

THIS PRINT COVERS CALENDAR ITEM NO. :

**SAN FRANCISCO
MUNICIPAL TRANSPORTATION AGENCY**

DIVISION: Central Subway

BRIEF DESCRIPTION:

Retroactively approving Amendment No. 6 to Contract CS-155-3 Professional Architectural and Engineering Services with HNTB-B&C JV for the Final Design and Construction Support of the Central Subway Project Trackway and Control Systems, to approve an increase in the contract amount by \$1,269,472 to: 1) redesign the trackway alignment and analyze impacts to ventilation systems; and 2) provide design and construction support for specialized communication and video systems, for a total contract amount not to exceed \$34,573,434; and requesting the Board of Supervisors' retroactive approval of Amendment No. 6.

SUMMARY:

- On April 22, 2010, the City awarded Contract CS-155-3 (Contract) to HNTB B&C JV (Designer) to design the trackway and control systems for the Central Subway Project, for an amount not to exceed \$32,294,319, for a ten-year term with option to extend the term two years.
- The Contract has been modified six times to compensate the Designer to address unexpected site conditions and design changes required by the City. The six amendments increased the total contract amount by \$2,279,115.
- Amendment No. 6 increases the contract amount \$1,269,472 to compensate for additional design work for: 1) to redesign the alignment of the trackway to accommodate changes to the tunnel alignment, which were required to avoid underground obstacles; and 2) provide design support to integrate Central Subway control systems to the SFMTA's Transportation Management Center, and to support the construction of specialized communication and video systems.
- The amendment requires the Board of Supervisors' approval under Charter Section 9.118(b).

ENCLOSURES:

1. SFMTAB Resolution
2. CS-155-3 Contract, Amendment No. 6
3. <https://www.sfmta.com/about-sfmta/reports/central-subway-final-seisseir> (Central Subway Final SEIS/SEIR and Mitigation Monitoring and Reporting Program)

APPROVALS:

DATE

DIRECTOR _____

SECRETARY _____

ASSIGNED SFMTAB CALENDAR DATE: June 5, 2018

PAGE 2.

PURPOSE

Approving Amendment No. 6 to Contract CS-155-3 Professional Architectural and Engineering Services with HNTB-B&C JV for the Final Design and Construction Support of the Central Subway Project Trackway and Control Systems, to approve an increase in the contract amount by \$1,269,472 to: 1) redesign the trackway alignment and analyze impacts to ventilations systems; and, 2) provide design and construction support for specialized communication and video systems, for a total contract amount not to exceed \$34,573,434; and requesting the Board of Supervisors' retroactive approval of Amendment No. 6.

STRATEGIC GOALS AND TRANSIT FIRST POLICY PRINCIPLES

This action supports the following SFMTA Strategic Plan Goal and Objectives:

Strategic Plan Goal 3 – Improve the environment and quality of life in San Francisco

Objective 3.1: Reduce the Agency's and the transportation system's resource consumption, emissions, waste and noise.

Objective 3.2: Increase the transportation system's positive impact to the economy.

Objective 3.3: Allocate capital resources effectively.

Objective 3.4: Deliver services efficiently.

Objective 3.5: Reduce capital and operating structural deficits.

This item will support the following Transit First Policy Principles:

1. Improves the safe and efficient movement of people and goods.
2. Improves public transit as an attractive alternative to travel by private automobile.
8. Allocates transit investments to meet the demand for public transit generated by new public and private commercial and residential developments.
9. Promotes the use of regional mass transit and the continued development of an integrated, reliable, regional public transportation system.

DESCRIPTION

Contract and Contracted Services

On February 26, 2010, the SFMTA Board of Directors awarded Contract CS-155-3 (Contract) to HNTB-B&C (Designer) a joint venture between HNTB, Inc. and B&C Transit, Inc. (now called Transit Systems Engineering, Inc.), to design the trackway and control systems for the Central Subway Project, for an amount not to exceed \$32,294,319, for a ten-year base term, and an option to extend the term an additional two years. On April 22, 2010, the Board of Supervisors approved the SFMTA's award of the Contract to the Designer.

Under the Contract, the Designer provides the following services:

1. Design the trackway infrastructure, trackway (rails and ties), crossovers, switch systems, specialty trackwork, train control system, computer aided dispatch system, radio and band data communication systems, and ventilation system, fire detection, alarm and suppression systems, public information signs, and other utility and control systems

PAGE 3.

necessary for the functioning of the Central Subway and the integration of Central Subway systems into existing MUNI systems.

2. Validate preliminary (conceptual) designs and complete final designs for each of the systems listed above
3. Prepare bid documents (construction designs and specifications) and provide bid support services including conforming contract drawings and specifications
4. Verify construction costs and schedules
5. Review contract change order requests
6. Review and respond to contractor submittals, requests for information (RFIs), requests for substitution, and contract claims
7. Conduct site visits and observations to verify design compliance and/or assist in resolving issues
8. Update design drawings and specifications as needed to memorialize approved project changes
9. Witness and approve factory testing of manufactured equipment and materials
10. Provide on-going geotechnical investigation and engineering services
11. Provide site surveying
12. Perform (and review others') cost estimates and scheduling
13. Coordinate designs and specifications for the construction of the tunnels and stations by others (under Contracts CS-155-1 and CS-155-2).
14. Prepare systems operations and maintenance manuals specifications
15. Prepare prepare as-built contract specifications and design documents when construction is complete.

The Contract is structured on a cost reimbursement model, as are most engineering services contracts for complex projects. The parties estimated the number of hours the Designer would need to spend on various categories of work, with contract costs estimated by multiplying those hours by the hourly rates of the personnel assigned to perform the work and by an audited rate for overhead. The parties also negotiated a separate fixed fee that covers the Designer's profit and costs not covered as allowed overhead; the fixed fee is paid pro rata to hours worked with each progress payment.

The costs of redesigning the trackway alignment was not included in the design services negotiated for the base contract, as the lowering of the tunnels (and therefore the redesign of the trackway alignment) was an accommodation of underground and as-built conditions that neither the SFMTA nor the Designer could have been anticipated prior to the execution of the Contract. The additional work to redesign trackway alignment and perform related ventilation system analyses added approximately 306 hours and \$55,188.00 to the Contract. The additional work required to support the integration of Central Subway control systems to the SFMTA's Transportation Management Center (TMC), and to support the construction of specialized communication and video systems added approximately 11,733 hours and \$1,214,284 to the Contract for a total of approximately 12,039 hours and \$1,269,472 to the Contract. The SFMTA could not have anticipated the need for that additional work when it negotiated the original contract, as the TMC had not at that time been completed and the scope of integrating the Central Subway control systems to the TMC was unknown.

PAGE 4.

Prior Amendments of the Contract

The Contract has been modified six times to address unexpected site conditions and design changes required by the City. The six amendments increased the total contract amount by \$2,279,115, for a total amended contract amount not to exceed \$34,573,434.

Amendment No. 1

On January 16, 2012, the Director of Transportation approved Amendment No. 1 to the Contract for \$152,882 to compensate the Designer for review of impact of lowering Chinatown station 25 feet deeper and modifying tunnel and trackway designs for lowered station and performing geotechnical investigation for Fourth/Brannan Station.

Amendment No. 2

On March 9, 2012, the Director of Transportation approved Amendment No. 2 to the Contract for \$38,380 to compensate the Designer for performing vibration impact analysis for 570-4th Street property.

Amendment No. 3

On May 4, 2012, the Director of Transportation approved Amendment No. 3 to the Contract for \$304,651 to compensate the Designer for providing additional design technology support, quality control services, and business process review.

Amendment No. 4

On July 11, 2012, the Director of Transportation approved Amendment No. 4 to the Contract for \$332,779 to compensate the Designer for performing additional design work for incorporating replacement of track switches and switch machines and for performing additional design services to integrate Central Subway systems to the SFMTA's Transit Management Center.

Amendment No. 5

On April 24, 2013, the Director of Transportation approved Amendment No. 5 to the Contract for \$180,951 to compensate the Designer for performing additional design services to integrate Central Subway systems to the SFMTA's Transit Management Center.

Amendment No. 6

On June 11, 2014, the Director of Transportation approved Amendment No. 6 to the Contract for \$1,269,472.00 to compensate the Designer for performing additional work to redesign the trackway alignment and evaluate impacts to the ventilation systems, and provide design and construction support for specialized communication and video systems, for a total amended contract amount not to exceed \$34,573,434. Amendment No. 6 should have been presented to the SFMTA Board and then to the Board of Supervisors for their approval, but was not due to staff misunderstanding of the Director of Transportation's contract approval authority.

PAGE 5.

The SFMTA’s Contract Compliance Office has determined that the Designer has met the 30% Small Business Enterprise participation goal that the SFMTA established for the Contract.

STAKEHOLDER ENGAGEMENT

The contract amendment extends the level of design and construction support services, and increasing the scope does not have any negative impact to the community; hence, no community outreach was performed.

ALTERNATIVES CONSIDERED

Disapproval of this amendment retroactively by the Board would render Amendment No. 6 to the Contract void, which could negatively impact the Designer's willingness to continue to provide services to the Central Subway Project. It is important that the Designer, as the engineer of record for the trackway and control systems, continue to provide design services during construction. Loss of the Designer's services would likely cause significant delays to the completion of the Central Subway Program, as the SFMTA would not otherwise have the expertise necessary to perform the Designer's work.

FUNDING IMPACT

The Central Subway project is funded with Federal Transit Administration (FTA) New Starts, Federal Congestion Management & Air Quality (CMAQ), State Transportation Bond Proposition 1A and 1B, State Regional Improvement Program, State Transportation Congestion Relief Program (TCRP), and Prop K Half-Cent Local Sales Tax funds. Contract CS-155-2 Modification #4 will not increase the total project cost of \$1.578B. Existing funds will be used to pay for the additional cost. The breakdown of the funding sources and their amounts is as follows:

Source	TOTAL
5309 New Starts	\$942,200,000
CMAQ3	\$41,025,000
Prop 1A High Speed Rail Connectivity	\$61,308,000
Prop 1B- MTC	\$87,895,815
Prop 1B-SFMTA	\$219,896,185
RIP-SF/Other	\$74,248,000
TCRP	\$14,000,000
Prop K	\$137,727,000
	\$1,578,300,000

ENVIRONMENTAL REVIEW

The Central Subway Final Supplemental Environmental Impact Statement / Supplemental Environmental Impact Report (Central Subway SEIS/SEIR) evaluated the environmental impacts of the Central Subway project, including construction of the subway stations. On August 7, 2008,

PAGE 6.

the San Francisco Planning Commission certified the Final SEIR (Case No. 1996.281E). On August 19, 2008, the SFMTA Board of Directors approved Resolution 08-150 adopting Central Subway Project Alternative 3B as the Locally Preferred Alternative, the CEQA Findings, Statement of Overriding Considerations, and the Mitigation Monitoring and Reporting Plan.

As constructed, the northbound and southbound tunnels were lowered by approximately 10 feet maximum from the depths described in the SEIS/SEIR, to avoid existing underground micropiles discovered after construction was initiated. The change in vertical profile occurred over a length of approximately 1,750 feet of tunnels, between south of Union Square-Market Street Station and north of Yerba Buena-Moscone Station. The tunnel horizontal alignment (for northbound and southbound) did not change. The constructed depth of the tunnels as constructed is consistent with the analysis of impacts and mitigations in the SEIS/SEIR. All impacts associated with tunnel depth were analyzed in the SEIS/SEIR, which considered potential impacts due to subsurface conditions in locations affected by the tunnels and in the surrounding vicinity. The SEIS/SEIR contains extensive analysis of archeological resources and impacts in Sections 4.4 and 6.7.1. Information contained therein regarding known archeological resources, and mitigation measures required to avoid both known and unknown archeological resources, adequately account for construction of the tunnels 10 feet lower than initially analyzed.

On July 15, 2014, when the SFMTA Board of Directors adopted Resolution No. 14-120, the Board found, based on its review of the Final SEIS/SEIR, that no additional environmental review was required under Public Resources Code section 21166. On April 5, 2016, when the SFMTA Board of Directors adopted Resolution No. 16-044, the Board further reviewed and considered the Central Subway Project Final SEIS/SEIR and the record as a whole, finding that there were no substantial project changes and no substantial changes in project circumstances that would require major revisions to the Central Subway Project Final SEIS/SEIR due to the involvement of new significant environmental effects or an increase in the severity of previously identified significant impacts, and there was no new information of substantial importance that would change the conclusions set forth in the Central Subway Project Final SEIS/SEIR.

The environmental review determination is on file with the SFMTA Board of Directors, may be found in the records of the Planning Department at 1650 Mission Street in San Francisco, and is incorporated herein by reference.

OTHER APPROVALS RECEIVED OR STILL REQUIRED

Amendment No. 6 to the Contract requires approval by the Board of Supervisors under Charter Section 9.118(b), as the original contract was subject to the Board of Supervisors approval and the value of the amendment exceeds \$500,000.

The City Attorney's Office has reviewed this calendar item.

RECOMMENDATION

SFMTA staff recommends that the SFMTA Board of Directors retroactively approve Amendment No. 6 to Contract CS-155-3 Professional Architectural and Engineering Services

PAGE 7.

with HNTB-B&C JV for the Final Design and Construction Support of the Central Subway Project Trackway and Control Systems, to retroactively approve an increase in the contract amount by \$1,269,472 to: 1) redesign the trackway alignment and analyze impacts to ventilations systems; and, 2) provide design and construction support for specialized communication and video systems, for a total contract amount not to exceed \$34,573,434; and requesting the Board of Supervisors' retroactive approval of Amendment No. 6.

SAN FRANCISCO
MUNICIPAL TRANSPORTATION AGENCY
BOARD OF DIRECTORS

RESOLUTION No. _____

WHEREAS, Design and construction of the 1.75-mile Central Subway (Central Subway Project) is Phase 2 of the Third Street Light Rail Transit Project; and,

WHEREAS, On April 22, 2010, the City awarded Contract CS-155-3 (Contract) to HNTB-B&C JV (Designer), a joint venture between HNTB Engineering and B&C Transit (now called Transit Systems Engineering, Inc.), to design the trackway and control systems for the Central Subway Project, for an amount not to exceed \$32,294,319, for a ten-year term with option to extend the term two years; and,

WHEREAS, The Contract has been modified six times to compensate the Designer for additional work required to address unexpected site conditions and design changes required by the City. The six amendments increased the total contract amount by \$2,279,115, for a total amended contract amount not to exceed \$34,573,434; and,

WHEREAS, The Amendment No. 6 to the Contract, dated June 11, 2014, increased the contract amount by \$1,269,472 to compensate for additional work to: 1) redesign the trackway alignment and evaluate impacts on ventilation systems; and, 2) provide design and construction support for specialized communication and video systems, for a total amended contract amount not to exceed \$34,573,434; and,

WHEREAS, The Amendment No. 6 requires the Board of Supervisors' approval under Charter Section 9.118(b); and,

WHEREAS, Due to staff misunderstanding of the Director of Transportation's authority to approve contracts, Amendment No. 6 was not timely presented to the SFMTA Board of Directors for approval, and was not timely presented to the Board of Supervisors for approval; and,

WHEREAS, The Central Subway Final Supplemental Environmental Impact Statement / Supplemental Environmental Impact Report (Central Subway SEIS/SEIR) evaluated the environmental impacts of the Central Subway Project, including construction of the subway tunnels; and,

WHEREAS, On August 7, 2008, the San Francisco Planning Commission certified the Final SEIR (Case No. 1996.281E). On August 19, 2008 the SFMTA Board of Directors approved Resolution 08-150 adopting Central Subway Project Alternative 3B as the Locally Preferred Alternative, the CEQA Findings, Statement of Overriding Considerations, and the Mitigation Monitoring and Reporting Plan; and,

WHEREAS, On July 15, 2014, when the SFMTA Board of Directors adopted Resolution No. 14-120, the Board found, based on its review of the Final SEIS/SEIR, that no additional environmental review was required under Public Resources Code section 21166; On April 5, 2016, when the SFMTA Board of Directors adopted Resolution No. 16-044, the Board further reviewed and considered the Central Subway Project Final SEIS/SEIR and the record as a whole, finding that there were no substantial project changes and no substantial changes in project circumstances that would require major revisions to the Central Subway Project Final SEIS/SEIR due to the involvement of new significant environmental effects or an increase in the severity of previously identified significant impacts, and there was no new information of substantial importance that would change the conclusions set forth in the Central Subway Project Final SEIS/SEIR; and,

WHEREAS, The environmental review determination is on file with the SFMTA Board of Directors, and may be found in the records of the Planning Department at 1650 Mission Street in San Francisco, and is incorporated herein by reference; and,

RESOLVED, The SFMTA Board of Directors retroactively approves Amendment No. 6 to Contract CS-155-3 Professional Architectural and Engineering Services with HNTB-B&C JV for the Final Design and Construction Support of the Central Subway Project Trackway and Control Systems, to: 1) approve an increase in the contract amount by \$1,269,472 to redesign the trackway alignment and analyze impacts to ventilation systems; and, 2) provide design and construction support for specialized communication and video systems, for a total contract amount not to exceed \$34,573,434; and be it further

RESOLVED, The SFMTA Board of Directors requests the Board of Supervisors' retroactively approve Amendment No. 6 to Contract CS-155.3 Professional Architectural and Engineering Services with HNTB-B&C JV for the Final Design and Construction Support of the Central Subway Project Trackway and Control Systems, to: 1) approve an increase in the contract amount by \$1,269,472 to redesign the trackway alignment and analyze impacts to ventilation systems; and, 2) provide design and construction support for specialized communication and video systems, for a total contract amount not to exceed \$34,573,434.

I certify that the foregoing resolution was adopted by the San Francisco Municipal Transportation Agency Board of Directors at its meeting of June 5, 2018.

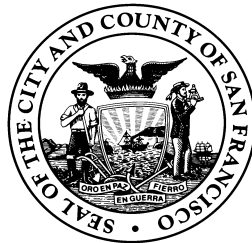
Secretary to the Board of Directors
San Francisco Municipal Transportation Agency

CONTRACT FOR CENTRAL SUBWAY

FINAL DESIGN PACKAGE # 3

SURFACE, TRACK, AND SYSTEMS,
QUALITY CONTROL AND DESIGN INTEGRATION

SIXTH AMENDMENT



**Sixth Amendment to Agreement between the City and County of San Francisco
and
HNTB B&C JV
for Architectural and Engineering Services
for the Final Design and Construction of the
the San Francisco Municipal Transportation Agency
Central Subway Project
(Third Street Light Rail Project, Phase 2)**

**Contract No. CS-155-3
Design Package #3**

WHEREAS, The City and County of San Francisco ("City"), by and through its Municipal Transportation Agency ("SFMTA") and HNTB-B&C JV ("Consultant" or "Designer"), a joint venture between HNTB Corporation and B&C Transit, Inc., entered into Contract CS-155-3 ("the Agreement") for the final design of Surface, Track and Systems for the SFMTA's Central Subway Project; and

WHEREAS, As provided in Section 8.2 of the Agreement, Consultant requested that the Agreement be modified to describe and include and provide additional compensation for certain Additional Work (identified herein) that was not part of the original Scope of Work of the Agreement; and

WHEREAS, Consultant and SFMTA subsequently negotiated this Sixth Amendment to the Agreement; ("Sixth Amendment");

NOW THEREFORE, the Consultant and the SFMTA agree to modify the Agreement, as set out below:

A. CONSTRUCTION OF SIXTH AMENDMENT

1. Unless otherwise specifically stated, the Consultant is the party responsible for performing the Work described in this Sixth Amendment.
2. The amounts stated in this Sixth Amendment as compensation for the Additional Work described herein is full compensation for said Additional Work, payment of which by City to Consultant shall be an accord and satisfaction of any and all obligations by City to Consultant for said Additional Work.
3. Except as specifically provided in this Sixth Amendment, all other terms and conditions of the Agreement remain unchanged. No provision of this Sixth Amendment shall amend any agreement or contract other than the "Agreement between the City and County of San Francisco and HNTB-B&C JV for Architectural and Engineering Services for the Final Design and Construction of

the San Francisco Municipal Transportation Agency Central Subway Project" (Third Street Light Rail Project, Phase 2), SFMTA Contract No. CS-155-3. This Sixth Amendment is dated for convenience as March 7, 2014.

4. Consultant hereby acknowledges and agrees that the amounts agreed for the Additional Work described in this Sixth Amendment shall be in full accord and satisfaction of all current and prospective costs incurred in connection with Consultant's performance of said Additional Work, without limitation. Consultant releases SFMTA from all claims arising from or related to said Additional Work, for which full accord and satisfaction is hereby made, as set forth above. If this modification involves the granting of an extension of time, with or without cost, Consultant hereby releases SFMTA from all claims and costs associated with such extension of time. Such costs may include, but are not limited to, costs for labor, materials, equipment, and disruption, lost productivity, escalation, delay, extended overhead, administration and extended performance time.
5. In signing this Sixth Amendment, the signatories certify that each is authorized to execute this Sixth Amendment and thereby bind the party he or she represents.

B. ADDITIONAL DESIGN SERVICES:

Appendix A, Part A is amended as follows for the Central Subway Construction Support Services:

Task A-16.5.1 Tunnel Lowering

1. Trackway

A. Additional Work:

Consultant shall perform the following:

1. Review the revised profile "PCC12 – Attachment A" provided by SFMTA as attachment to Letter 2021 for conformance with Central Subway design criteria
2. Review CCO issued to 1252 for verification of vertical clearances (1252 CCO was not previously provided to 1256 designers for review or comment.)
3. Incorporate the revised profile into track master files and track profile sheets.
4. Update contract documents for Contract 1300 (1256-STC, 1255-MOS, 1253-UMS packages) and Contract 1252 tunnel package. (18 sheets total as listed in attached cost estimate.)
5. Update track profile and clearance calculations to reflect revised profile.

6. Prepare and submit QA/QC documentation with revised sheets and calculations.

B. Assumptions

The following assumptions apply to Consultant's review of the Trackway documents listed above:

1. Revised profile has been accepted by the Central Subway Project and MUNI operations
2. The revised profile conforms to the 1252 tunnel contract within the project tolerances
3. The June 26, 2013 technical memo "Rationale Supporting Revised Alignment of the Central Subway Tunnels" by PB regarding superelevation is accepted by the Central Subway Project and MUNI operations and the recommendations will be incorporated into the design as described in the tech memo.
4. The following services are excluded from this contract modification: variances or updates to the track design criteria, preparation of an Engineering Change Proposal, presentations to Change Management Board

C. Deliverables

Consultant shall produce the following Design Documents:

1. Updated Track Profile and Clearance Calculations
2. Updated Track Plan and Profile Sheets for Contract 1300 (11 Total)
1255-TC-111, 1253-TC-108, 1256-TC-108, 1256-TC-109, 1256-TC-110, 1256-TC-111, 1255-TC-136, 1253-TC-134, 1256-TC-134, 1256-TC-135, 1256-TC-136
3. Updated Track Plan and Profile Sheets for Contract 1252 (7 Total)
1252-TC-108, 1252-TC-109, 1252-TC-110, 1252-TC-111, 1252-TC-134, 1252-TC-135, 1252-TC-136

Consultant shall update quantity calculations, including QA/QC documentation for the 1256 package.

D. Schedule

Consultant shall complete the Additional Work under this Sixth Amendment within six weeks from NTP and receipt of 1252 CCO.

2. SES/Ventilation Analyses

A. Additional Work:

Consultant shall perform the following analyses of the impacts to the SES/Ventilation Systems caused by changes in tunnel design and elevation:

1. Update Fire safety push/pull SES simulations reflecting revised profile, including:
 - Piston relief SES simulations
 - System wide push/pull schemes will need to be rechecked SES
 - SES will need to be modified to include slight additional length
2. Revise SES report, issuance of SES Rev 3
3. Meet with SFFD, as needed.
4. Confirm piston relief conditions are within acceptable parameters given additional tunnel length.

B. Assumptions:

The following assumptions apply to Consultant's SES/Ventilation impacts analyses:

1. Revisions to design are related only to elevation changes in the tunnel. Critical velocity criteria for push/pull ventilation operations will increase with the increase in grade No revisions to tunnel bore area or utility installations are needed and tunnel effective tunnel friction factor remains the same
2. No revisions in train speed profile are indicated. Small changes in aggregate tunnel bore flow conditions present for station smoke control operations are not expected to revise station CFD analysis.
3. Revisions to UMS or MOS CFD models and report will be estimated separately if required.

C. Schedule:

Consultant shall complete the SES/Ventilation impacts analyses described in this Sixth Amendment within six weeks from NTP and receipt of 1252 CCO.

D. Exclusions:

The Additional Work does not include the following:

1. Assessment of impacts to City–designed systems, management and incorporation of revised profile into City designs (i.e. OCS, plumbing, CCTV, traction power)
2. Conveyance of changes to track profile to Thales for ATCS design
3. Revisions to the tunnel air replenishment system design are not included
4. Check of CCTV coverage area
5. Required revisions to OCS profile and verification of OCS clearances
6. Changes to mechanical design due to lowering of tunnel low point, update to pump station calculations including sump fill rate, pump design and verification of discharge connection details.
7. Check of changes to traction power loads

Appendix A, Part B is amended as follows for the Integrated System Replacement (ISR) and Transportation Management Center (TMC) Construction Support Services:

Task B1-16 Integrated Systems Replacement Construction Support

Provide extended construction support services for specialized communication systems and audio/visual systems procurement and installation. Support SFMTA through extended construction phase to review contractor's submittals and progress towards meeting contract requirement including contract close out.

Task B3 -16 Transportation Management Center Construction Support

16.30 – Business Process Review and Start-up Support

Provide extended construction support services for Central Control facilities including TMC staff move in Phase 2 planning and implementation. Consultant shall provide:

1. TMC operation start-up Supports
2. Prepare TMC organization chart and command structure refinement document
3. Prepare business unit definition and work flow documents
4. Prepare move in “playbook” updates, cutover plan for transit operations
5. Perform job analysis and create job classification documents
6. Review, revise and produce Standard Operating Procedures (SOP) for TMC
7. Prepare new Transportation Controller staff evaluation plan and guidelines, and prepare training materials
8. Provide engineering and construction supports for central control systems relocation and implementation

16.35 – Integrated Human Machine Interface (IHMI) Phase 2

Develop an Integrated Human Machine Interface (IHMI) for a video management system for TMC, metro subway and related SFMTA facilities. HNTB-B&C shall design and configuration the IHMI system to incorporate all subway CCTV cameras, CCTV analytical alarm interfaces, subway basemaps, User Graphic Interfaces (GUI) for the subway stations.

This will be completed in phases to provide the TMC with enhanced interfacing and data sharing capabilities for more effective transportation operations. The functions to be provided as described herein will be the phase II of development (IHMI P2) and will include providing an open platform for integrating SFMTA CCTV systems that is also capable of adding other SFMTA systems in the future.

The system will provide the ability for sharing of data throughout the TMC and SFMTA network, center to center communications with other City, County, and State

agencies, and to the public.

DELIVERABLES

Consultant shall provide the following Deliverables:

1. Site Survey Results
2. Needs assessment to identify software and system upgrade requirements per SFMTA user inputs
3. Demonstrations and Mockups
4. Test Plans and results
5. Software and Licenses for the undated IHMI system
6. Manuals for Users and Maintenance
7. Development guides and tools
8. User and system administrator training materials

C. PREVIOUSLY EXERCISED OPTIONS AND AMENDMENTS ISSUED

By letters (referenced in the following table), the SFMTA has exercised Options under the Contract, which have increased the Base Amount of the Contract Sum and decreased the remaining value of Option Work by an equivalent amount. The SFMTA's exercise of options and the Consultant's performance of the Optional Work has not increased the Contract Sum, Contract Time, or Project schedule. SFMTA has also issued five previous contract Amendments. The following table summarizes the Options exercised and Amendments issued:

Letter No.	Base Amount	Base Fee	Total Options or Mod	Total Base Contract	Option Amount	Option Fee	Total Option Exercise	Total Optional Contract
	\$22,558,394	\$2,366,458		\$24,924,852	\$6,652,093	\$717,374		\$7,369,467
C3 B0001	\$31,002	\$3,410	\$34,412	\$24,959,264	(\$31,002)	(\$3,410)	(\$34,412)	\$7,335,055
C3 B0002	\$346,484	\$38,113	\$384,597	\$25,343,861	(\$346,484)	(\$38,113)	(\$384,597)	\$6,950,458
#0933	\$665,574	\$73,213	\$738,787	\$26,082,649	(\$665,574)	(\$73,213)	(\$738,787)	\$6,211,670
#1213	\$209,819	\$23,080	\$232,899	\$26,315,548	(\$209,819)	(\$23,080)	(\$232,899)	\$5,978,771
	\$140,082	\$12,800	\$152,882	\$26,468,430				\$5,978,771
#1381	\$49,290	\$5,422	\$54,712	\$26,523,142	(\$49,290)	(\$5,422)	(\$54,712)	\$5,924,059
	\$34,657	\$3,723	\$38,380	\$26,561,522				\$5,924,059
	\$274,460	\$30,191	\$304,651	\$26,866,172				\$5,924,059
#1630	\$145,686	\$16,026	\$161,712	\$27,027,884	(\$145,686)	(\$16,026)	(\$161,712)	\$5,762,347
#1658	\$182,990	\$20,129	\$203,119	\$27,231,003	(\$182,990)	(\$20,129)	(\$203,119)	\$5,559,228
#1688	\$99,287	\$10,922	\$110,209	\$27,341,212	(\$99,287)	(\$10,922)	(\$110,209)	\$5,449,020
#120720	\$299,801	\$32,978	\$332,779	\$27,673,991				\$5,449,020
#130424	\$163,019	\$17,932	\$180,951	\$27,854,942				\$5,449,020
	\$25,200,545	\$2,654,396	\$2,930,090	\$27,854,942	\$4,921,960	\$527,059	(\$1,920,447)	\$5,449,020

Previous
Contract Total \$33,303,962

Letter No.	Base Amount	Base Fee	Total Options or Mod	Total Base Contract	Option Amount	Option Fee	Total Option Exercise	Total Optional Contract
	1,143,668	\$125,804	\$1,269,472					
	\$26,344,214	\$2,780,200	\$4,199,562	\$29,124,414	\$4,921,960	\$527,059	(\$1,920,447)	\$5,449,020

New Contract
Total \$34,573,434

D. ADJUSTMENT OF CONTRACT AMOUNT

1. Section 13.3.1 ("Total Amount") of the Agreement is modified as follows:

13.3.1 The total amount of compensation under this Agreement for all Work performed by Consultant, shall not exceed ~~Twenty Seven Million, Eight Hundred Fifty-Four Thousand, Nine Hundred Forty-Two Dollars (\$27,854,942)~~ **Twenty Nine Million, One Hundred Twenty Four Thousand, Four Hundred Fourteen Dollars (\$29,124,414) for Basic Services** and an additional **Five Million, Four Hundred Forty-Nine Thousand, Twenty Dollars (\$5,449,020) for Optional Services.**

2. Section 13.4.1 ("Fixed Fee") of the Agreement is modified as follows:

13.4.1 For all of the Consultant's Basic Services, which are all services provided by Consultant except for those tasks and work specifically identified as Additional Work, the Agency shall pay the Consultant a Fixed Fee, which is Consultant's profit for performing the Basic Services under this Agreement. The Fixed Fee shall not exceed a sum total of ~~Two Million, Six Hundred Fifty-Four Thousand, Three Hundred Ninety-Six Dollars (\$2,654,396)~~ **Two Million, Seven Hundred Eighty Thousand, Two Hundred Dollars (\$2,780,200) for Basic Services** and an additional **Five Hundred Twenty-Seven Thousand, Fifty-Nine Dollars (\$527,059) for Optional Services.** The Fixed Fee, which is profit, is included in the Total Price set forth above. The SFMTA will pay Consultant the Fixed Fee proportionate to the completion of the design.

3. Summary of Sixth Amendment:

Total Amount of this Sixth Amendment: Increase:	\$1,269,472
Previous Total Contract Amount:	\$33,303,962
New Revised Total Contract Amount:	\$34,573,434

Total Contract Time added by this Contract Modification:	None
Previous Task Order Completion Date:	April 2020
New Revised Task Order Completion Date:	April 2020

In Witness Whereof, the parties have executed this Modification in quadruplicate in San Francisco, California as of this _____ day of _____, 201__.

CITY	CONSULTANT
Approved:	Approved:
By: _____	By: _____
Edward D. Reiskin Director of Transportation SFMTA	Darlene Gee HNTB Corporation HNTB-B&C JV
Dated: _____	Dated: _____
SFMTA Board of Directors	
Resolution No. _____	
Dated: _____	
Attest:	
_____ Roberta Boomer, Secretary SFMTA Board of Directors	
Approved as to form:	
Dennis J. Herrera City Attorney	
By: _____	
Robert K. Stone Deputy City Attorney	
Dated: _____	