		60.04.000	Traction Power Control	3.13	RM	4,938.15	/RM	15,456
		80.00.010	Professional Services	1.00	LS	1,036,590,925	/LS	1,036,590,925
		90.00.00	Unallocated Contingency	1.00	LS	278,034,435.27	/LS	278,034,435
			01.PLM Palmdale Subsection					3,370,529,673
	07.E1A Cen		E1A Central					
		10.01.004 D	Soledad Siphon viaduct - 2 tracks straddle bent, truss & U shape concrete girders 851' along HSR SB track	1.00	EA	34,781,818.79	/EA	34,781,819
		10.01.122 A	Elevated Structure North of Foreston Drive - 1 Track (10' Avg. Pier Ht) Avg 115' span	1.00	EA	30,196,479.29	/EA	30,196,479
		10.01.123 A	Elevated Structure South of Foreston Drive - 1 Track (37' Avg. Pier Ht) Avg 115' span	1.00	EA	64,745,709.81	/EA	64,745,710
		10.01.127 D	Elevated Structure AGUA DULCE - 1 Track & 2 Track TDZ (57' Avg. Pier Ht) ave 120' span	1.00	EA	88,643,156.22	/EA	88,643,156
		10.01.222 A	Elevated Structure Tuxford st - 2 Track U-Shape girder (20' Avg. Pier Ht) Avg 110' span	2.00	EA	6,312,540.17	/EA	12,625,080
		10.01.222 B	Elevated Structure Hansen Dam spillway - 2 Track 2 U-Shape girder ave 110' span	1.00	EA	4,694,765.98	/EA	4,694,766
		10.01.222 C	Elevated Structure Sheldon St - 2 Track 2 U-Shape girder ave 110' span	1.00	EA	6,261,001.14	/EA	6,261,001
		10.01.223 A	Elevated Structure Aliso Canyon - 2 Track Train Detention Zone (20' Avg. Pier Ht) Box culvert @ abutment	1.00	EA	43,384,413.02	/EA	43,384,413
		10.02.060 F	Vulcan Mine Hopper facility Steel Structure - Steel portal frames Structure with 1 Track 4-21' spans	1.00	EA	12,666,115.46	/EA	12,666,115
		10.04.100 A	36" Drainage Pipe	8,928.00	LF	315.95	/LF	2,820,780
		10.04.100 B	48" Drainage Pipe	2,584.00	LF	568.71	/LF	1,469,535
		10.04.100 C	72" Drainage Pipe	2,033.00	LF	1,074.22	/LF	2,183,893

Alternatives	Sub Section	UPE	Description	Takeoff Quantity		Grand Total Price		Grand Total (2018\$)
		10.05.121	At-Grade Track-bed in Cut - 2 Track (5' Avg. Exc Depth)	0.55	RM	8,001,401.67	/RM	4,400,771
		10.05.122	At-Grade Track-bed in Cut - 2 Track (10' Avg. Exc Depth)	1.42	RM	9,876,089.86	/RM	14,024,048
		10.05.123	At-Grade Track-bed in Cut - 2 Track (15' Avg. Exc Depth)	0.27	RM	12,044,381.78	/RM	3,251,983
		10.05.124	At-Grade Track-bed in Cut - 2 Track (20' Avg. Exc Depth)	1.45	RM	14,511,416.88	/RM	21,041,554
		10.05.126	At-Grade Track-bed in Cut - 2 Track (40' Avg. Exc Depth)	0.52	RM	27,855,097.96	/RM	14,484,651
		10.05.128	At-Grade Track-bed in Cut - 2 Track (60' Avg. Exc Depth)	0.96	RM	46,289,140.55	/RM	44,437,575
		10.05.130	At-Grade Track-bed in Cut - 2 Track (80' Avg. Exc Depth)	0.72	RM	69,512,228.65	/RM	50,048,805
		10.05.132	At-Grade Track-bed in Cut - 2 Track (100' Avg. Exc Depth)	0.24	RM	98,504,611.33	/RM	23,641,107
		10.05.221	At-Grade Track-bed in Fill - 2 Track (5' Avg. Fill Ht)	1.20	RM	5,954,214.83	/RM	7,145,058
		10.05.222	At-Grade Track-bed in Fill - 2 Track (10' Avg. Fill Ht)	0.66	RM	7,094,893.67	/RM	4,682,630
		10.05.223	At-Grade Track-bed in Fill - 2 Track (15' Avg. Fill Ht)	0.41	RM	8,534,315.54	/RM	3,499,069
		10.05.224	At-Grade Track-bed in Fill - 2 Track (20' Avg. Fill Ht)	0.32	RM	10,262,201.88	/RM	3,283,905
		10.05.228	At-Grade Track-bed in Fill - 2 Track (60' Avg. Fill Ht)	1.31	RM	34,912,931.84	/RM	45,735,941
		10.07.100	TBM Single Track Twin Tunnels	18.04	RM	273,417,309.24	/RM	4,932,448,259
		10.07.107 A	Double Fault Chamber (for twin tunnels)	1.29	RM	657,921,974.86	/RM	848,719,348
		10.07.114 B	Cut & cover Sierra Highway Overhead - 2 Tracks 660' along HSR SB Track	1.00	EA	36,940,245.14	/EA	36,940,245
		10.07.114 C	Cut & cover Metrolink Overhead - 2 Tracks 454' along HSR SB track	1.00	EA	26,174,176.43	/EA	26,174,176
		10.07.214	Cut & Cover Box - 2 Track / 1 Box (40' Avg. Exc Depth) (Add Mech & Elec from 10.07.902)	0.14	RM	245,110,556.44	/RM	33,089,925
		10.07.215	Cut & Cover Box - 2 Track / 1 Box (50' Avg. Exc Depth) (Add Mech & Elec from 10.07.902)	0.12	RM	285,780,188.86	/RM	35,150,963
		10.07.216	Cut & Cover Box - 2 Track / 1 Box (60' Avg. Exc Depth) (Add Mech & Elec from 10.07.902)	0.06	RM	349,031,749.68	/RM	21,639,968
		10.07.224 A	UG Structure Barrel Springs rd - Two portal boxes for 2 + 2 roadway lanes + external shoulders 2x40'6 Horizontal Clearance	1.00	RF	8,324,253.40	/RF	8,324,253
		10.07.224 B	Aliso canyon acc. rd south. UG Structure - Two portal boxes for 2 + 2 roadway lanes + external shoulders 2x41'6 Horizontal Clearance	1.00	EA	12,012,994.72	/EA	12,012,995
		10.07.224 C	UG Structure Barrel Springs rd - Twin vaults for 2 + 2 roadway lanes + external shoulders 2x40 Horizontal clearance	1.00	EA	26,301,991.26	/EA	26,301,991
		10.07.225	Cut & Cover Box - 2 Track / 2 Box (50' Avg. Exc Depth) (Add Mech & Elec from 10.07.902)	0.09	RM	400,934,959.00	/RM	36,084,146
		10.07.301	SEM Tunnels	1.23	RM	545,518,914.54	/RM	670,988,265
		10.07.450	Mined Single Track Twin Tunnels	6.94	RM	375,225,809.43	/RM	2,604,067,117
		10.07.503	Crosspassages	186.00	EA	2,128,729.00	/EA	395,943,594
		10.07.504	Underground Paralleling/Switching Station	5.00	Ea	8,057,668.35	/Ea	40,288,342

Alternatives	Sub Section	UPE	Description	Takeoff Quantity		Grand Total Price		Grand Total (2018\$)
		10.07.803 A	TBM Launching Twin Tunnels	1.00	Ea	206,693,968.41	/Ea	206,693,968
		10.07.806 A	Mountain Portal Construction	5.00	Ea	5,735,022.95	/Ea	28,675,115
		10.07.808 A	Adit mountain portal construction	1.00	Ea	2,867,511.48	/Ea	2,867,511
		10.07.809	ADIT Construction	0.76	mile	553,938,400.22	/mile	420,993,184
		10.07.809 F	Underground TBM Dissassembly chamber	4.00	Ea	19,007,767.03	/Ea	76,031,068
		10.07.810 A	Tunnel Portal facilities, as described in TM 2.4.6. TSEFCZ excluded	6.00	EA	5,527,982.41	/EA	33,167,894
		10.07.811 A	Train Surface Evacuation and Fire Control Zone (TSEFCZ)	5.00	EA	132,718.29	/EA	663,591
		10.07.812	Binocular shafts	1.00	EA	102,388,337.89	/EA	102,388,338
		10.07.850	Pumping Station	3.00	ea	345,067.57	/ea	1,035,203
		10.07.920 A	Tunnel Ventilation System - A	21.66	RM	25,132,959.16	/RM	544,379,895
		10.07.920 C	Tunnel Ventilation System - C	5.57	RM	25,132,959.16	/RM	139,990,583
		10.07.950 A	Construction Monitoring inside TBM twin tunnels	18.04	RM	2,252,435.44	/RM	40,633,935
		10.07.950 B	Construction Monitoring inside Mined or SEM twin tunnels	1.66	RM	4,074,005.70	/RM	6,762,849
		10.07.950 C	Construction Monitoring inside Cross Passages	186.00	EA	181,436.53	/EA	33,747,194
		10.07.950 D	Construction Monitoring inside Mined or SEM Single tunnel, incl adits	7.25	Mile	4,532,255.44	/Mile	32,858,852
		10.07.950 E	Construction Monitoring inside Mined Underground Paralleling Station	5.00	EA	725,746.11	/EA	3,628,731
		10.07.950 G	Surface and Building Monitoring	3.46	RM	2,751,361.73	/RM	9,519,712
		10.08.221	Retained Cut, Trench - 2 Track (10' Avg. Exc Depth)	0.59	RM	64,166,902.24	/RM	37,858,472
		10.08.222	Retained Cut, Trench - 2 Track (20' Avg. Exc Depth)	0.79	RM	135,008,963.65	/RM	106,117,045
		10.08.223	Retained Cut, Trench - 2 Track (30' Avg. Exc Depth)	0.89	RM	227,998,950.00	/RM	202,919,065
		10.08.421	Retained Fill, Wall Both Sides - 2 Tracks (10' Avg. Wall Ht)	1.79	RM	16,440,080.45	/RM	29,427,744
		10.08.422	Retained Fill, Walls Both Sides - 2 Tracks (20' Avg. Wall Ht)	0.31	RM	27,831,715.05	/RM	8,711,327
		10.09.110	Ballasted Track - 1 Track	0.17	RM	2,232,054.47	/RM	379,449
		10.09.110 A	SCRRA Ballasted Track - 1 Track	0.90	RM	2,059,833.88	/RM	1,853,850
		10.09.120	Ballasted Track - 2 Track	20.52	RM	4,025,786.00	/RM	82,609,129
		10.09.120 A	SCRRA Ballasted Track - 2 Track	0.66	RM	3,953,922.70	/RM	2,609,589
		10.09.910	Ballasted Track Relocation - 1 Track (Temporary)	0.90	RM	2,802,581.28	/RM	2,522,323

Alternatives	Sub Section	UPE	Description	Takeoff Quantity		Grand Total Price		Grand Total (2018\$)
		10.09.920	Ballasted Track Relocation - 1 Track (Permanent)	0.45	RM	2,802,581.29	/RM	1,261,162
		10.10.120	Direct Fixation - 2 Track	16.30	RM	3,574,834.75	/RM	58,269,806
		10.14.200 b	Ballasted Turnout (30MPH)	2.00	EA	94,784.27	/EA	189,569
		10.14.200 c	Ballasted Turnout (50MPH)	1.00	EA	265,395.96	/EA	265,396
		10.14.305	Ballasted Crossover (80MPH)	1.00	EA	1,120,508.04	/EA	1,120,508
		20.07.011 A	2 Lane Roadway Modification, New AC Paving (Sierra Hwy south of Ave S, Sta 728+00 to 775+12)	87,278.00	SF	27.84	/SF	2,429,549
		20.07.011 F	2 Lane Roadway Modification, New AC Paving (Foreston Dr Sta 91+00 to 132+33)	122,592.00	SF	17.94	/SF	2,198,949
		20.07.012 A	2 Lane Roadway Modification, New AC Paving (Sierra Hwy south of Ave S, Sta 728+00 to 775+12)	92,947.00	SF	25.41	/SF	2,361,620
		20.07.020	Roadway Modification, New AC Paving (including Curb & Sidewalk)	68,313.00	SF	21.27	/SF	1,452,972
		20.07.020 B	2 Lane Roadway Modification, New AC Paving with Curb & Gutter, Sidewalk (Cul-de-Sacs, private streets 36' to 40' wide)	148,240.00	SF	19.95	/SF	2,957,121
		20.07.020 C	2 Lane Roadway Modification, New AC Paving including Curb & Sidewalk (E Avenue R11/Valley Forge from Sta 10+36 to Sta 18+38)	12,479.00	SF	21.25	/SF	265,194
		20.07.020 D	2 Lane Roadway Modification, New AC Paving including one-sided Curb & Sidewalk, painted median (Sierra Hwy north of Ave S, Sta 708+63 to 728+00)	10,970.00	SF	18.79	/SF	206,103
		20.07.021 E	4 Lane Roadway Modification, New AC Paving with partial Curb & Gutter, Sidewalk (Tenth St at Ave S, Sta 10+49 to 32+38)	17,965.00	SF	22.03	/SF	395,809
		20.07.022 C	6 Lane Roadway Modification, New AC Paving with Curb & Gutter, Sidewalk, Raised Median, Bike Path (Avenue S, Sta 82+50 to 117+80)	69,650.00	SF	29.19	/SF	2,033,169
		20.07.023 A	2 Lane Roadway Modification, New AC Paving including Curb & Sidewalk (E Avenue R11/Valley Forge)	12,480.00	SF	22.01	/SF	274,676
		20.07.023 B	2 Lane Roadway Modification, New AC Paving including one-sided Curb & Sidewalk, painted median (Sierra Hwy north of Ave S, Sta 708+63 to 728+00)	10,970.00	SF	19.00	/SF	208,438
		20.07.024 A	2 Lane Roadway Modification, New AC Paving, Curb & Gutter (Sixth St at Barrel Springs Sta 7+66 to 13+60)	17,965.00	SF	22.45	/SF	403,364
		20.07.025 A	6 Lane Roadway Modification, New AC Paving with Curb & Gutter, Sidewalk, Raised Median, Bike Path (Avenue S, Sta 82+50 to 117+80)	69,650.00	SF	29.19	/SF	2,033,169
		20.07.026 A	2 Lane Roadway Modification, New AC Paving, Curb & Gutter (Private Road 1) (From Sta 12+64 to Sta 27+24)	12,042.00	SF	17.40	/SF	209,570
		20.07.026 C	2 Lane Roadway Modification, New AC Paving, Curb & Gutter (Wicks St Cul-de-sac)	5,115.00	SF	19.59	/SF	100,186
		20.07.026 D	4 Lane Roadway Modification, New AC Paving, Curb & Gutter, Sidewalks (Branford St) (From Sta 13+34 to Sta 25+80)	60,670.00	SF	20.67	/SF	1,254,045
		20.07.026 E	4 Lane Roadway Modification, New AC Paving, Curb & Gutter, Sidewalks, Painted/Raised Median (Sheldon St) (From Sta 8+88 to Sta 12+70)	25,593.00	SF	19.75	/SF	505,409
		20.07.711 A	2 Lane Roadway Modification, New AC Paving (Access Rd at Water Treatment Plant) (Froms Sta 3+38 to 11+11+45.52)	33,516.00	SF	16.83	/SF	564,148
		20.07.711 B	2 Lane Roadway Modification, New AC Paving (Access Rd P-1)	42,261.00	SF	17.66	/SF	746,501
		20.07.711 C	2 Lane Roadway Modification, New AC Paving (Access Rd P-2)	84,246.00	SF	24.88	/SF	2,096,403
		40.01.010	Demolition Allowance, Bridge	14,495.00	sf	44.77	/sf	648,920
		40.01.010 A	Demolition Allowance, Masonry/Sound Wall	3,927.00	LF	33.49	/LF	131,499

Alternatives	Sub Section	UPE	Description	Takeoff Quantity		Grand Total Price		Grand Total (2018\$)
		40.01.050	Demolition Allowance, Building 1 Story	969,700.00	SF	32.51	/SF	31,520,452
		40.01.110	Demolition Allowance, Asphalt Pavement	353,841.00	SY	62.35	/SY	22,062,360
		40.01.110 A	Demolition Allowance, Concrete Pavement	14,661.00	SY	40.37	/SY	591,907
		40.01.140	Demolition Allowance, Concrete Curb	9,220.00	LF	19.12	/LF	176,256
		40.01.140 A	Demolition Allowance, Concrete Curb & Gutter	14,593.00	LF	20.58	/LF	300,374
		40.01.150	Demolition Allowance, Concrete Sidewalk	14,211.00	SY	132.44	/SY	1,882,076
		40.01.810	Demolition Allowance, Remove Railroad Track	21,381.00	LF	37.17	/LF	794,746
		40.02.107 A	Natural Gas Pipeline, 3" to 8" Dia.	3,180.00	LF	327.13	/LF	1,040,276
		40.02.108 A	Natural Gas Pipeline, 10" to 18" Dia.	4,045.00	LF	354.74	/LF	1,434,909
		40.02.110 A	Natural Gas Pipeline, 30" to 42" Dia.	828.00	LF	515.26	/LF	426,635
		40.02.116 A	Potable Water Pipeline, <10"	2,047.00	LF	327.13	/LF	669,637
		40.02.116 B	Potable Water Pipeline, 10" to 16"	7,919.00	LF	339.96	/LF	2,692,181
		40.02.117 A	Potable Water Pipeline, 18" to 24"	13,605.00	LF	520.09	/LF	7,075,826
		40.02.118 A	Potable Water Pipeline, 27" to 33"	3,950.00	LF	728.24	/LF	2,876,536
		40.02.119 A	Efluent Water Pipeline, 36" to 48" Dia.	932.00	LF	983.01	/LF	916,165
		40.02.119 B	Runoff Water Pipeline, 48" Dia.	1,144.00	LF	983.01	/LF	1,124,563
		40.02.121 A	Overhead Power Trans Facility (≥ 69 kV)	19,202.00	LF	7,851.61	/LF	150,766,698
		40.02.122 A	Overhead Power Trans Facility (< 69 kV)	27,879.00	LF	621.12	/LF	17,316,250
		40.02.127 A	Sewer, Gravity Pipeline, <10" Dia.	1,632.00	LF	431.34	/LF	703,953
		40.02.127 B	Sewer, Gravity Pipeline, 10" to 18" Dia.	2,788.00	LF	471.78	/LF	1,315,323
		40.02.150 A	Electrical/Telephone Ductbank	500.00	LF	368.76	/LF	184,382
		40.02.150 B	Fiber Optic Ductbank	1.00	LF	366.76	/LF	367
		40.02.150 C	Tel San Fernando Rd: East of CL	15,556.00	LF	368.76	/LF	5,736,505
		40.02.150 D	Tel San Fernando Rd: West of CL	15,465.00	LF	368.76	/LF	5,702,949
		40.02.200 A	Tel San Fernando Rd: West of CL	1.00	LF		/LF	
		40.03.100	Hazardous Material Removal Allowance, Light	0.89	RM	474,467.90	/RM	422,276
		40.03.105	Hazardous Material Removal Allowance, Medium	3.98	RM	474,467.91	/RM	1,886,010

Alternatives	Sub Section	UPE	Description	Takeoff Quantity		Grand Total Price		Grand Total (2018\$)
		40.03.110	Hazardous Material Removal Allowance, Heavy	4.72	RM	474,467.90	/RM	2,237,116
		40.03.150	Removal of Contaminated Soil	117,589,211.00	CF	4.35	/CF	511,884,657
		40.04.105	Environmental Mitigation Allowance	1.00	LS	182,607,292.39	/LS	182,607,292
		40.05.012 A	Retaining Wall - 1 Wall (Var. Height)	2,898.00	LF	44,477.55	/LF	128,895,941
		40.05.012 B	Retaining wall 1 wall next to abutments (30' avg height)	1,800.90	LF	14,917.69	/LF	26,865,275
		40.05.211	Sound Wall - 1 Wall (8' Avg. Height)	3,820.00	LF	868.71	/LF	3,318,458
		40.05.401 A	Basin E1/E2 Sta 575+00	1.00	EA	305,934.84	/EA	305,935
		40.05.401 B	Basin E1/E2 Sta 584+44	1.00	EA	307,122.88	/EA	307,123
		40.05.401 C	Basin E1/E2 Sta 620+44	1.00	EA	359,473.63	/EA	359,474
		40.05.401 D	Basin E1/E2 Sta 633+70	1.00	EA	438,576.63	/EA	438,577
		40.05.401 H	Basin E1A/E2A Sta 462+18	1.00	EA	487,585.49	/EA	487,585
		40.05.401 I	Basin E1A/E2A Sta 549+98	1.00	EA	487,585.46	/EA	487,585
		40.05.401 J	Basin E1A/E2A Sta 411+50	1.00	EA	481,380.32	/EA	481,380
		40.05.401 K	Basin E1A/E2A Sta 585+50	1.00	EA	328,319.58	/EA	328,320
		40.05.401 L	Basin E1A/E2A Sta 606+50	1.00	EA	363,482.20	/EA	363,482
		40.05.500 A	24" Drainage Pipe	3,050.00	LF	310.56	/LF	947,210
		40.05.500 B	36" Drainage Pipe	9,106.00	LF	345.07	/LF	3,142,185
		40.05.500 C	48" Drainage Pipe	5,200.00	LF	643.02	/LF	3,343,705
		40.05.500 E	60" Drainage Pipe	2,766.00	LF	953.58	/LF	2,637,606
		40.05.500 F	72" Drainage Pipe	66.00	LF	1,173.23	/LF	77,433
		40.05.500 H	96" Drainage Pipe	692.00	LF	1,272.61	/LF	880,646
		40.05.600 B	10.5'x6.5' Drainage Box	1,342.00	LF	3,450.68	/LF	4,630,807
		40.05.800 A	Pumping Station	1.00	EA	345,067.56	/EA	345,068
		40.07.010	Right of Way	1.00	LS	650,986,065.41	/LS	650,986,065
		40.08.422 A	Mountain Springs rd West Overhead. Roadway Overcrossing - 2 lane roadway over 3 tracks	1.00	EA	4,687,231.63	/EA	4,687,232
		40.08.422 B	Foreston drive Overhead. Roadway Overcrossing - 2 lane roadway over highway	1.00	EA	6,640,664.06	/EA	6,640,664
		40.08.422 C	Foreston South Access Road. Access road bridge to tunnel portal - 2 lane roadway	1.00	EA	21,048,624.66	/EA	21,048,625

Alternatives	Sub Section	UPE	Description	Takeoff Quantity		Grand Total Price		Grand Total (2018\$)
		40.08.422 D	Aliso canyon Access Road north. Access road bridge to tunnel portal - 2 lane roadway	1.00	EA	9,146,188.49	/EA	9,146,188
		40.08.422 E	Adit access road E1 STA 1485. Access road bridge to tunnel portal - 2 lane roadway	1.00	EA	6,642,681.51	/EA	6,642,682
		40.08.425 D	Avenue S Overcrossing. Roadway Overcrossing - 6 lane, 10' shoulders, 8' sidewalks, 10' bike lane - 1 span	1.00	EA	5,512,470.01	/EA	5,512,470
		40.08.425 E	Avenue S Overhead. Roadway Overcrossing - 6 lane, 10' shoulders, 8' sidewalks, 10' bike lane - 3 spans	1.00	EA	11,771,008.07	/EA	11,771,008
		40.08.425 G	Brandford st Overhead. Roadway Overcrossing - 4 lane - 1 span	1.00	EA	4,610,030.01	/EA	4,610,030
		40.08.425I	Avenue S Overcrossing. Roadway Overcrossing - 6 lane, 10' shoulders, 8' sidewalks, 10' bike lane - 7 spans	1.00	EA	24,160,128.27	/EA	24,160,128
		50.01.000	Wayside Signaling Equipment	35.22	RM	1,225,486.05	/RM	43,161,619
		50.04.000	Traffic Control and Dispatching Systems	35.22	RM	118,855.07	/RM	4,186,076
		50.04.010 A	New Traffic Signal	5.00	EA	1,077,182.43	/EA	5,385,912
		50.04.020 A	Traffic Signal Modification	2.00	EA	4,679,832.69	/EA	9,359,665
		50.05.000	Communications	35.22	RM	1,125,320.44	/RM	39,633,786
		50.07.000	Hazard Detectors	35.22	RM	998,669.88	/RM	35,173,153
		60.02.000	Traction Power Supply	35.22	RM	2,967,833.43	/RM	104,527,093
		60.03.000	Traction Power Distribution	35.22	RM	3,136,296.31	/RM	110,460,356
		60.04.000	Traction Power Control	35.22	RM	4,938.15	/RM	173,922
		80.00.010	Professional Services	1.00	LS	1,036,590,925	/LS	1,036,590,925
		90.00.00	Unallocated Contingency	1.00	LS	278,034,435.26	/LS	278,034,435
			07.E1A Cen E1A Central					16,062,836,812
	09.Bur (E1A/S R14A)		Burbank E1A/SR14A					
		10.07.214	Cut & Cover Box - 2 Track / 1 Box (40' Avg. Exc Depth) (Add Mech & Elec from 10.07.902)	0.10	RM	245,110,556.60	/RM	24,511,056
		10.07.215	Cut & Cover Box - 2 Track / 1 Box (50' Avg. Exc Depth) (Add Mech & Elec from 10.07.902)	0.09	RM	285,780,230.11	/RM	25,720,221
		10.07.216	Cut & Cover Box - 2 Track / 1 Box (60' Avg. Exc Depth) (Add Mech & Elec from 10.07.902)	0.08	RM	349,031,716.00	/RM	27,922,537
		10.07.219 A	Cut & Cover Box - 2 Track / 1 Box (100' Avg. Exc Depth)	0.38	RM	596,726,556.13	/RM	226,756,091
		10.07.250 A	Cut & Cover Box -Burbank Station (85' Avg. Exc Depth)	0.27	RM	1,054,652,840.52	/RM	284,756,267
		10.07.250 B	Cut & Cover Box - 4track/1Box (100' Avg. Exc Depth)	0.01	RM	1,206,895,776.43	/RM	16,896,541
		10.07.250 C	Cut & Cover Box - 3track/1Box (100' Avg. Exc Depth)	0.02	RM	1,206,895,776.82	/RM	26,551,707
		10.07.250 D	Cut & Cover Box - 5track/1Box (100' Avg. Exc Depth)	0.15	RM	1,206,895,777.52	/RM	179,827,471

Alternatives	Sub Section	UPE	Description	Takeoff Quantity		Grand Total Price		Grand Total (2018\$)
		10.07.301	SEM Tunnels	0.23	RM	791,444,431.17	/RM	182,032,219
		10.07.920 C	Tunnel Ventilation System - C	0.12	RM	25,132,959.18	/RM	3,066,221
		10.07.950 D	Construction Monitoring inside Mined or SEM Single tunnel, incl adits	0.12	Mile	4,532,255.57	/Mile	552,935
		10.07.950 G	Surface and Building Monitoring	0.12	RM	2,751,361.67	/RM	330,163
		10.08.221	Retained Cut, Trench - 2 Track (10' Avg. Exc Depth)	0.07	RM	64,166,902.29	/RM	4,491,683
		10.08.222	Retained Cut, Trench - 2 Track (20' Avg. Exc Depth)	0.10	RM	135,008,961.00	/RM	13,500,896
		10.08.223	Retained Cut, Trench - 2 Track (30' Avg. Exc Depth)	0.11	RM	227,998,950.18	/RM	25,079,885
		10.10.110	Direct Fixation - 1 Track	1.69	RM	1,787,714.51	/RM	3,021,238
		10.10.120	Direct Fixation - 2 Track	2.10	RM	3,574,834.75	/RM	7,507,153
		10.14.200	Ballasted Turnout (60MPH)	4.00	EA	449,920.71	/EA	1,799,683
		10.14.200 A	Ballasted Turnout (25MPH)	2.00	EA	265,395.96	/EA	530,792
		10.14.200 b	Ballasted Turnout (30MPH)	1.00	EA	94,784.27	/EA	94,784
		10.14.305	Ballasted Crossover (80MPH)	2.00	EA	1,120,508.04	/EA	2,241,016
		10.14.400	Terminal Bumping Post	4.00	EA	25,275.81	/EA	101,103
		20.01.247 A	Main and Secondary Station Buildings	141,954.00	sf	483.09	/sf	68,577,210
		20.01.247 B	Auxiliary Building	10,000.00	sf	289.86	/sf	2,898,568
		20.03.001 C	HSR Platform (underground)	84,600.00	SF	552.11	/SF	46,708,346
		20.06.201 B	Parking Walkway (Standard Sidewalks)	316,516.00	SF	19.25	/SF	6,092,729
		20.06.201 C	Parking Walkway (Enhanced Plazas)	410,764.00	SF	23.49	/SF	9,647,199
		20.06.800 A	Landscape	512,103.00	SF	18.32	/SF	9,379,774
		40.01.010	Demolition Allowance, Bridge	4,028.00	sf	44.77	/sf	180,328
		40.01.010 A	Demolition Allowance, Masonry/Sound Wall	1,873.00	LF	33.49	/LF	62,719
		40.01.010 B	Demolition Allowance, Retaining Wall	3,967.00	LF	33.49	/LF	132,839
		40.01.050	Demolition Allowance, Building 1 Story	661,944.00	SF	32.51	/SF	21,516,731
		40.01.110	Demolition Allowance, Asphalt Pavement	189,536.95	SY	62.35	/SY	11,817,829
		40.01.110 A	Demolition Allowance, Concrete Pavement	12,154.00	SY	40.37	/SY	490,692
		40.01.140	Demolition Allowance, Concrete Curb	2,877.00	LF	19.12	/LF	54,999

Alternatives	Sub Section	UPE	Description	Takeoff Quantity		Grand Total Price		Grand Total (2018\$)
		40.01.140 A	Demolition Allowance, Concrete Curb & Gutter	19,107.40	LF	20.58	/LF	393,296
		40.01.150	Demolition Allowance, Concrete Sidewalk	16,012.40	SY	132.44	/SY	2,120,650
		40.01.810	Demolition Allowance, Remove Railroad Track	32,462.00	LF	37.17	/LF	1,206,635
		40.02.107 A	Natural Gas Pipeline, 3" to 8" Dia.	5,399.00	LF	327.13	/LF	1,766,180
		40.02.108 A	Natural Gas Pipeline, 10" to 18" Dia.	880.00	LF	354.74	/LF	312,168
		40.02.111 A	Oil Pipeline, 6" to 15" Dia.	11,510.00	LF	354.74	/LF	4,083,016
		40.02.112 A	Oil Pipeline, 18" to 24" Dia.	11,750.00	LF	354.74	/LF	4,168,152
		40.02.116 A	Potable Water Pipeline, <10"	2,150.00	LF	327.13	/LF	703,332
		40.02.116 B	Potable Water Pipeline, 10" to 16"	2,070.00	LF	339.96	/LF	703,727
		40.02.117 A	Potable Water Pipeline, 18" to 24"	1,900.00	LF	520.09	/LF	988,171
		40.02.118 A	Potable Water Pipeline, 27" to 33"	501.00	LF	728.24	/LF	364,847
		40.02.119 A	Efluent Water Pipeline, 36" to 48" Dia.	5,350.00	LF	983.01	/LF	5,259,101
		40.02.122 A	Overhead Power Trans Facility (< 69 kV)	7,180.00	LF	621.12	/LF	4,459,653
		40.02.123 A	Underground Power Trans Facility (12 kV)	4,680.00	LF	368.76	/LF	1,725,819
		40.02.127 A	Sewer, Gravity Pipeline, <10" Dia.	2,080.00	LF	431.34	/LF	897,191
		40.02.127 B	Sewer, Gravity Pipeline, 10" to 18" Dia.	1,800.00	LF	471.78	/LF	849,206
		40.02.128 A	Sewer, Gravity Pipeline, 21" to 30" Dia.	200.00	LF	637.41	/LF	127,483
		40.02.150 C	Tel San Fernando Rd: East of CL	12,896.00	LF	368.76	/LF	4,755,591
		40.02.150 D	Tel San Fernando Rd: West of CL	15,740.00	LF	368.76	/LF	5,804,356
		40.03.110	Hazardous Material Removal Allowance, Heavy	0.57	RM	474,467.89	/RM	270,447
		40.03.150	Removal of Contaminated Soil	36,310,326.03	CF	4.35	/CF	158,064,661
		40.04.105	Environmental Mitigation Allowance	1.00	LS	182,607,292.38	/LS	182,607,292
		40.05.012 A	Retaining Wall - 1 Wall (Var. Height)	5,698.00	LF	44,477.55	/LF	253,433,082
		40.05.500 A	24" Drainage Pipe	744.00	LF	310.56	/LF	231,057
		40.05.500 C	48" Drainage Pipe	1,323.00	LF	643.02	/LF	850,716
		40.05.500 E	60" Drainage Pipe	867.00	LF	953.58	/LF	826,754
		40.05.500 G	42" Drainage Pipe	165.00	LF	586.61	/LF	96,791

Alternatives	Sub Section	UPE	Description	Takeoff Quantity		Grand Total Price		Grand Total (2018\$)
		40.05.600 A	8.5'x5' Drainage Box	156.00	LF	2,760.54	/LF	430,644
		40.05.700 C	3'x3' Open Channel	2,108.00	LF	1,380.27	/LF	2,909,610
		40.06.100	Temporary Facilities	1.00	LS	334,780,036.02	/LS	334,780,036
		40.07.010	Right of Way	1.00	LS	395,578,375.94	/LS	395,578,376
		50.01.000	Wayside Signaling Equipment	0.55	RM	1,225,486.05	/RM	674,017
		50.04.000	Traffic Control and Dispatching Systems	0.55	RM	118,855.07	/RM	65,370
		50.04.010 A	New Traffic Signal	2.00	EA	1,077,182.43	/EA	2,154,365
		50.04.020 A	Traffic Signal Modification	2.00	EA	4,679,832.68	/EA	9,359,665
		50.05.000	Communications	0.55	RM	1,125,320.45	/RM	618,926
		50.07.000	Hazard Detectors	0.55	RM	998,669.89	/RM	549,268
		60.02.000	Traction Power Supply	0.55	RM	2,967,833.42	/RM	1,632,308
		60.03.000	Traction Power Distribution	0.55	RM	3,136,296.29	/RM	1,724,963
		60.04.000	Traction Power Control	0.55	RM	4,938.18	/RM	2,716
		80.00.010	Professional Services	1.00	LS	1,036,590,925	/LS	1,036,590,925
		90.00.00	Unallocated Contingency	1.00	LS	278,034,435.27	/LS	278,034,435
			09.Bur (E1A/SR14A) Burbank E1A/SR14A					3,937,026,623
			E1A. E1A End to End Alternative 2018\$					23,370,393,109
05.E2A			E2A End to End Alternative 2018\$					
	01.PLM		Palmdale Subsection					
		10.01.001 A	Steel Truss HSR viaduct, 1 track Sierra Hwy platform track 2x215' Span	2.00	EA	11,267,588.00	/EA	22,535,176
		10.01.002 A	Steel Truss HSR viaduct, 2 track Sierra Hwy platform track 2x215' Span	1.00	EA	13,461,700.64	/EA	13,461,701
		10.01.122 B	Elevated Structure Ave Q Platform Track - 1 Track (22' Avg. Pier Ht) Avg 105' span	2.00	EA	4,322,130.39	/EA	8,644,261
		10.01.222 A	Elevated Structure Tuxford st - 2 Track U-Shape girder (20' Avg. Pier Ht) Avg 110' span	1.00	EA	6,310,759.77	/EA	6,310,760
		10.02.060 A	Sierra Hwy Underpass (SCRAA) Bridge Structure - Two Span Steel Plate Girder Structure with 1 Track - 2 190' spans	1.00	EA	7,064,337.36	/EA	7,064,337
		10.02.060 B	Sierra Hwy Underpass (UPRR) Bridge Structure - Two Span Steel Plate Girder Structure with 1 Track 2-190' spans substructure for enlargement	1.00	EA	8,393,480.56	/EA	8,393,481
		10.02.060 E	Ave Q Underpass Railroad Bridge Structure - Single Span Steel Plate Girder Structure with 1 Track 1-105'span	3.00	EA	1,667,096.82	/EA	5,001,290
		10.04.100 A	36" Drainage Pipe	1,341.00	LF	315.86	/LF	423,566

Alternatives	Sub Section	UPE	Description	Takeoff Quantity		Grand Total Price		Grand Total (2018\$)
		10.05.111	At-Grade Track-bed in Cut - 1 Track (5' Avg. Exc Depth)	0.68	RM	5,184,268.82	/RM	3,525,303
		10.05.112	At-Grade Track-bed in Cut - 1 Track (10' Avg. Exc Depth)	0.78	RM	6,838,287.55	/RM	5,333,864
		10.05.113	At-Grade Track-bed in Cut - 1 Track (15' Avg. Exc Depth)	0.08	RM	8,785,827.38	/RM	702,866
		10.05.114	At-Grade Track-bed in Cut - 1 Track (20' Avg. Exc Depth)	0.25	RM	11,026,887.92	/RM	2,756,722
		10.05.121	At-Grade Track-bed in Cut - 2 Track (5' Avg. Exc Depth)	0.66	RM	7,999,144.89	/RM	5,279,436
		10.05.122	At-Grade Track-bed in Cut - 2 Track (10' Avg. Exc Depth)	0.63	RM	9,873,304.38	/RM	6,220,182
		10.05.123	At-Grade Track-bed in Cut - 2 Track (15' Avg. Exc Depth)	0.07	RM	12,040,984.57	/RM	842,869
		10.05.124	At-Grade Track-bed in Cut - 2 Track (20' Avg. Exc Depth)	0.12	RM	14,507,324.00	/RM	1,740,879
		10.05.211	At-Grade Track-bed in Fill - 1 Track (5' Avg. Fill Ht)	2.63	RM	3,431,180.31	/RM	9,024,004
		10.05.212	At-Grade Track-bed in Fill - 1 Track (10' Avg. Fill Ht)	0.76	RM	4,351,396.71	/RM	3,307,062
		10.05.221	At-Grade Track-bed in Fill - 2 Track (5' Avg. Fill Ht)	1.64	RM	5,952,535.48	/RM	9,762,158
		10.05.222	At-Grade Track-bed in Fill - 2 Track (10' Avg. Fill Ht)	0.63	RM	7,092,892.62	/RM	4,468,522
		10.07.114 A	Cut & Cover LMF crossing - 2 Tracks	1.00	EA	29,037,270.77	/EA	29,037,271
		10.08.213	Retained Cut, Trench - 1 Track (30' Avg. Exc Depth)	0.51	RM	178,858,901.35	/RM	91,218,040
		10.08.411	Retained Fill, Walls Both Sides - 1 Tracks (10' Avg. Wall Ht)	1.10	RM	13,737,026.54	/RM	15,110,729
		10.09.110	Ballasted Track - 1 Track	6.28	RM	2,231,422.49	/RM	14,013,333
		10.09.110 A	SCRRRA Ballasted Track - 1 Track	1.42	RM	2,059,253.20	/RM	2,924,140
		10.09.120	Ballasted Track - 2 Track	3.13	RM	4,024,650.44	/RM	12,597,156
		10.09.120 A	SCRRRA Ballasted Track - 2 Track	0.83	RM	3,952,807.25	/RM	3,280,830
		10.09.240	Ballasted Track - 2 Track (Station Track)	1.76	RM	8,049,301.25	/RM	14,166,770
		10.09.920	Ballasted Track Relocation - 1 Track (Permanent)	0.91	RM	2,801,790.81	/RM	2,549,630
		10.14.200	Ballasted Turnout (60MPH)	7.00	EA	449,793.81	/EA	3,148,557
		10.14.200 A	Ballasted Turnout (25MPH)	2.00	EA	265,321.10	/EA	530,642
		10.14.200 b	Ballasted Turnout (30MPH)	1.00	EA	94,757.54	/EA	94,758
		10.14.305	Ballasted Crossover (80MPH)	3.00	EA	1,120,192.01	/EA	3,360,576
		10.14.400	Terminal Bumping Post	2.00	EA	25,268.67	/EA	50,537
		10.14.500 A	Crossing Panels	38.00	EA	1,137.09	/EA	43,209
		20.01.247 A	Main and Secondary Station Buildings	80,182.00	sf	482.97	/sf	38,725,487

Alternatives	Sub Section	UPE	Description	Takeoff Quantity		Grand Total Price		Grand Total (2018\$)
		20.01.247 B	Auxiliary Building	10,000.00	sf	289.78	/sf	2,897,819
		20.03.001 A	HSR Platform (at grade)	112,776.00	SF	551.97	/SF	62,248,464
		20.03.001 B	Metrolink Platform (at grade)	20,427.00	SF	551.97	/SF	11,275,000
		20.06.100 B	Pedestrian Bridges (Overhead) Avg 120' span x 20' wide	123,032.00	SF	654.40	/SF	80,512,443
		20.06.201 A	Parking Roadways Avg 330 sf per stall	5,853.45	sf	5,440.92	/sf	31,848,148
		20.06.201 B	Parking Walkway (Standard Sidewalks)	234,350.00	SF	19.24	/SF	4,509,921
		20.06.201 C	Parking Walkway (Enhanced Plazas)	160,283.00	SF	23.48	/SF	3,763,433
		20.06.800 A	Landscape	712,875.00	SF	18.31	/SF	13,053,779
		20.07.011 F	2 Lane Roadway Modification, New AC Paving (Foreston Dr Sta 91+00 to 132+33)	23,200.00	SF	17.93	/SF	416,034
		20.07.020	Roadway Modification, New AC Paving (including Curb & Sidewalk)	74,154.08	SF	21.26	/SF	1,576,800
		20.07.020 E	2 Lane Roadway Modification, New AC Paving including Curb & Gutter, Sidewalk, painted median (Avenue Q) (From Sta 94+00 to Sta 130+00)	8,928.00	SF	18.28	/SF	163,205
		20.07.020 G	2 Lane Roadway Modification, New AC Paving including Curb & Gutter, Sidewalk (Avenue Q9 & Q12)	28,278.00	SF	20.42	/SF	577,307
		20.07.021 A	4 Lane Roadway Modification, New AC Paving with Curb & Gutter, Sidewalk, Raised Median, Bike Path (Fifth St Sta 100+55 to 167+00)4 Lane Roadway Modification, New AC Paving with Curb & Gutter, Sidewalk, Raised Median, Bike Path (Fifth St Sta 100+55 to 167+00)	627,200.00	SF	31.96	/SF	20,043,871
		20.07.021 B	4 Lane Roadway Modification, New AC Paving with Curb & Gutter, Sidewalk, Raised Median (Fifth St Sta 168+22 to 197+00)	332,831.52	SF	22.39	/SF	7,453,733
		20.07.021 C	4 Lane Roadway Modification, New AC Paving with Curb & Gutter, Sidewalk, Raised Median (Avenue R Sta 91+53 to 128+48)	245,055.54	SF	38.18	/SF	9,357,076
		20.07.021 D	4 Lane Roadway Modification, New AC Paving with Curb & Gutter, Sidewalk, (Sixth St Sta 10+00 to 50+15.07)	337,265.88	SF	20.24	/SF	6,826,187
		20.07.022 A	6 Lane Roadway Modification, New AC Paving with Curb & Gutter, Sidewalk, Raised Median, Bike Path (Sierra Hwy Sta 500+00 to 625.88)	345,600.00	SF	29.75	/SF	10,282,256
		20.07.022 B	6 Lane Roadway Modification, New AC Paving with Curb & Gutter, Sidewalk, Raised Median (Palmdale Blvd Sta 91+63 to 127+65)	1,611,264.00	SF	32.15	/SF	51,799,425
		20.07.022 C	6 Lane Roadway Modification, New AC Paving with Curb & Gutter, Sidewalk, Raised Median, Bike Path (Avenue S, Sta 82+50 to 117+80)	311,289.90	SF	29.18	/SF	9,084,588
		40.01.010 A	Demolition Allowance, Masonry/Sound Wall	22,020.00	LF	33.48	/LF	737,169
		40.01.050	Demolition Allowance, Building 1 Story	1,795,428.00	SF	32.50	/SF	58,345,971
		40.01.110	Demolition Allowance, Asphalt Pavement	1,278,163.00	SY	62.33	/SY	79,674,231
		40.01.110 A	Demolition Allowance, Concrete Pavement	55,794.67	SY	40.36	/SY	2,252,011
		40.01.140	Demolition Allowance, Concrete Curb	64,343.00	LF	19.11	/LF	1,229,711
		40.01.140 A	Demolition Allowance, Concrete Curb & Gutter	64,895.00	LF	20.58	/LF	1,335,416
		40.01.150	Demolition Allowance, Concrete Sidewalk	364,718.00	SY	132.40	/SY	48,290,046

Alternatives	Sub Section	UPE	Description	Takeoff Quantity		Grand Total Price		Grand Total (2018\$)
		40.01.810	Demolition Allowance, Remove Railroad Track	4,350.00	LF	37.16	/LF	161,651
		40.01.900 A	Clearing & Grubbing Landscape Areas	1,218,518.0 0	SY	25.49	/SY	31,056,378
		40.02.107 A	Natural Gas Pipeline, 3" to 8" Dia.	2,128.00	LF	327.05	/LF	695,955
		40.02.108 A	Natural Gas Pipeline, 10" to 18" Dia.	790.00	LF	354.64	/LF	280,169
		40.02.116 A	Potable Water Pipeline, <10"	160.00	LF	327.05	/LF	52,327
		40.02.116 B	Potable Water Pipeline, 10" to 16"	21,728.00	LF	339.88	/LF	7,384,848
		40.02.117 A	Potable Water Pipeline, 18" to 24"	825.00	LF	519.96	/LF	428,964
		40.02.121 A	Overhead Power Trans Facility (≥ 69 kV)	7,375.00	LF	7,849.59	/LF	57,890,702
		40.02.122 A	Overhead Power Trans Facility (< 69 kV)	4,490.00	LF	620.96	/LF	2,788,116
		40.02.127 A	Sewer, Gravity Pipeline, <10" Dia.	15,351.00	LF	431.38	/LF	6,622,087
		40.02.127 B	Sewer, Gravity Pipeline, 10" to 18" Dia.	4,642.00	LF	472.63	/LF	2,193,963
		40.02.129 A	Sewer, Gravity Pipeline, 48" to 66" Dia.	3,410.00	LF	637.25	/LF	2,173,019
		40.02.150 A	Electrical/Telephone Ductbank	800.00	LF	368.67	/LF	294,936
		40.02.150 B	Fiber Optic Ductbank	2.00	LF	370.00	/LF	740
		40.02.150 C	Tel San Fernando Rd: East of CL	1,320.00	LF	368.67	/LF	486,644
		40.02.150 D	Tel San Fernando Rd: West of CL	5,057.00	LF	368.67	/LF	1,864,361
		40.03.105	Hazardous Material Removal Allowance, Medium	1.67	RM	474,345.38	/RM	792,157
		40.03.110	Hazardous Material Removal Allowance, Heavy	0.51	RM	474,345.37	/RM	241,916
		40.03.150	Removal of Contaminated Soil	1,025,000.0 0	CF	4.35	/CF	4,460,837
		40.04.105	Environmental Mitigation Allowance				/LS	184,869,968
		40.05.012 A	Retaining Wall - 1 Wall (Var. Height)	2,277.00	LF	44,466.06	/LF	101,249,228
		40.05.211	Sound Wall - 1 Wall (8' Avg. Height)	2,690.00	LF	868.48	/LF	2,336,216
		40.05.400 A	Basin at Avenue O	1.00	EA	286,869.18	/EA	286,869
		40.05.400 B	Basin at Avenue R	1.00	EA	16,790,590.86	/EA	16,790,591
		40.05.500 B	36" Drainage Pipe	414.00	LF	344.98	/LF	142,821
		40.05.500 C	48" Drainage Pipe	9,247.00	LF	642.85	/LF	5,944,471
		40.05.500 E	60" Drainage Pipe	1,090.00	LF	953.33	/LF	1,039,135

Alternatives	Sub Section	UPE	Description	Takeoff Quantity		Grand Total Price		Grand Total (2018\$)
		40.05.600 C	10'x10' Drainage Box	1,120.00	LF	6,209.61	/LF	6,954,766
		40.05.600 D	Triple 21.5'x12' Drainage Box	3,333.00	LF	11,384.29	/LF	37,943,835
		40.05.700 A	12'x12' Open Channel	5,319.00	LF	3,104.81	/LF	16,514,464
		40.05.700 B	25'x12.5' Open Channel	2,095.00	LF	6,209.61	/LF	13,009,138
		40.05.800 A	Pumping Station	2.00	EA	344,978.46	/EA	689,957
		40.05.800 B	Basin Sump Pump	2.00	EA	344,978.46	/EA	689,957
		40.06.100	Temporary Facilities	1.00	LS	225,952,183.52	/LS	225,952,184
		40.07.010	Right of Way	1.00	LS	245,515,947.89	/LS	245,515,948
		40.08.425 A	Avenue R Overhead. Roadway Overcrossing - 4 lane - 6 spans	1.00	EA	15,002,883.67	/EA	15,002,884
		40.08.425 B	Palmdale blvd Overhead. Roadway Overcrossing - 6 lane, 10' shoulders, 8' sidewalks - 5 spans	1.00	EA	24,103,581.57	/EA	24,103,582
		40.08.425 C	Palmdale blvd Overcorssing. Roadway Overcrossing - 6 lane, 10' shoulders, 8' sidewalks - 1 span	1.00	EA	3,641,075.42	/EA	3,641,075
		50.01.000	Wayside Signaling Equipment	3.13	RM	1,225,096.12	/RM	3,834,551
		50.04.000	Traffic Control and Dispatching Systems	3.13	RM	118,817.26	/RM	371,898
		50.04.010 A	New Traffic Signal	11.00	EA	1,076,839.69	/EA	11,845,237
		50.04.020 A	Traffic Signal Modification	2.00	EA	4,678,343.67	/EA	9,356,687
		50.05.000	Communications	3.13	RM	1,124,962.39	/RM	3,521,132
		50.07.000	Hazard Detectors	3.13	RM	998,352.13	/RM	3,124,842
		60.02.000	Traction Power Supply	3.13	RM	2,966,889.13	/RM	9,286,363
		60.03.000	Traction Power Distribution	3.13	RM	3,135,298.41	/RM	9,813,484
		60.04.000	Traction Power Control	3.13	RM	4,936.58	/RM	15,451
		80.00.010	Professional Services	1.00	LS	1,046,043,002.00	/LS	1,046,043,002
		90.00.00	Unallocated Contingency	1.00	LS	274,801,936.96	/LS	274,801,937
			01.PLM Palmdale Subsection					3,269,765,591
	08.E2A Cen		E2A Central					
		10.01.004 D	Soledad Siphon viaduct - 2 tracks straddle bent, truss & U shape concrete girders 851' along HSR SB track	1.00	EA	34,772,008.81	/EA	34,772,009
		10.01.122 A	Elevated Structure North of Foreston Drive - 1 Track (10' Avg. Pier Ht) Avg 115' span	1.00	EA	30,187,962.54	/EA	30,187,963
		10.01.123 A	Elevated Structure South of Foreston Drive - 1 Track (37' Avg. Pier Ht) Avg 115' span	1.00	EA	64,727,448.68	/EA	64,727,449

Alternatives	Sub Section	UPE	Description	Takeoff Quantity		Grand Total Price		Grand Total (2018\$)
		10.01.126 C	Tujunga - I-210 - 2 Track, Train Detention Zone, Steel arch (50' Avg. Pier Ht) avg 158' span	1.00	EA	161,922,647.90	/EA	161,922,648
		10.01.127 D	Elevated Structure AGUA DULCE - 1 Track & 2 Track TDZ (57' Avg. Pier Ht) ave 120' span	1.00	EA	88,618,154.96	/EA	88,618,155
		10.01.223 A	Elevated Structure Aliso Canyon - 2 Track Train Detention Zone (20' Avg. Pier Ht) Box culvert @ abutment	1.00	EA	43,372,176.70	/EA	43,372,177
		10.04.100 A	36" Drainage Pipe	8,750.00	LF	315.86	/LF	2,763,761
		10.04.100 B	48" Drainage Pipe	2,584.00	LF	568.55	/LF	1,469,121
		10.04.100 C	72" Drainage Pipe	2,033.00	LF	1,073.92	/LF	2,183,277
		10.05.121	At-Grade Track-bed in Cut - 2 Track (5' Avg. Exc Depth)	0.42	RM	7,999,144.86	/RM	3,359,641
		10.05.122	At-Grade Track-bed in Cut - 2 Track (10' Avg. Exc Depth)	0.45	RM	9,873,304.38	/RM	4,442,987
		10.05.123	At-Grade Track-bed in Cut - 2 Track (15' Avg. Exc Depth)	0.27	RM	12,040,984.78	/RM	3,251,066
		10.05.124	At-Grade Track-bed in Cut - 2 Track (20' Avg. Exc Depth)	1.11	RM	14,507,324.01	/RM	16,103,130
		10.05.126	At-Grade Track-bed in Cut - 2 Track (40' Avg. Exc Depth)	0.53	RM	27,847,222.38	/RM	14,870,417
		10.05.128	At-Grade Track-bed in Cut - 2 Track (60' Avg. Exc Depth)	1.00	RM	46,276,129.12	/RM	46,137,301
		10.05.130	At-Grade Track-bed in Cut - 2 Track (80' Avg. Exc Depth)	0.57	RM	69,492,623.16	/RM	39,749,780
		10.05.132	At-Grade Track-bed in Cut - 2 Track (100' Avg. Exc Depth)	0.24	RM	98,477,013.81	/RM	23,536,006
		10.05.221	At-Grade Track-bed in Fill - 2 Track (5' Avg. Fill Ht)	0.41	RM	5,952,535.49	/RM	2,440,540
		10.05.222	At-Grade Track-bed in Fill - 2 Track (10' Avg. Fill Ht)	0.18	RM	7,092,892.61	/RM	1,276,721
		10.05.223	At-Grade Track-bed in Fill - 2 Track (15' Avg. Fill Ht)	0.01	RM	8,537,393.33	/RM	76,837
		10.05.226	At-Grade Track-bed in Fill - 2 Track (40' Avg. Fill Ht)	0.15	RM	20,322,873.72	/RM	3,007,785
		10.05.228	At-Grade Track-bed in Fill - 2 Track (60' Avg. Fill Ht)	0.85	RM	34,903,051.63	/RM	29,807,206
		10.07.100	TBM Single Track Twin Tunnels	14.33	RM	242,465,833.16	/RM	3,474,535,389
		10.07.107 A	Double Fault Chamber (for twin tunnels)	1.72	RM	657,730,422.00	/RM	1,131,296,326
		10.07.114 B	Cut & cover Sierra Highway Overhead - 2 Tracks 660' along HSR SB Track	1.00	EA	36,930,705.62	/EA	36,930,706
		10.07.114 C	Cut & cover Metrolink Overhead - 2 Tracks 454' along HSR SB track	1.00	EA	26,167,417.13	/EA	26,167,417
		10.07.224 B	Aliso canyon acc. rd south. UG Structure - Two portal boxes for 2 + 2 roadway lanes + external shoulders 2x41'6 Horizontal Clearance	1.00	EA	12,009,892.48	/EA	12,009,892
		10.07.224 C	UG Structure Barrel Springs rd - Twin vaults for 2 + 2 roadway lanes + external shoulders 2x40 Horizontal clearance	1.00	EA	26,295,198.95	/EA	26,295,199
		10.07.225	Cut & Cover Box - 2 Track / 2 Box (50' Avg. Exc Depth) (Add Mech & Elec from 10.07.902)	0.09	RM	400,831,420.78	/RM	36,074,828
		10.07.301	SEM Tunnels	4.66	RM	687,993,893.63	/RM	3,206,051,544
		10.07.450	Mined Single Track Twin Tunnels	5.62	RM	328,402,370.22	/RM	1,845,621,321

Alternatives	Sub Section	UPE	Description	Takeoff Quantity		Grand Total Price		Grand Total (2018\$)
		10.07.503	Crosspassages	167.00	EA	2,139,870.07	/EA	357,358,302
		10.07.504	Underground Paralleling/Switching Station	4.00	Ea	8,630,702.54	/Ea	34,522,810
		10.07.806 A	Mountain Portal Construction	7.00	Ea	5,733,541.92	/Ea	40,134,793
		10.07.808 A	Adit mountain portal construction	1.00	Ea	2,866,770.96	/Ea	2,866,771
		10.07.809	ADIT Construction	2.04	mile	345,248,047.76	/mile	704,306,017
		10.07.809 F	Underground TBM Dissassembly chamber	4.00	Ea	19,002,232.95	/Ea	76,008,932
		10.07.810 A	Tunnel Portal facilities, as described in TM 2.4.6. TSEFCZ excluded	7.00	EA	5,526,554.85	/EA	38,685,884
		10.07.811 A	Train Surface Evacuation and Fire Control Zone (TSEFCZ)	5.00	EA	132,684.02	/EA	663,420
		10.07.812	Binocular shafts	1.00	EA	59,957,489.40	/EA	59,957,489
		10.07.920 B	Tunnel Ventilation System - B	16.64	RM	25,125,823.59	/RM	418,093,705
		10.07.920 C	Tunnel Ventilation System - C	8.55	RM	25,125,823.59	/RM	214,825,792
		10.07.950 A	Construction Monitoring inside TBM twin tunnels	14.33	RM	2,251,853.76	/RM	32,269,064
		10.07.950 B	Construction Monitoring inside Mined or SEM twin tunnels	4.29	RM	4,072,953.63	/RM	17,472,971
		10.07.950 C	Construction Monitoring inside Cross Passages	167.00	EA	181,389.67	/EA	30,292,075
		10.07.950 D	Construction Monitoring inside Mined or SEM Single tunnel, incl adits	7.57	Mile	4,531,085.02	/Mile	34,300,314
		10.07.950 E	Construction Monitoring inside Mined Underground Paralleling Station	4.00	EA	725,558.69	/EA	2,902,235
		10.07.950 G	Surface and Building Monitoring	4.20	RM	2,750,651.21	/RM	11,552,735
		10.08.221	Retained Cut, Trench - 2 Track (10' Avg. Exc Depth)	0.59	RM	64,148,804.37	/RM	37,847,795
		10.08.222	Retained Cut, Trench - 2 Track (20' Avg. Exc Depth)	0.31	RM	134,970,882.71	/RM	41,840,974
		10.08.223	Retained Cut, Trench - 2 Track (30' Avg. Exc Depth)	0.54	RM	227,934,644.31	/RM	123,084,708
		10.08.421	Retained Fill, Wall Both Sides - 2 Tracks (10' Avg. Wall Ht)	1.79	RM	16,435,443.62	/RM	29,419,444
		10.08.422	Retained Fill, Walls Both Sides - 2 Tracks (20' Avg. Wall Ht)	0.31	RM	27,823,865.24	/RM	8,708,870
		10.09.110	Ballasted Track - 1 Track	0.17	RM	2,231,425.12	/RM	379,342
		10.09.110 A	SCRRA Ballasted Track - 1 Track	0.67	RM	2,059,253.52	/RM	1,379,700
		10.09.120	Ballasted Track - 2 Track	22.88	RM	4,024,650.53	/RM	92,084,004
		10.09.120 A	SCRRA Ballasted Track - 2 Track	0.66	RM	3,952,807.48	/RM	2,608,853
		10.09.910	Ballasted Track Relocation - 1 Track (Temporary)	0.90	RM	2,801,790.84	/RM	2,521,612

Alternatives	Sub Section	UPE	Description	Takeoff Quantity		Grand Total Price		Grand Total (2018\$)
		10.09.920	Ballasted Track Relocation - 1 Track (Permanent)	0.38	RM	2,801,790.87	/RM	1,064,681
		10.10.120	Direct Fixation - 2 Track	10.90	RM	3,573,826.48	/RM	38,954,709
		10.14.200 b	Ballasted Turnout (30MPH)	2.00	EA	94,757.54	/EA	189,515
		10.14.200 c	Ballasted Turnout (50MPH)	1.00	EA	265,321.10	/EA	265,321
		10.14.305	Ballasted Crossover (80MPH)	1.00	EA	1,120,192.01	/EA	1,120,192
		20.07.011 A	2 Lane Roadway Modification, New AC Paving (Sierra Hwy south of Ave S, Sta 728+00 to 775+12)	87,278.00	SF	27.83	/SF	2,428,922
		20.07.011 F	2 Lane Roadway Modification, New AC Paving (Foreston Dr Sta 91+00 to 132+33)	122,592.00	SF	17.93	/SF	2,198,381
		20.07.012 A	2 Lane Roadway Modification, New AC Paving (Sierra Hwy south of Ave S, Sta 728+00 to 775+12)	92,947.00	SF	25.40	/SF	2,361,010
		20.07.020	Roadway Modification, New AC Paving (including Curb & Sidewalk)	68,313.00	SF	21.26	/SF	1,452,596
		20.07.020 B	2 Lane Roadway Modification, New AC Paving with Curb & Gutter, Sidewalk (Cul-de-Sacs, private streets 36' to 40' wide)	148,240.00	SF	19.94	/SF	2,956,357
		20.07.020 C	2 Lane Roadway Modification, New AC Paving including Curb & Sidewalk (E Avenue R11/Valley Forge from Sta 10+36 to Sta 18+38)	12,479.00	SF	21.25	/SF	265,125
		20.07.020 D	2 Lane Roadway Modification, New AC Paving including one-sided Curb & Sidewalk, painted median (Sierra Hwy north of Ave S, Sta 708+63 to 728+00)	10,970.00	SF	18.78	/SF	206,050
		20.07.021 E	4 Lane Roadway Modification, New AC Paving with partial Curb & Gutter, Sidewalk (Tenth St at Ave S, Sta 10+49 to 32+38)	17,965.00	SF	22.03	/SF	395,707
		20.07.022 C	6 Lane Roadway Modification, New AC Paving with Curb & Gutter, Sidewalk, Raised Median, Bike Path (Avenue S, Sta 82+50 to 117+80)	69,650.00	SF	29.18	/SF	2,032,644
		20.07.023 A	2 Lane Roadway Modification, New AC Paving including Curb & Sidewalk (E Avenue R11/Valley Forge)	12,480.00	SF	22.00	/SF	274,605
		20.07.023 B	2 Lane Roadway Modification, New AC Paving including one-sided Curb & Sidewalk, painted median (Sierra Hwy north of Ave S, Sta 708+63 to 728+00)	10,970.00	SF	19.00	/SF	208,384
		20.07.024 A	2 Lane Roadway Modification, New AC Paving, Curb & Gutter (Sixth St at Barrel Springs Sta 7+66 to 13+60)	17,965.00	SF	22.45	/SF	403,260
		20.07.025 A	6 Lane Roadway Modification, New AC Paving with Curb & Gutter, Sidewalk, Raised Median, Bike Path (Avenue S, Sta 82+50 to 117+80)	69,650.00	SF	29.18	/SF	2,032,644
		20.07.026 A	2 Lane Roadway Modification, New AC Paving, Curb & Gutter (Private Road 1) (From Sta 12+64 to Sta 27+24)	12,042.00	SF	17.40	/SF	209,516
		20.07.027 A	2 Lane Roadway Modification, New AC Paving with Curb & Gutter, One sided Sidewalk (San Fernando Blvd, Penrose to Sunland)	41,415.00	SF	18.61	/SF	770,829
		20.07.027 B	4 Lane Roadway Modification, New AC Paving, Curb & Gutter, Sidewalk, painted/raised median (Tuxford St) (From Sta 105+00 to Sta 117+00)	117,198.00	SF	22.65	/SF	2,654,819
		20.07.027 C	2 to 4 Lane Roadway Modification, New AC Paving, Curb & Gutter, Sidewalk, painted/raised median (Olinda St) (From Sta 13+50 to Sta 15+00)	33,450.00	SF	21.06	/SF	704,408
		20.07.027 D	4 Lane Roadway Modification, New AC Paving, Curb & Gutter, Sidewalk, painted/raised median (Sunland Blvd)	119,420.00	SF	21.19	/SF	2,530,081
		20.07.027 E	4 Lane Roadway Modification, New AC Paving, Curb & Gutter, Sidewalk, painted median (San Fernando Road)	467,324.00	SF	185.16	/SF	86,529,734
		20.07.711 A	2 Lane Roadway Modification, New AC Paving (Access Rd at Water Treatment Plant) (Froms Sta 3+38 to 11+11+45.52)	33,516.00	SF	16.83	/SF	564,003
		20.07.711 B	2 Lane Roadway Modification, New AC Paving (Access Rd P-1)	42,261.00	SF	17.66	/SF	746,308
		20.07.711 C	2 Lane Roadway Modification, New AC Paving (Access Rd P-2)	84,246.00	SF	24.88	/SF	2,095,862

Alternatives	Sub Section	UPE	Description	Takeoff Quantity		Grand Total Price		Grand Total (2018\$)
		40.01.010	Demolition Allowance, Bridge	14,495.00	sf	44.76	/sf	648,752
		40.01.010 A	Demolition Allowance, Masonry/Sound Wall	1,794.00	LF	33.48	/LF	60,058
		40.01.010 B	Demolition Allowance, Retaining Wall	1,619.00	LF	33.48	/LF	54,200
		40.01.050	Demolition Allowance, Building 1 Story	108,368.00	SF	32.50	/SF	3,521,632
		40.01.110	Demolition Allowance, Asphalt Pavement	270,835.00	SY	62.33	/SY	16,882,487
		40.01.110 A	Demolition Allowance, Concrete Pavement	6,380.00	SY	40.36	/SY	257,513
		40.01.140	Demolition Allowance, Concrete Curb	13,900.00	LF	19.11	/LF	265,654
		40.01.140 A	Demolition Allowance, Concrete Curb & Gutter	10,001.00	LF	20.58	/LF	205,802
		40.01.150	Demolition Allowance, Concrete Sidewalk	10,359.00	SY	132.40	/SY	1,371,571
		40.01.810	Demolition Allowance, Remove Railroad Track	9,417.00	LF	37.16	/LF	349,946
		40.02.107 A	Natural Gas Pipeline, 3" to 8" Dia.	3,180.00	LF	327.05	/LF	1,040,008
		40.02.108 A	Natural Gas Pipeline, 10" to 18" Dia.	4,045.00	LF	354.64	/LF	1,434,538
		40.02.110 A	Natural Gas Pipeline, 30" to 42" Dia.	828.00	LF	515.13	/LF	426,524
		40.02.116 A	Potable Water Pipeline, <10"	2,047.00	LF	327.05	/LF	669,464
		40.02.116 B	Potable Water Pipeline, 10" to 16"	7,919.00	LF	339.88	/LF	2,691,486
		40.02.117 A	Potable Water Pipeline, 18" to 24"	13,605.00	LF	519.96	/LF	7,073,998
		40.02.118 A	Potable Water Pipeline, 27" to 33"	3,950.00	LF	728.05	/LF	2,875,794
		40.02.119 A	Efluent Water Pipeline, 36" to 48" Dia.	932.00	LF	982.76	/LF	915,928
		40.02.119 B	Runoff Water Pipeline, 48" Dia.	1,144.00	LF	982.76	/LF	1,124,273
		40.02.121 A	Overhead Power Trans Facility (≥ 69 kV)	19,202.00	LF	551.97	/LF	10,598,842
		40.02.122 A	Overhead Power Trans Facility (< 69 kV)	27,879.00	LF	620.96	/LF	17,311,778
		40.02.127 A	Sewer, Gravity Pipeline, <10" Dia.	1,632.00	LF	409.34	/LF	668,039
		40.02.127 B	Sewer, Gravity Pipeline, 10" to 18" Dia.	2,788.00	LF	449.77	/LF	1,253,949
		40.02.150 C	Tel San Fernando Rd: East of CL	10,960.00	LF	368.67	/LF	4,040,617
		40.02.150 D	Tel San Fernando Rd: West of CL	9,795.00	LF	368.67	/LF	3,611,121
		40.03.100	Hazardous Material Removal Allowance, Light	1.93	RM	474,345.38	/RM	915,487
		40.03.105	Hazardous Material Removal Allowance, Medium	1.47	RM	474,345.37	/RM	697,288

Alternatives	Sub Section	UPE	Description	Takeoff Quantity		Grand Total Price		Grand Total (2018\$)
		40.03.110	Hazardous Material Removal Allowance, Heavy	3.60	RM	474,345.38	/RM	1,707,643
		40.03.150	Removal of Contaminated Soil	94,849,302.00	CF	4.35	/CF	412,787,567
		40.04.105	Environmental Mitigation Allowance	1.00	LS	184,869,968.35	/LS	184,869,968
		40.05.012 A	Retaining Wall - 1 Wall (Var. Height)	4,938.00	LF	44,466.06	/LF	219,573,425
		40.05.012 B	Retaining wall 1 wall next to abutments (30' avg height)	1,800.90	LF	14,913.84	/LF	26,858,338
		40.05.211	Sound Wall - 1 Wall (8' Avg. Height)	11,130.00	LF	868.48	/LF	9,666,204
		40.05.401 A	Basin E1/E2 Sta 575+00	1.00	EA	305,855.83	/EA	305,856
		40.05.401 B	Basin E1/E2 Sta 584+44	1.00	EA	307,043.58	/EA	307,044
		40.05.401 C	Basin E1/E2 Sta 620+44	1.00	EA	359,380.78	/EA	359,381
		40.05.401 D	Basin E1/E2 Sta 633+70	1.00	EA	438,463.40	/EA	438,463
		40.05.401 H	Basin E1A/E2A Sta 462+18	1.00	EA	487,459.57	/EA	487,460
		40.05.401 I	Basin E1A/E2A Sta 549+98	1.00	EA	487,459.54	/EA	487,460
		40.05.401 J	Basin E1A/E2A Sta 411+50	1.00	EA	481,256.00	/EA	481,256
		40.05.401 K	Basin E1A/E2A Sta 585+50	1.00	EA	328,234.80	/EA	328,235
		40.05.401 L	Basin E1A/E2A Sta 606+50	1.00	EA	363,388.33	/EA	363,388
		40.05.500 A	24" Drainage Pipe	2,079.00	LF	310.48	/LF	645,489
		40.05.500 B	36" Drainage Pipe	9,106.00	LF	344.98	/LF	3,141,374
		40.05.500 C	48" Drainage Pipe	4,366.00	LF	642.85	/LF	2,806,702
		40.05.500 E	60" Drainage Pipe	2,766.00	LF	953.34	/LF	2,636,925
		40.05.500 F	72" Drainage Pipe	66.00	LF	1,172.93	/LF	77,413
		40.05.500 H	96" Drainage Pipe	692.00	LF	1,272.28	/LF	880,418
		40.06.100	Temporary Facilities	1.00	LS	225,952,183.55	/LS	225,952,184
		40.07.010	Right of Way	1.00	LS	295,761,380.71	/LS	295,761,381
		40.08.422 A	Mountain Springs rd West Overhead. Roadway Overcrossing - 2 lane roadway over 3 tracks	1.00	EA	4,686,021.16	/EA	4,686,021
		40.08.422 B	Foreston drive Overhead. Roadway Overcrossing - 2 lane roadway over highway	1.00	EA	6,638,949.18	/EA	6,638,949
		40.08.422 C	Foreston South Access Road. Access road bridge to tunnel portal - 2 lane roadway	1.00	EA	21,043,189.01	/EA	21,043,189
		40.08.422 D	Aliso canyon Access Road north. Access road bridge to tunnel portal - 2 lane roadway	1.00	EA	9,143,826.57	/EA	9,143,827

Alternatives	Sub Section	UPE	Description	Takeoff Quantity		Grand Total Price		Grand Total (2018\$)
		40.08.422 F	Adit access road E2 STA 1460. Access road bridge to tunnel portal - 2 lane roadway	1.00	EA	3,776,829.17	/EA	3,776,829
		40.08.425 D	Avenue S Overcrossing. Roadway Overcrossing - 6 lane, 10' shoulders, 8' sidewalks, 10' bike lane - 1 span	1.00	EA	5,511,046.44	/EA	5,511,046
		40.08.425 E	Avenue S Overhead. Roadway Overcrossing - 6 lane, 10' shoulders, 8' sidewalks, 10' bike lane - 3 spans	1.00	EA	11,767,968.31	/EA	11,767,968
		40.08.425 H	Wentworth st Overcrossing. Roadway Overcrossing - 4 lane - 11 spans	1.00	EA	23,974,587.46	/EA	23,974,587
		40.08.425I	Avenue S Overcrossing. Roadway Overcrossing - 6 lane, 10' shoulders, 8' sidewalks, 10' bike lane - 7 spans	1.00	EA	24,153,889.11	/EA	24,153,889
		50.01.000	Wayside Signaling Equipment	31.32	RM	1,225,096.13	/RM	38,370,011
		50.04.000	Traffic Control and Dispatching Systems	31.32	RM	118,817.26	/RM	3,721,356
		50.04.020 A	Traffic Signal Modification	1.00	EA	4,678,343.67	/EA	4,678,344
		50.05.000	Communications	31.32	RM	1,124,962.39	/RM	35,233,822
		50.07.000	Hazard Detectors	31.32	RM	998,352.13	/RM	31,268,389
		60.02.000	Traction Power Supply	31.32	RM	2,966,889.13	/RM	92,922,968
		60.03.000	Traction Power Distribution	31.32	RM	3,135,298.41	/RM	98,197,546
		60.04.000	Traction Power Control	31.32	RM	4,936.58	/RM	154,614
		80.00.010	Professional Services	1.00	LS	1,046,043,002.00	/LS	1,046,043,002
		90.00.00	Unallocated Contingency	1.00	LS	274,801,936.96	/LS	274,801,937
			08.E2A Cen E2A Central					16,192,741,485
	10.Bur (E2A)		Burbank E2A					
		10.07.250 A	Cut & Cover Box -Burbank Station (85' Avg. Exc Depth)	0.27	RM	1,206,584,106.15	/RM	284,682,731
		10.07.250 C	Cut & Cover Box - 3track/1Box (100' Avg. Exc Depth)	0.13	RM	1,206,584,106.15	/RM	156,855,934
		10.07.250 D	Cut & Cover Box - 5track/1Box (100' Avg. Exc Depth)	0.37	RM	1,206,584,106.02	/RM	442,816,367
		10.09.920	Ballasted Track Relocation - 1 Track (Permanent)	0.62	RM	2,801,790.82	/RM	1,737,110
		10.10.110	Direct Fixation - 1 Track	1.69	RM	1,787,210.30	/RM	3,020,385
		10.10.120	Direct Fixation - 2 Track	1.30	RM	3,573,826.50	/RM	4,645,974
		10.14.200	Ballasted Turnout (60MPH)	4.00	EA	449,793.81	/EA	1,799,175
		10.14.200 A	Ballasted Turnout (25MPH)	2.00	EA	265,321.10	/EA	530,642
		10.14.200 b	Ballasted Turnout (30MPH)	1.00	EA	94,757.54	/EA	94,758
		10.14.305	Ballasted Crossover (80MPH)	2.00	EA	1,120,192.01	/EA	2,240,384
		10.14.400	Terminal Bumping Post	4.00	EA	25,268.67	/EA	101,075

Alternatives	Sub Section	UPE	Description	Takeoff Quantity		Grand Total Price		Grand Total (2018\$)
		20.01.247 A	Main and Secondary Station Buildings	141,954.00	sf	482.97	/sf	68,559,500
		20.01.247 B	Auxiliary Building	10,000.00	sf	289.78	/sf	2,897,819
		20.03.001 C	HSR Platform (underground)	84,600.00	SF	551.97	/SF	46,696,284
		20.06.201 B	Parking Walkway (Standard Sidewalks)	316,516.00	SF	19.24	/SF	6,091,156
		20.06.201 C	Parking Walkway (Enhanced Plazas)	410,764.00	SF	23.48	/SF	9,644,707
		20.06.800 A	Landscape	512,103.00	SF	18.31	/SF	9,377,352
		40.01.010	Demolition Allowance, Bridge	4,028.00	sf	44.76	/sf	180,281
		40.01.010 A	Demolition Allowance, Masonry/Sound Wall	1,873.00	LF	33.48	/LF	62,703
		40.01.010 B	Demolition Allowance, Retaining Wall	3,967.00	LF	33.48	/LF	132,804
		40.01.050	Demolition Allowance, Building 1 Story	661,944.00	SF	32.50	/SF	21,511,175
		40.01.110	Demolition Allowance, Asphalt Pavement	189,536.95	SY	62.33	/SY	11,814,777
		40.01.110 A	Demolition Allowance, Concrete Pavement	12,154.00	SY	40.36	/SY	490,566
		40.01.140	Demolition Allowance, Concrete Curb	2,877.00	LF	19.11	/LF	54,985
		40.01.140 A	Demolition Allowance, Concrete Curb & Gutter	19,107.40	LF	20.58	/LF	393,194
		40.01.150	Demolition Allowance, Concrete Sidewalk	16,012.40	SY	132.40	/SY	2,120,103
		40.01.810	Demolition Allowance, Remove Railroad Track	32,462.00	LF	37.16	/LF	1,206,323
		40.02.107 A	Natural Gas Pipeline, 3" to 8" Dia.	5,399.00	LF	327.05	/LF	1,765,724
		40.02.108 A	Natural Gas Pipeline, 10" to 18" Dia.	880.00	LF	354.64	/LF	312,087
		40.02.111 A	Oil Pipeline, 6" to 15" Dia.	11,510.00	LF	354.64	/LF	4,081,961
		40.02.112 A	Oil Pipeline, 18" to 24" Dia.	11,750.00	LF	354.64	/LF	4,167,076
		40.02.116 A	Potable Water Pipeline, <10"	2,150.00	LF	327.05	/LF	703,150
		40.02.116 B	Potable Water Pipeline, 10" to 16"	2,070.00	LF	339.88	/LF	703,545
		40.02.117 A	Potable Water Pipeline, 18" to 24"	1,900.00	LF	519.96	/LF	987,916
		40.02.118 A	Potable Water Pipeline, 27" to 33"	501.00	LF	728.05	/LF	364,753
		40.02.119 A	Efluent Water Pipeline, 36" to 48" Dia.	5,350.00	LF	982.76	/LF	5,257,743
		40.02.122 A	Overhead Power Trans Facility (< 69 kV)	7,180.00	LF	620.96	/LF	4,458,502
		40.02.123 A	Underground Power Trans Facility (12 kV)	4,680.00	LF	368.67	/LF	1,725,373

Alternatives	Sub Section	UPE	Description	Takeoff Quantity		Grand Total Price		Grand Total (2018\$)
		40.02.127 A	Sewer, Gravity Pipeline, <10" Dia.	2,080.00	LF	431.23	/LF	896,960
		40.02.127 B	Sewer, Gravity Pipeline, 10" to 18" Dia.	1,800.00	LF	471.66	/LF	848,987
		40.02.128 A	Sewer, Gravity Pipeline, 21" to 30" Dia.	200.00	LF	637.25	/LF	127,450
		40.02.150 C	Tel San Fernando Rd: East of CL	12,896.00	LF	368.67	/LF	4,754,363
		40.02.150 D	Tel San Fernando Rd: West of CL	15,740.00	LF	368.67	/LF	5,802,857
		40.03.110	Hazardous Material Removal Allowance, Heavy	0.57	RM	474,345.37	/RM	270,377
		40.03.150	Removal of Contaminated Soil	46,450,715.00	CF	4.35	/CF	202,155,179
		40.04.105	Environmental Mitigation Allowance	1.00	LS	184,869,968.35	/LS	184,869,968
		40.05.012 A	Retaining Wall - 1 Wall (Var. Height)	5,698.00	LF	44,466.06	/LF	253,367,634
		40.05.500 A	24" Drainage Pipe	744.00	LF	310.48	/LF	230,998
		40.05.500 C	48" Drainage Pipe	1,323.00	LF	642.85	/LF	850,497
		40.05.500 E	60" Drainage Pipe	867.00	LF	953.33	/LF	826,541
		40.05.500 G	42" Drainage Pipe	165.00	LF	586.46	/LF	96,766
		40.05.600 A	8.5'x5' Drainage Box	156.00	LF	2,759.83	/LF	430,533
		40.05.700 C	3'x3' Open Channel	2,108.00	LF	1,379.91	/LF	2,908,858
		40.06.100	Temporary Facilities	1.00	LS	225,952,183.53	/LS	225,952,184
		40.07.010	Right of Way	1.00	LS	395,458,094.02	/LS	395,458,094
		50.01.000	Wayside Signaling Equipment	0.55	RM	1,225,096.13	/RM	673,803
		50.04.000	Traffic Control and Dispatching Systems	0.55	RM	118,817.25	/RM	65,349
		50.04.010 A	New Traffic Signal	2.00	EA	1,076,839.69	/EA	2,153,679
		50.04.020 A	Traffic Signal Modification	2.00	EA	4,678,343.67	/EA	9,356,687
		50.05.000	Communications	0.55	RM	1,124,962.42	/RM	618,729
		50.07.000	Hazard Detectors	0.55	RM	998,352.13	/RM	549,094
		60.02.000	Traction Power Supply	0.55	RM	2,966,889.13	/RM	1,631,789
		60.03.000	Traction Power Distribution	0.55	RM	3,135,298.40	/RM	1,724,414
		60.04.000	Traction Power Control	0.55	RM	4,936.60	/RM	2,715
		80.00.010	Professional Services	1.00	LS	1,046,043,002.00	/LS	1,046,043,002

Alternatives	Sub Section	UPE	Description	Takeoff Quantity		Grand Total Price		Grand Total (2018\$)
		90.00.00	Unallocated Contingency	1.00	LS	274,801,936.96	/LS	274,801,937
			10.Bur (E2A) Burbank E2A					3,721,755,537
			05.E2A E2A End to End Alternative 2018\$					23,184,262,613
06.SR14 A			SR14A End to End Alternative 2018\$					
	01.PLM		Palmdale Subsection					
		10.01.001 A	Steel Truss HSR viaduct, 1 track Sierra Hwy platform track 2x215' Span	2.00	EA	11,269,836.39	/EA	22,539,673
		10.01.002 A	Steel Truss HSR viaduct, 2 track Sierra Hwy platform track 2x215' Span	1.00	EA	13,464,386.87	/EA	13,464,387
		10.01.122 B	Elevated Structure Ave Q Platform Track - 1 Track (22' Avg. Pier Ht) Avg 105' span	2.00	EA	4,322,992.86	/EA	8,645,986
		10.01.222 A	Elevated Structure Tuxford st - 2 Track U-Shape girder (20' Avg. Pier Ht) Avg 110' span	1.00	EA	6,312,019.03	/EA	6,312,019
		10.02.060 A	Sierra Hwy Underpass (SCRAA) Bridge Structure - Two Span Steel Plate Girder Structure with 1 Track - 2 190' spans	1.00	EA	7,065,747.04	/EA	7,065,747
		10.02.060 B	Sierra Hwy Underpass (UPRR) Bridge Structure - Two Span Steel Plate Girder Structure with 1 Track 2-190' spans substructure for enlargement	1.00	EA	8,395,155.44	/EA	8,395,155
		10.02.060 E	Ave Q Underpass Railroad Bridge Structure - Single Span Steel Plate Girder Structure with 1 Track 1-105'span	3.00	EA	1,667,429.48	/EA	5,002,288
		10.04.100 A	36" Drainage Pipe	1,341.00	LF	315.92	/LF	423,651
		10.05.111	At-Grade Track-bed in Cut - 1 Track (5' Avg. Exc Depth)	0.68	RM	5,185,303.31	/RM	3,526,006
		10.05.112	At-Grade Track-bed in Cut - 1 Track (10' Avg. Exc Depth)	0.78	RM	6,839,652.12	/RM	5,334,929
		10.05.113	At-Grade Track-bed in Cut - 1 Track (15' Avg. Exc Depth)	0.08	RM	8,787,580.50	/RM	703,006
		10.05.114	At-Grade Track-bed in Cut - 1 Track (20' Avg. Exc Depth)	0.25	RM	11,029,088.28	/RM	2,757,272
		10.05.121	At-Grade Track-bed in Cut - 2 Track (5' Avg. Exc Depth)	0.66	RM	8,000,741.11	/RM	5,280,489
		10.05.122	At-Grade Track-bed in Cut - 2 Track (10' Avg. Exc Depth)	0.63	RM	9,875,274.56	/RM	6,221,423
		10.05.123	At-Grade Track-bed in Cut - 2 Track (15' Avg. Exc Depth)	0.07	RM	12,043,387.29	/RM	843,037
		10.05.124	At-Grade Track-bed in Cut - 2 Track (20' Avg. Exc Depth)	0.12	RM	14,510,219.00	/RM	1,741,226
		10.05.211	At-Grade Track-bed in Fill - 1 Track (5' Avg. Fill Ht)	2.63	RM	3,431,864.98	/RM	9,025,805
		10.05.212	At-Grade Track-bed in Fill - 1 Track (10' Avg. Fill Ht)	0.76	RM	4,352,265.03	/RM	3,307,721
		10.05.221	At-Grade Track-bed in Fill - 2 Track (5' Avg. Fill Ht)	1.64	RM	5,953,723.29	/RM	9,764,106
		10.05.222	At-Grade Track-bed in Fill - 2 Track (10' Avg. Fill Ht)	0.63	RM	7,094,307.97	/RM	4,469,414
		10.07.114 A	Cut & Cover LMF crossing - 2 Tracks	1.00	EA	29,042,575.94	/EA	29,042,576

Alternatives	Sub Section	UPE	Description	Takeoff Quantity		Grand Total Price		Grand Total (2018\$)
		10.08.213	Retained Cut, Trench - 1 Track (30' Avg. Exc Depth)	0.51	RM	178,894,591.94	/RM	91,236,242
		10.08.411	Retained Fill, Walls Both Sides - 1 Tracks (10' Avg. Wall Ht)	1.10	RM	13,739,767.70	/RM	15,113,744
		10.09.110	Ballasted Track - 1 Track	6.28	RM	2,231,867.76	/RM	14,016,130
		10.09.110 A	SCRRA Ballasted Track - 1 Track	1.42	RM	2,059,664.11	/RM	2,924,723
		10.09.120	Ballasted Track - 2 Track	3.13	RM	4,025,453.54	/RM	12,599,670
		10.09.120 A	SCRRA Ballasted Track - 2 Track	0.83	RM	3,953,596.02	/RM	3,281,485
		10.09.240	Ballasted Track - 2 Track (Station Track)	1.76	RM	8,050,907.46	/RM	14,169,597
		10.09.920	Ballasted Track Relocation - 1 Track (Permanent)	0.91	RM	2,802,349.90	/RM	2,550,138
		10.14.200	Ballasted Turnout (60MPH)	7.00	EA	449,883.57	/EA	3,149,185
		10.14.200 A	Ballasted Turnout (25MPH)	2.00	EA	265,374.05	/EA	530,748
		10.14.200 b	Ballasted Turnout (30MPH)	1.00	EA	94,776.44	/EA	94,776
		10.14.305	Ballasted Crossover (80MPH)	3.00	EA	1,120,415.54	/EA	3,361,247
		10.14.400	Terminal Bumping Post	2.00	EA	25,273.72	/EA	50,547
		10.14.500 A	Crossing Panels	38.00	EA	1,137.32	/EA	43,218
		20.01.247 A	Main and Secondary Station Buildings	80,182.00	sf	483.06	/sf	38,732,563
		20.01.247 B	Auxiliary Building	10,000.00	sf	289.83	/sf	2,898,348
		20.03.001 A	HSR Platform (at grade)	112,776.00	SF	552.07	/SF	62,259,837
		20.03.001 B	Metrolink Platform (at grade)	20,427.00	SF	552.07	/SF	11,277,060
		20.06.100 B	Pedestrian Bridges (Overhead) Avg 120' span x 20' wide	123,032.00	SF	654.52	/SF	80,527,153
		20.06.201 A	Parking Roadways Avg 330 sf per stall	5,853.45	sf	5,441.92	/sf	31,853,967
		20.06.201 B	Parking Walkway (Standard Sidewalks)	234,350.00	SF	19.25	/SF	4,510,745
		20.06.201 C	Parking Walkway (Enhanced Plazas)	160,283.00	SF	23.48	/SF	3,764,120
		20.06.800 A	Landscape	712,875.00	SF	18.31	/SF	13,056,164
		20.07.011 F	2 Lane Roadway Modification, New AC Paving (Foreston Dr Sta 91+00 to 132+33)	23,200.00	SF	17.94	/SF	416,110
		20.07.020	Roadway Modification, New AC Paving (including Curb & Sidewalk)	74,154.08	SF	21.27	/SF	1,577,088
		20.07.020 E	2 Lane Roadway Modification, New AC Paving including Curb & Gutter, Sidewalk, painted median (Avenue Q) (From Sta 94+00 to Sta 130+00)	8,928.00	SF	18.28	/SF	163,235
		20.07.020 G	2 Lane Roadway Modification, New AC Paving including Curb & Gutter, Sidewalk (Avenue Q9 & Q12)	28,278.00	SF	20.42	/SF	577,412

Alternatives	Sub Section	UPE	Description	Takeoff Quantity		Grand Total Price		Grand Total (2018\$)
		20.07.021 A	4 Lane Roadway Modification, New AC Paving with Curb & Gutter, Sidewalk, Raised Median, Bike Path (Fifth St Sta 100+55 to 167+00)4 Lane Roadway Modification, New AC Paving with Curb & Gutter, Sidewalk, Raised Median, Bike Path (Fifth St Sta 100+55 to 167+00)	627,200.00	SF	31.96	/SF	20,047,533
		20.07.021 B	4 Lane Roadway Modification, New AC Paving with Curb & Gutter, Sidewalk, Raised Median (Fifth St Sta 168+22 to 197+00)	332,831.52	SF	22.40	/SF	7,455,095
		20.07.021 C	4 Lane Roadway Modification, New AC Paving with Curb & Gutter, Sidewalk, Raised Median (Avenue R Sta 91+53 to 128+48)	245,055.54	SF	38.19	/SF	9,358,785
		20.07.021 D	4 Lane Roadway Modification, New AC Paving with Curb & Gutter, Sidewalk, (Sixth St Sta 10+00 to 50+15.07)	337,265.88	SF	20.24	/SF	6,827,434
		20.07.022 A	6 Lane Roadway Modification, New AC Paving with Curb & Gutter, Sidewalk, Raised Median, Bike Path (Sierra Hwy Sta 500+00 to 625.88)	345,600.00	SF	29.76	/SF	10,284,134
		20.07.022 B	6 Lane Roadway Modification, New AC Paving with Curb & Gutter, Sidewalk, Raised Median (Palmdale Blvd Sta 91+63 to 127+65)	1,611,264.00	SF	32.15	/SF	51,808,889
		20.07.022 C	6 Lane Roadway Modification, New AC Paving with Curb & Gutter, Sidewalk, Raised Median, Bike Path (Avenue S, Sta 82+50 to 117+80)	311,289.90	SF	29.19	/SF	9,086,248
		40.01.010 A	Demolition Allowance, Masonry/Sound Wall	22,020.00	LF	33.48	/LF	737,304
		40.01.050	Demolition Allowance, Building 1 Story	1,795,428.00	SF	32.50	/SF	58,356,631
		40.01.110	Demolition Allowance, Asphalt Pavement	1,278,163.00	SY	62.35	/SY	79,688,787
		40.01.110 A	Demolition Allowance, Concrete Pavement	55,794.67	SY	40.37	/SY	2,252,423
		40.01.140	Demolition Allowance, Concrete Curb	64,343.00	LF	19.12	/LF	1,229,936
		40.01.140 A	Demolition Allowance, Concrete Curb & Gutter	64,895.00	LF	20.58	/LF	1,335,660
		40.01.150	Demolition Allowance, Concrete Sidewalk	364,718.00	SY	132.43	/SY	48,298,869
		40.01.810	Demolition Allowance, Remove Railroad Track	4,350.00	LF	37.17	/LF	161,680
		40.01.900 A	Clearing & Grubbing Landscape Areas	1,218,518.00	SY	25.49	/SY	31,062,052
		40.02.107 A	Natural Gas Pipeline, 3" to 8" Dia.	2,128.00	LF	327.11	/LF	696,082
		40.02.108 A	Natural Gas Pipeline, 10" to 18" Dia.	790.00	LF	354.71	/LF	280,221
		40.02.116 A	Potable Water Pipeline, <10"	160.00	LF	327.11	/LF	52,337
		40.02.116 B	Potable Water Pipeline, 10" to 16"	21,728.00	LF	339.94	/LF	7,386,197
		40.02.117 A	Potable Water Pipeline, 18" to 24"	825.00	LF	520.05	/LF	429,042
		40.02.121 A	Overhead Power Trans Facility (≥ 69 kV)	7,375.00	LF	7,851.02	/LF	57,901,279
		40.02.122 A	Overhead Power Trans Facility (< 69 kV)	4,490.00	LF	621.07	/LF	2,788,625
		40.02.127 A	Sewer, Gravity Pipeline, <10" Dia.	15,351.00	LF	431.46	/LF	6,623,297
		40.02.127 B	Sewer, Gravity Pipeline, 10" to 18" Dia.	4,642.00	LF	472.72	/LF	2,194,364
		40.02.129 A	Sewer, Gravity Pipeline, 48" to 66" Dia.	3,410.00	LF	637.37	/LF	2,173,416

Alternatives	Sub Section	UPE	Description	Takeoff Quantity		Grand Total Price		Grand Total (2018\$)
		40.02.150 A	Electrical/Telephone Ductbank	800.00	LF	368.74	/LF	294,989
		40.02.150 B	Fiber Optic Ductbank	2.00	LF	370.07	/LF	740
		40.02.150 C	Tel San Fernando Rd: East of CL	1,320.00	LF	368.74	/LF	486,733
		40.02.150 D	Tel San Fernando Rd: West of CL	5,057.00	LF	368.74	/LF	1,864,701
		40.03.105	Hazardous Material Removal Allowance, Medium	1.67	RM	474,432.04	/RM	792,302
		40.03.110	Hazardous Material Removal Allowance, Heavy	0.51	RM	474,432.02	/RM	241,960
		40.03.150	Removal of Contaminated Soil	1,025,000.00	CF	4.35	/CF	4,461,652
		40.04.105	Environmental Mitigation Allowance				/LS	185,856,531
		40.05.012 A	Retaining Wall - 1 Wall (Var. Height)	2,277.00	LF	44,474.19	/LF	101,267,727
		40.05.211	Sound Wall - 1 Wall (8' Avg. Height)	2,690.00	LF	868.64	/LF	2,336,643
		40.05.400 A	Basin at Avenue O	1.00	EA	286,921.60	/EA	286,922
		40.05.400 B	Basin at Avenue R	1.00	EA	16,793,658.53	/EA	16,793,659
		40.05.500 B	36" Drainage Pipe	414.00	LF	345.04	/LF	142,847
		40.05.500 C	48" Drainage Pipe	9,247.00	LF	642.97	/LF	5,945,557
		40.05.500 E	60" Drainage Pipe	1,090.00	LF	953.51	/LF	1,039,325
		40.05.600 C	10'x10' Drainage Box	1,120.00	LF	6,210.75	/LF	6,956,036
		40.05.600 D	Triple 21.5'x12' Drainage Box	3,333.00	LF	11,386.37	/LF	37,950,768
		40.05.700 A	12'x12' Open Channel	5,319.00	LF	3,105.37	/LF	16,517,481
		40.05.700 B	25'x12.5' Open Channel	2,095.00	LF	6,210.75	/LF	13,011,514
		40.05.800 A	Pumping Station	2.00	EA	345,041.48	/EA	690,083
		40.05.800 B	Basin Sump Pump	2.00	EA	345,041.48	/EA	690,083
		40.06.100	Temporary Facilities	1.00	LS	227,157,981.82	/LS	227,157,982
		40.07.010	Right of Way	1.00	LS	245,568,765.60	/LS	245,568,766
		40.08.425 A	Avenue R Overhead. Roadway Overcrossing - 4 lane - 6 spans	1.00	EA	15,005,624.73	/EA	15,005,625
		40.08.425 B	Palmdale blvd Overhead. Roadway Overcrossing - 6 lane, 10' shoulders, 8' sidewalks - 5 spans	1.00	EA	24,107,985.33	/EA	24,107,985
		40.08.425 C	Palmdale blvd Overcrossing. Roadway Overcrossing - 6 lane, 10' shoulders, 8' sidewalks - 1 span	1.00	EA	3,641,740.66	/EA	3,641,741
		50.01.000	Wayside Signaling Equipment	3.13	RM	1,225,371.92	/RM	3,835,414

Alternatives	Sub Section	UPE	Description	Takeoff Quantity		Grand Total Price		Grand Total (2018\$)
		50.04.000	Traffic Control and Dispatching Systems	3.13	RM	118,844.00	/RM	371,982
		50.04.010 A	New Traffic Signal	11.00	EA	1,077,082.11	/EA	11,847,903
		50.04.020 A	Traffic Signal Modification	2.00	EA	4,679,396.85	/EA	9,358,794
		50.05.000	Communications	3.13	RM	1,125,215.64	/RM	3,521,925
		50.07.000	Hazard Detectors	3.13	RM	998,576.88	/RM	3,125,546
		60.02.000	Traction Power Supply	3.13	RM	2,967,557.03	/RM	9,288,454
		60.03.000	Traction Power Distribution	3.13	RM	3,136,004.22	/RM	9,815,693
		60.04.000	Traction Power Control	3.13	RM	4,937.69	/RM	15,455
		80.00.010	Professional Services	1.00	LS	1,056,171,460.06	/LS	1,056,171,460
		90.00.00	Unallocated Contingency	1.00	LS	287,008,392.87	/LS	287,008,393
			01.PLM Palmdale Subsection					3,294,588,860
	08.SR1 4A Cen		SR14A Central					
		10.01.003 A	Escondido Canyon - 2 Track, Train Detention Zone , Steel arch (26' Avg. Pier Ht) ave 151' span	1.00	EA	130,898,415.81	/EA	130,898,416
		10.01.004 B	Santa Clara - 2 Track, Vble depth, Train Detention Zone , Steel arch (60' Avg. Pier Ht) avg 167' span	1.00	EA	150,795,451.02	/EA	150,795,451
		10.01.004 C	Soledad Siphon viaduct - 2 tracks straddle bent, truss & U shape concrete girders 1312' along HSR SB track SR14A alternative	1.00	EA	56,603,628.89	/EA	56,603,629
		10.01.123 B	Elevated Structure ST 1052+97- 1 Track (30' Avg. Pier Ht) Avg 105' span	1.00	EA	11,603,718.97	/EA	11,603,719
		10.01.124 A	Elevated Structure ST 996+47 - 2 Track Train Detention Zone (27' Avg. Pier Ht) Avg 118' span	1.00	EA	111,837,760.95	/EA	111,837,761
		10.01.126 A	Elevated Structure ST 1031+38 - 1 Track (57' Avg. Pier Ht) Avg 120' span	1.00	EA	98,254,080.66	/EA	98,254,081
		10.01.126 B	Elevated Structure ST 1060+90 - 1 Track (49' Avg. Pier Ht) ave 140' span	1.00	EA	18,059,275.46	/EA	18,059,275
		10.01.127 C	Elevated Structure ST 1186+10 - 1 Track (58' Avg. Pier Ht) avg 101' span	1.00	EA	65,101,038.92	/EA	65,101,039
		10.01.222 A	Elevated Structure Tuxford st - 2 Track U-Shape girder (20' Avg. Pier Ht) Avg 110' span	2.00	EA	6,312,019.04	/EA	12,624,038
		10.01.222 B	Elevated Structure Hansen Dam spillway - 2 Track 2 U-Shape girder ave 110' span	1.00	EA	4,694,378.39	/EA	4,694,378
		10.01.222 C	Elevated Structure Sheldon St - 2 Track 2 U-Shape girder ave 110' span	1.00	EA	6,260,484.29	/EA	6,260,484
		10.01.223 B	Elevated Structure ST 1235+35 - 2 Track Train Detention Zone (27' Avg. Pier Ht) avg 120' span	1.00	EA	37,040,923.21	/EA	37,040,923
		10.02.060 F	Vulcan Mine Hopper facility Steel Structure - Steel portal frames Structure with 1 Track 4-21' spans	1.00	EA	12,665,069.82	/EA	12,665,070
		10.04.100 A	36" Drainage Pipe	16,181.00	LF	315.92	/LF	5,111,926
		10.04.100 B	48" Drainage Pipe	200.00	LF	568.66	/LF	113,732

Alternatives	Sub Section	UPE	Description	Takeoff Quantity		Grand Total Price		Grand Total (2018\$)
		10.04.100 C	72" Drainage Pipe	1,985.00	LF	1,074.13	/LF	2,132,154
		10.05.121	At-Grade Track-bed in Cut - 2 Track (5' Avg. Exc Depth)	0.48	RM	8,000,741.15	/RM	3,840,356
		10.05.122	At-Grade Track-bed in Cut - 2 Track (10' Avg. Exc Depth)	0.79	RM	9,875,274.58	/RM	7,801,467
		10.05.123	At-Grade Track-bed in Cut - 2 Track (15' Avg. Exc Depth)	0.55	RM	12,043,387.47	/RM	6,623,863
		10.05.124	At-Grade Track-bed in Cut - 2 Track (20' Avg. Exc Depth)	0.74	RM	14,510,218.92	/RM	10,737,562
		10.05.126	At-Grade Track-bed in Cut - 2 Track (40' Avg. Exc Depth)	0.69	RM	27,852,798.42	/RM	19,218,431
		10.05.128	At-Grade Track-bed in Cut - 2 Track (60' Avg. Exc Depth)	0.66	RM	46,285,319.21	/RM	30,548,311
		10.05.130	At-Grade Track-bed in Cut - 2 Track (80' Avg. Exc Depth)	0.40	RM	69,506,490.15	/RM	27,802,596
		10.05.132	At-Grade Track-bed in Cut - 2 Track (100' Avg. Exc Depth)	0.74	RM	98,496,479.38	/RM	72,887,395
		10.05.221	At-Grade Track-bed in Fill - 2 Track (5' Avg. Fill Ht)	1.19	RM	5,953,723.31	/RM	7,084,931
		10.05.222	At-Grade Track-bed in Fill - 2 Track (10' Avg. Fill Ht)	0.75	RM	7,094,307.91	/RM	5,320,731
		10.05.223	At-Grade Track-bed in Fill - 2 Track (15' Avg. Fill Ht)	0.90	RM	8,533,611.02	/RM	7,680,250
		10.05.224	At-Grade Track-bed in Fill - 2 Track (20' Avg. Fill Ht)	0.11	RM	10,261,354.82	/RM	1,128,749
		10.05.226	At-Grade Track-bed in Fill - 2 Track (40' Avg. Fill Ht)	0.41	RM	20,326,859.27	/RM	8,334,012
		10.05.228	At-Grade Track-bed in Fill - 2 Track (60' Avg. Fill Ht)	0.47	RM	34,910,049.64	/RM	16,407,723
		10.07.100	TBM Single Track Twin Tunnels	24.04	RM	226,333,257.23	/RM	5,441,051,504
		10.07.107 A	Double Fault Chamber (for twin tunnels)	2.39	RM	657,865,907.14	/RM	1,572,299,518
		10.07.114 B	Cut & cover Sierra Highway Overhead - 2 Tracks 660' along HSR SB Track	1.00	EA	36,937,452.92	/EA	36,937,453
		10.07.114 C	Cut & cover Metrolink Overhead - 2 Tracks 454' along HSR SB track	1.00	EA	26,172,197.99	/EA	26,172,198
		10.07.214	Cut & Cover Box - 2 Track / 1 Box (40' Avg. Exc Depth) (Add Mech & Elec from 10.07.902)	0.14	RM	245,092,029.19	/RM	33,087,424
		10.07.215	Cut & Cover Box - 2 Track / 1 Box (50' Avg. Exc Depth) (Add Mech & Elec from 10.07.902)	0.12	RM	285,758,587.48	/RM	35,148,306
		10.07.216	Cut & Cover Box - 2 Track / 1 Box (60' Avg. Exc Depth) (Add Mech & Elec from 10.07.902)	0.06	RM	349,005,367.42	/RM	21,638,333
		10.07.224 C	UG Structure Barrel Springs rd - Twin vaults for 2 + 2 roadway lanes + external shoulders 2x40 Horizontal clearance	1.00	EA	26,300,003.17	/EA	26,300,003
		10.07.225	Cut & Cover Box - 2 Track / 2 Box (50' Avg. Exc Depth) (Add Mech & Elec from 10.07.902)	0.47	RM	400,904,628.17	/RM	188,425,175
		10.07.301	SEM Tunnels	1.23	RM	545,472,426.01	/RM	670,931,084
		10.07.450	Mined Single Track Twin Tunnels	3.28	RM	236,577,485.07	/RM	775,974,151
		10.07.503	Crosspassages	199.00	EA	2,129,957.83	/EA	423,861,608
		10.07.504	Underground Paralleling/Switching Station	3.00	Ea	5,754,986.91	/Ea	17,264,961

Alternatives	Sub Section	UPE	Description	Takeoff Quantity		Grand Total Price		Grand Total (2018\$)
		10.07.803 A	TBM Launching Twin Tunnels	2.00	Ea	206,676,354.17	/Ea	413,352,708
		10.07.806 A	Mountain Portal Construction	5.00	Ea	5,734,589.45	/Ea	28,672,947
		10.07.807 A	Portal landscape restoration for Portal P9 - SR14	1.00	Ea	3,141,155.44	/Ea	3,141,155
		10.07.808 A	Adit mountain portal construction	1.00	Ea	2,867,294.73	/Ea	2,867,295
		10.07.809	ADIT Construction	0.66	mile	415,837,354.18	/mile	274,452,654
		10.07.809 F	Underground TBM Dissassembly chamber	4.00	Ea	19,006,147.20	/Ea	76,024,589
		10.07.810 A	Tunnel Portal facilities, as described in TM 2.4.6. TSEFCZ excluded	6.00	EA	5,527,564.56	/EA	33,165,387
		10.07.811 A	Train Surface Evacuation and Fire Control Zone (TSEFCZ)	9.00	EA	132,708.26	/EA	1,194,374
		10.07.812	Binocular shafts	1.00	EA	42,409,772.47	/EA	42,409,772
		10.07.850	Pumping Station	3.00	ea	345,041.48	/ea	1,035,124
		10.07.920 B	Tunnel Ventilation System - B	26.04	RM	25,130,870.58	/RM	654,407,870
		10.07.920 C	Tunnel Ventilation System - C	2.75	RM	25,130,870.58	/RM	69,109,894
		10.07.950 A	Construction Monitoring inside TBM twin tunnels	24.35	RM	2,252,265.18	/RM	54,842,657
		10.07.950 B	Construction Monitoring inside Mined or SEM twin tunnels	1.03	RM	4,073,697.77	/RM	4,195,909
		10.07.950 C	Construction Monitoring inside Cross Passages	199.00	EA	181,422.81	/EA	36,103,140
		10.07.950 D	Construction Monitoring inside Mined or SEM Single tunnel, incl adits	4.52	Mile	4,531,912.86	/Mile	20,484,246
		10.07.950 E	Construction Monitoring inside Mined Underground Paralleling Station	3.00	EA	725,691.25	/EA	2,177,074
		10.07.950 G	Surface and Building Monitoring	8.52	RM	2,751,153.76	/RM	23,439,830
		10.08.221	Retained Cut, Trench - 2 Track (10' Avg. Exc Depth)	0.07	RM	64,161,605.00	/RM	4,491,312
		10.08.344	Retained Cut, Staged Trench - 4 Track (40' Avg Exc Depth)	0.16	RM	213,192,145.00	/RM	34,110,743
		10.08.346	Retained Cut, Staged Trench - 4 Track (60' Avg Exc Depth)	0.11	RM	336,024,993.45	/RM	36,962,749
		10.09.110	Ballasted Track - 1 Track	0.23	RM	2,231,866.09	/RM	513,329
		10.09.110 A	SCRRA Ballasted Track - 1 Track	0.87	RM	2,059,664.29	/RM	1,791,908
		10.09.120	Ballasted Track - 2 Track	18.27	RM	4,025,453.66	/RM	73,545,038
		10.09.120 A	SCRRA Ballasted Track - 2 Track	0.66	RM	3,953,596.26	/RM	2,609,374
		10.09.910	Ballasted Track Relocation - 1 Track (Temporary)	0.64	RM	2,802,349.92	/RM	1,793,504
		10.09.920	Ballasted Track Relocation - 1 Track (Permanent)	0.23	RM	2,802,349.96	/RM	644,540

Alternatives	Sub Section	UPE	Description	Takeoff Quantity		Grand Total Price		Grand Total (2018\$)
		10.10.120	Direct Fixation - 2 Track	21.43	RM	3,574,539.62	/RM	76,602,384
		10.14.200 b	Ballasted Turnout (30MPH)	2.00	EA	94,776.45	/EA	189,553
		10.14.200 C	Ballasted Turnout (50MPH)	1.00	EA	265,374.04	/EA	265,374
		10.14.305	Ballasted Crossover (80MPH)	1.00	EA	1,120,415.54	/EA	1,120,416
		20.07.011 A	2 Lane Roadway Modification, New AC Paving (Sierra Hwy south of Ave S, Sta 728+00 to 775+12)	87,278.00	SF	27.83	/SF	2,429,366
		20.07.012 A	2 Lane Roadway Modification, New AC Paving (Sierra Hwy south of Ave S, Sta 728+00 to 775+12)	92,947.00	SF	25.41	/SF	2,361,441
		20.07.020	Roadway Modification, New AC Paving (including Curb & Sidewalk)	68,313.00	SF	21.27	/SF	1,452,862
		20.07.020 C	2 Lane Roadway Modification, New AC Paving including Curb & Sidewalk (E Avenue R11/Valley Forge from Sta 10+36 to Sta 18+38)	12,479.00	SF	21.25	/SF	265,174
		20.07.020 D	2 Lane Roadway Modification, New AC Paving including one-sided Curb & Sidewalk, painted median (Sierra Hwy north of Ave S, Sta 708+63 to 728+00)	10,970.00	SF	18.79	/SF	206,087
		20.07.021 E	4 Lane Roadway Modification, New AC Paving with partial Curb & Gutter, Sidewalk (Tenth St at Ave S, Sta 10+49 to 32+38)	17,965.00	SF	22.03	/SF	395,779
		20.07.022 C	6 Lane Roadway Modification, New AC Paving with Curb & Gutter, Sidewalk, Raised Median, Bike Path (Avenue S, Sta 82+50 to 117+80)	69,650.00	SF	29.19	/SF	2,033,015
		20.07.023 A	2 Lane Roadway Modification, New AC Paving including Curb & Sidewalk (E Avenue R11/Valley Forge)	12,480.00	SF	22.01	/SF	274,655
		20.07.023 B	2 Lane Roadway Modification, New AC Paving including one-sided Curb & Sidewalk, painted median (Sierra Hwy north of Ave S, Sta 708+63 to 728+00)	10,970.00	SF	19.00	/SF	208,422
		20.07.024 A	2 Lane Roadway Modification, New AC Paving, Curb & Gutter (Sixth St at Barrel Springs Sta 7+66 to 13+60)	17,965.00	SF	22.45	/SF	403,334
		20.07.025 A	6 Lane Roadway Modification, New AC Paving with Curb & Gutter, Sidewalk, Raised Median, Bike Path (Avenue S, Sta 82+50 to 117+80)	69,650.00	SF	29.19	/SF	2,033,015
		20.07.026 A	2 Lane Roadway Modification, New AC Paving, Curb & Gutter (Private Road 1) (From Sta 12+64 to Sta 27+24)	12,042.00	SF	17.40	/SF	209,554
		20.07.026 C	2 Lane Roadway Modification, New AC Paving, Curb & Gutter (Wicks St Cul-de-sac)	5,115.00	SF	19.59	/SF	100,179
		20.07.026 D	4 Lane Roadway Modification, New AC Paving, Curb & Gutter, Sidewalks (Branford St) (From Sta 13+34 to Sta 25+80)	60,670.00	SF	20.67	/SF	1,253,950
		20.07.026 E	4 Lane Roadway Modification, New AC Paving, Curb & Gutter, Sidewalks, Painted/Raised Median (Sheldon St) (From Sta 8+88 to Sta 12+70)	25,593.00	SF	19.75	/SF	505,371
		20.07.710 A	Permanent Service/Emergency Access Road (22' to 25' Wide, at grade)	58,348.00	SF	170.35	/SF	9,939,780
		20.07.711 A	2 Lane Roadway Modification, New AC Paving (Access Rd at Water Treatment Plant) (Froms Sta 3+38 to 11+11+45.52)	33,516.00	SF	16.83	/SF	564,106
		20.07.711 B	2 Lane Roadway Modification, New AC Paving (Access Rd P-1)	37,462.00	SF	17.66	/SF	661,681
		20.07.711 C	2 Lane Roadway Modification, New AC Paving (Access Rd P-2)	25,100.25	SF	24.88	/SF	624,555
		20.07.711 D	2 Lane Roadway Modification, New AC Paving (Access Rd P-3A)	25,460.25	SF	30.17	/SF	768,131
		20.07.711 E	2 Lane Roadway Modification, New AC Paving (Access Rd P-3B)	23,374.00	SF	18.05	/SF	421,810
		20.07.711 F	2 Lane Roadway Modification, New AC Paving (Access Rd P-4)	26,326.75	SF	41.66	/SF	1,096,876
		20.07.711 G	2 Lane Roadway Modification, New AC Paving (Access Rd P-5)	246,001.00	SF	39.39	/SF	9,690,205

Alternatives	Sub Section	UPE	Description	Takeoff Quantity		Grand Total Price		Grand Total (2018\$)
		20.07.711 H	2 Lane Roadway Modification, New AC Paving (Access Rd P-6A)	58,792.00	SF	44.30	/SF	2,604,207
		20.07.711I	2 Lane Roadway Modification, New AC Paving (Access Rd P-6B)	81,597.00	SF	31.84	/SF	2,597,902
		20.07.711 J	2 Lane Roadway Modification, New AC Paving (Access Rd P-7)	31,443.00	SF	32.01	/SF	1,006,507
		20.07.711 K	2 Lane Roadway Modification, New AC Paving (Access Rd P-8)	139,790.00	SF	39.98	/SF	5,589,130
		20.07.711 L	2 Lane Roadway Modification, New AC Paving (Access Rd P-9)	28,152.00	SF	21.69	/SF	610,554
		40.01.010 A	Demolition Allowance, Masonry/Sound Wall	3,999.00	LF	33.48	/LF	133,900
		40.01.050	Demolition Allowance, Building 1 Story	1,030,131.0 0	SF	32.50	/SF	33,482,253
		40.01.070 A	Demolition Allowance, Concrete Structure (Swimming Pools, unknown structures)	363.00	SF	44.08	/SF	16,002
		40.01.110	Demolition Allowance, Asphalt Pavement	267,760.00	SY	62.35	/SY	16,693,856
		40.01.110 A	Demolition Allowance, Concrete Pavement	17,402.00	SY	40.37	/SY	702,516
		40.01.140	Demolition Allowance, Concrete Curb	8,897.00	LF	19.12	/LF	170,069
		40.01.140 A	Demolition Allowance, Concrete Curb & Gutter	17,241.00	LF	20.58	/LF	354,852
		40.01.150	Demolition Allowance, Concrete Sidewalk	13,883.00	SY	132.43	/SY	1,838,498
		40.01.810	Demolition Allowance, Remove Railroad Track	21,556.00	LF	37.17	/LF	801,191
		40.02.107 A	Natural Gas Pipeline, 3" to 8" Dia.	2,139.00	LF	327.11	/LF	699,680
		40.02.108 A	Natural Gas Pipeline, 10" to 18" Dia.	100.00	LF	354.71	/LF	35,471
		40.02.110 A	Natural Gas Pipeline, 30" to 42" Dia.	828.00	LF	515.22	/LF	426,602
		40.02.116 A	Potable Water Pipeline, <10"	8,898.00	LF	327.11	/LF	2,910,591
		40.02.116 B	Potable Water Pipeline, 10" to 16"	28,036.00	LF	339.94	/LF	9,530,533
		40.02.117 A	Potable Water Pipeline, 18" to 24"	2,928.00	LF	520.05	/LF	1,522,709
		40.02.118 A	Potable Water Pipeline, 27" to 33"	4,490.00	LF	728.18	/LF	3,269,537
		40.02.119 A	Efluent Water Pipeline, 36" to 48" Dia.	2,492.00	LF	982.94	/LF	2,449,475
		40.02.119 B	Runoff Water Pipeline, 48" Dia.	355.00	LF	982.94	/LF	348,942
		40.02.121 A	Overhead Power Trans Facility (≥ 69 kV)	55,498.00	LF	7,851.02	/LF	435,715,954
		40.02.122 A	Overhead Power Trans Facility (< 69 kV)	7,116.00	LF	621.07	/LF	4,419,567
		40.02.123 A	Underground Power Trans Facility (12 kV)	535.00	LF	368.74	/LF	197,278
		40.02.127 A	Sewer, Gravity Pipeline, <10" Dia.	90.00	LF	431.31	/LF	38,818

Alternatives	Sub Section	UPE	Description	Takeoff Quantity		Grand Total Price		Grand Total (2018\$)
		40.02.127 B	Sewer, Gravity Pipeline, 10" to 18" Dia.	2,788.00	LF	471.74	/LF	1,315,224
		40.02.150 A	Electrical/Telephone Ductbank	500.00	LF	368.74	/LF	184,368
		40.02.150 B	Fiber Optic Ductbank	1.00	LF	366.74	/LF	367
		40.02.150 C	Tel San Fernando Rd: East of CL	17,016.00	LF	368.74	/LF	6,274,427
		40.02.150 D	Tel San Fernando Rd: West of CL	14,585.00	LF	368.74	/LF	5,378,030
		40.02.200 B	Temporary California Aqueduct Impact (HSR alignment crosses in mined tunnel)	1.00	LF		/LF	
		40.03.100	Hazardous Material Removal Allowance, Light	0.76	RM	474,432.04	/RM	360,568
		40.03.105	Hazardous Material Removal Allowance, Medium	4.73	RM	474,432.04	/RM	2,244,064
		40.03.110	Hazardous Material Removal Allowance, Heavy	5.66	RM	474,432.04	/RM	2,685,285
		40.03.150	Removal of Contaminated Soil	211,855,211.00	CF	4.35	/CF	922,169,934
		40.04.105	Environmental Mitigation Allowance	1.00	LS	185,856,530.59	/LS	185,856,531
		40.05.012 A	Retaining Wall - 1 Wall (Var. Height)	3,095.00	LF	44,474.19	/LF	137,647,613
		40.05.012 B	Retaining wall 1 wall next to abutments (30' avg height)	1,524.30	LF	14,916.57	/LF	22,737,322
		40.05.211	Sound Wall - 1 Wall (8' Avg. Height)	4,820.00	LF	868.64	/LF	4,186,848
		40.05.402 A	Basin SR14 Sta 373+44	1.00	EA	382,196.99	/EA	382,197
		40.05.402 J	Basin SR14 Sta 1138+99	1.00	EA	326,081.24	/EA	326,081
		40.05.402 K	Basin SR14 Sta 1175+90	1.00	EA	485,976.10	/EA	485,976
		40.05.402 L	Basin SR14 Sta 1240+72	1.00	EA	456,755.89	/EA	456,756
		40.05.402 M	Basin SR14 Sta 1318+56	1.00	EA	318,688.60	/EA	318,689
		40.05.402 N	Basin SR14A Sta 472+31	1.00	EA	351,045.33	/EA	351,045
		40.05.402 O	Basin SR14A Sta 1170+00	1.00	EA	348,977.10	/EA	348,977
		40.05.402 P	Basin SR14A Sta 1233+50	1.00	EA	351,045.32	/EA	351,045
		40.05.402 Q	Basin SR14A Sta 1288+00	1.00	EA	351,045.32	/EA	351,045
		40.05.402 R	Basin SR14A Sta 411+50	1.00	EA	487,548.62	/EA	487,549
		40.05.402 S	Basin SR14A Sta 1194+10	1.00	EA	326,653.86	/EA	326,654
		40.05.402 T	Basin SR14A Sta 1233+00	1.00	EA	326,653.86	/EA	326,654
		40.05.402 U	Basin SR14A Sta 1376+00	1.00	EA	318,124.55	/EA	318,125

Alternatives	Sub Section	UPE	Description	Takeoff Quantity		Grand Total Price		Grand Total (2018\$)
		40.05.500 A	24" Drainage Pipe	2,896.00	LF	310.54	/LF	899,316
		40.05.500 B	36" Drainage Pipe	14,220.00	LF	345.04	/LF	4,906,490
		40.05.500 C	48" Drainage Pipe	4,588.00	LF	642.97	/LF	2,949,951
		40.05.500 E	60" Drainage Pipe	944.00	LF	953.51	/LF	900,111
		40.05.500 F	72" Drainage Pipe	100.00	LF	1,173.14	/LF	117,314
		40.05.500 H	96" Drainage Pipe	706.00	LF	1,272.51	/LF	898,394
		40.05.600 B	10.5'x6.5' Drainage Box	1,342.00	LF	3,450.41	/LF	4,630,457
		40.05.800 A	Pumping Station	1.00	EA	345,041.48	/EA	345,041
		40.06.100	Temporary Facilities	1.00	LS	227,157,981.82	/LS	227,157,982
		40.07.010	Right of Way	1.00	LS	841,585,794.14	/LS	841,585,794
		40.08.425 D	Avenue S Overcrossing. Roadway Overcrossing - 6 lane, 10' shoulders, 8' sidewalks, 10' bike lane - 1 span	1.00	EA	5,512,053.34	/EA	5,512,053
		40.08.425 E	Avenue S Overhead. Roadway Overcrossing - 6 lane, 10' shoulders, 8' sidewalks, 10' bike lane - 3 spans	1.00	EA	11,770,118.33	/EA	11,770,118
		40.08.425 F	Avenue S Overhead. Roadway Overcrossing - 6 lane, 10' shoulders, 8' sidewalks, 10' bike lane - 3 spans	1.00	EA	12,194,180.01	/EA	12,194,180
		40.08.425 G	Brandford st Overhead. Roadway Overcrossing - 4 lane - 1 span	1.00	EA	4,609,681.55	/EA	4,609,682
		40.08.425I	Avenue S Overcrossing. Roadway Overcrossing - 6 lane, 10' shoulders, 8' sidewalks, 10' bike lane - 7 spans	1.00	EA	24,158,302.08	/EA	24,158,302
		50.01.000	Wayside Signaling Equipment	38.29	RM	1,225,371.92	/RM	46,919,491
		50.04.000	Traffic Control and Dispatching Systems	38.29	RM	118,844.00	/RM	4,550,537
		50.04.010 A	New Traffic Signal	1.00	EA	1,077,082.12	/EA	1,077,082
		50.04.020 A	Traffic Signal Modification	2.00	EA	4,679,396.84	/EA	9,358,794
		50.05.000	Communications	38.29	RM	1,125,215.64	/RM	43,084,507
		50.07.000	Hazard Detectors	38.29	RM	998,576.88	/RM	38,235,509
		60.02.000	Traction Power Supply	38.29	RM	2,967,557.03	/RM	113,627,759
		60.03.000	Traction Power Distribution	38.29	RM	3,136,004.22	/RM	120,077,602
		60.04.000	Traction Power Control	38.29	RM	4,937.69	/RM	189,064
		80.00.010	Professional Services	1.00	LS	1,056,171,460.07	/LS	1,056,171,460
		90.00.00	Unallocated Contingency	1.00	LS	287,008,392.86	/LS	287,008,393
			08.SR14A Cen SR14A Central					16,918,893,719

Alternatives	Sub Section	UPE	Description	Takeoff Quantity		Grand Total Price		Grand Total (2018\$)
	09.Bur (E1A/S R14A)		Burbank E1A/SR14A					
		10.07.214	Cut & Cover Box - 2 Track / 1 Box (40' Avg. Exc Depth) (Add Mech & Elec from 10.07.902)	0.10	RM	245,092,029.30	/RM	24,509,203
		10.07.215	Cut & Cover Box - 2 Track / 1 Box (50' Avg. Exc Depth) (Add Mech & Elec from 10.07.902)	0.09	RM	285,758,628.56	/RM	25,718,277
		10.07.216	Cut & Cover Box - 2 Track / 1 Box (60' Avg. Exc Depth) (Add Mech & Elec from 10.07.902)	0.08	RM	349,005,333.75	/RM	27,920,427
		10.07.219 A	Cut & Cover Box - 2 Track / 1 Box (100' Avg. Exc Depth)	0.38	RM	596,681,451.16	/RM	226,738,951
		10.07.250 A	Cut & Cover Box -Burbank Station (85' Avg. Exc Depth)	0.27	RM	1,054,652,840.52	/RM	284,734,743
		10.07.250 B	Cut & Cover Box - 4track/1Box (100' Avg. Exc Depth)	0.01	RM	1,206,895,776.43	/RM	16,895,264
		10.07.250 C	Cut & Cover Box - 3track/1Box (100' Avg. Exc Depth)	0.02	RM	1,206,895,776.82	/RM	26,549,700
		10.07.250 D	Cut & Cover Box - 5track/1Box (100' Avg. Exc Depth)	0.15	RM	1,206,895,777.52	/RM	179,813,878
		10.07.301	SEM Tunnels	0.23	RM	791,376,985.09	/RM	182,016,707
		10.07.920 C	Tunnel Ventilation System - C	0.12	RM	25,130,870.66	/RM	3,065,966
		10.07.950 D	Construction Monitoring inside Mined or SEM Single tunnel, incl adits	0.12	Mile	4,531,912.95	/Mile	552,893
		10.07.950 G	Surface and Building Monitoring	0.12	RM	2,751,153.75	/RM	330,138
		10.08.221	Retained Cut, Trench - 2 Track (10' Avg. Exc Depth)	0.07	RM	64,161,605.00	/RM	4,491,312
		10.08.222	Retained Cut, Trench - 2 Track (20' Avg. Exc Depth)	0.10	RM	134,997,815.30	/RM	13,499,782
		10.08.223	Retained Cut, Trench - 2 Track (30' Avg. Exc Depth)	0.11	RM	227,980,128.09	/RM	25,077,814
		10.10.110	Direct Fixation - 1 Track	1.69	RM	1,787,566.92	/RM	3,020,988
		10.10.120	Direct Fixation - 2 Track	2.10	RM	3,574,539.63	/RM	7,506,533
		10.14.200	Ballasted Turnout (60MPH)	4.00	EA	449,883.57	/EA	1,799,534
		10.14.200 A	Ballasted Turnout (25MPH)	2.00	EA	265,374.05	/EA	530,748
		10.14.200 b	Ballasted Turnout (30MPH)	1.00	EA	94,776.45	/EA	94,776
		10.14.305	Ballasted Crossover (80MPH)	2.00	EA	1,120,415.54	/EA	2,240,831
		10.14.400	Terminal Bumping Post	4.00	EA	25,273.72	/EA	101,095
		20.01.247 A	Main and Secondary Station Buildings	141,954.00	sf	483.06	/sf	68,572,026
		20.01.247 B	Auxiliary Building	10,000.00	sf	289.83	/sf	2,898,348
		20.03.001 C	HSR Platform (underground)	84,600.00	SF	552.07	/SF	46,704,815
		20.06.201 B	Parking Walkway (Standard Sidewalks)	316,516.00	SF	19.25	/SF	6,092,268

Alternatives	Sub Section	UPE	Description	Takeoff Quantity		Grand Total Price		Grand Total (2018\$)
		20.06.201 C	Parking Walkway (Enhanced Plazas)	410,764.00	SF	23.48	/SF	9,646,469
		20.06.800 A	Landscape	512,103.00	SF	18.31	/SF	9,379,065
		40.01.010	Demolition Allowance, Bridge	4,028.00	sf	44.77	/sf	180,314
		40.01.010 A	Demolition Allowance, Masonry/Sound Wall	1,873.00	LF	33.48	/LF	62,714
		40.01.010 B	Demolition Allowance, Retaining Wall	3,967.00	LF	33.48	/LF	132,829
		40.01.050	Demolition Allowance, Building 1 Story	661,944.00	SF	32.50	/SF	21,515,105
		40.01.110	Demolition Allowance, Asphalt Pavement	189,536.95	SY	62.35	/SY	11,816,936
		40.01.110 A	Demolition Allowance, Concrete Pavement	12,154.00	SY	40.37	/SY	490,655
		40.01.140	Demolition Allowance, Concrete Curb	2,877.00	LF	19.12	/LF	54,995
		40.01.140 A	Demolition Allowance, Concrete Curb & Gutter	19,107.40	LF	20.58	/LF	393,266
		40.01.150	Demolition Allowance, Concrete Sidewalk	16,012.40	SY	132.43	/SY	2,120,490
		40.01.810	Demolition Allowance, Remove Railroad Track	32,462.00	LF	37.17	/LF	1,206,543
		40.02.107 A	Natural Gas Pipeline, 3" to 8" Dia.	5,399.00	LF	327.11	/LF	1,766,047
		40.02.108 A	Natural Gas Pipeline, 10" to 18" Dia.	880.00	LF	354.71	/LF	312,144
		40.02.111 A	Oil Pipeline, 6" to 15" Dia.	11,510.00	LF	354.71	/LF	4,082,707
		40.02.112 A	Oil Pipeline, 18" to 24" Dia.	11,750.00	LF	354.71	/LF	4,167,837
		40.02.116 A	Potable Water Pipeline, <10"	2,150.00	LF	327.11	/LF	703,278
		40.02.116 B	Potable Water Pipeline, 10" to 16"	2,070.00	LF	339.94	/LF	703,674
		40.02.117 A	Potable Water Pipeline, 18" to 24"	1,900.00	LF	520.05	/LF	988,096
		40.02.118 A	Potable Water Pipeline, 27" to 33"	501.00	LF	728.18	/LF	364,819
		40.02.119 A	Efluent Water Pipeline, 36" to 48" Dia.	5,350.00	LF	982.94	/LF	5,258,704
		40.02.122 A	Overhead Power Trans Facility (< 69 kV)	7,180.00	LF	621.07	/LF	4,459,316
		40.02.123 A	Underground Power Trans Facility (12 kV)	4,680.00	LF	368.74	/LF	1,725,688
		40.02.127 A	Sewer, Gravity Pipeline, <10" Dia.	2,080.00	LF	431.31	/LF	897,123
		40.02.127 B	Sewer, Gravity Pipeline, 10" to 18" Dia.	1,800.00	LF	471.75	/LF	849,142
		40.02.128 A	Sewer, Gravity Pipeline, 21" to 30" Dia.	200.00	LF	637.37	/LF	127,473
		40.02.150 C	Tel San Fernando Rd: East of CL	12,896.00	LF	368.74	/LF	4,755,231

Alternatives	Sub Section	UPE	Description	Takeoff Quantity		Grand Total Price		Grand Total (2018\$)
		40.02.150 D	Tel San Fernando Rd: West of CL	15,740.00	LF	368.74	/LF	5,803,917
		40.03.110	Hazardous Material Removal Allowance, Heavy	0.57	RM	474,432.02	/RM	270,426
		40.03.150	Removal of Contaminated Soil	36,310,326.03	CF	4.35	/CF	158,052,714
		40.04.105	Environmental Mitigation Allowance	1.00	LS	185,856,530.58	/LS	185,856,531
		40.05.012 A	Retaining Wall - 1 Wall (Var. Height)	5,698.00	LF	44,474.19	/LF	253,413,925
		40.05.500 A	24" Drainage Pipe	744.00	LF	310.54	/LF	231,040
		40.05.500 C	48" Drainage Pipe	1,323.00	LF	642.97	/LF	850,652
		40.05.500 E	60" Drainage Pipe	867.00	LF	953.51	/LF	826,692
		40.05.500 G	42" Drainage Pipe	165.00	LF	586.57	/LF	96,784
		40.05.600 A	8.5'x5' Drainage Box	156.00	LF	2,760.33	/LF	430,612
		40.05.700 C	3'x3' Open Channel	2,108.00	LF	1,380.17	/LF	2,909,390
		40.06.100	Temporary Facilities	1.00	LS	227,157,981.82	/LS	227,157,982
		40.07.010	Right of Way	1.00	LS	395,543,169.81	/LS	395,543,170
		50.01.000	Wayside Signaling Equipment	0.55	RM	1,225,371.93	/RM	673,955
		50.04.000	Traffic Control and Dispatching Systems	0.55	RM	118,844.00	/RM	65,364
		50.04.010 A	New Traffic Signal	2.00	EA	1,077,082.11	/EA	2,154,164
		50.04.020 A	Traffic Signal Modification	2.00	EA	4,679,396.85	/EA	9,358,794
		50.05.000	Communications	0.55	RM	1,125,215.65	/RM	618,869
		50.07.000	Hazard Detectors	0.55	RM	998,576.87	/RM	549,217
		60.02.000	Traction Power Supply	0.55	RM	2,967,557.04	/RM	1,632,156
		60.03.000	Traction Power Distribution	0.55	RM	3,136,004.22	/RM	1,724,802
		60.04.000	Traction Power Control	0.55	RM	4,937.71	/RM	2,716
		80.00.010	Professional Services	1.00	LS	1,056,171,460.05	/LS	1,056,171,460
		90.00.00	Unallocated Contingency	1.00	LS	287,008,392.87	/LS	287,008,393
			09.Bur (E1A/SR14A) Burbank E1A/SR14A					3,861,041,405
			06.SR14A SR14A End to End Alternative 2018\$					24,074,523,984

APPENDIX D LIST OF DOCUMENTS

The following documents were provided.

- EEPB_PEPD_BACKUP_v7
- EEPB_PEPD_UPE_master_table_v13
- EEPB_PEPD_UPE_master_table_v13_Palmdale
- EEPB_PEPD_UPE_master_table_v13_Burbank
- EEPB_PEPD_BACKUP_v7 bridges
- EEPB_PEPD_UPE_master_table_v13 bridges
- EEPB_PEPD_BACKUP_v7 - DRAINAGE 02182019
- EEPB_PEPD_UPE_master_table_v13 - DRAINAGE 02182019
- EEPB_PEPD_BACKUP_v7_Tunnels
- EEPB_PEPD_UPE_master_table_v13_Tunnels
- EEPB_PEPD_UPE_master_table_v13_alignment.xlsx
- Hazardous_materials_V01
- EEPB_PEPD_BACKUP_v7_Roadways
- EEPB_PEPD_UPE_master_table_v13_Roadways
- Roadway Quantities Calculations
- Revised BOQ Epic 20190301
- EEPB_PEPD_UPE_master_table_v13_Stations_2019-03-05
- EEPB_PEPD_UPE_master_table_v13-PlaceWorks-2-11-19
- 2019-03-05 EEPB_PEPD_UPE_master_table_v13
- Copy of EEPB_PEPD_UPE_master_table_v13_utilities
- 13_P2K_DRAFT_PEPD_Rev01_Basis_of_Quanties_Report
- EEPB_PEPD_BACKUP_v8
- EEPB_PEPD_BACKUP_v9_STR