

1.0 General Technical Requirements

1.1 General

Conduct all Work necessary to meet the requirements of this Section and to satisfy all functional needs of the Project, including design and construction of the Project.

All references to alignment information and stationing in this Section shall be to the alignment information and stationing as shown in the Reference Documents.

The Eisenhower/Johnson Memorial Tunnel (EJMT) Fixed Fire Suppression System (FFSS) is defined as follows:

1. A system to suppress fires within the roadway space.
2. The FFSS system may consist of various fire suppression technologies, including but not limited to deluge, sprinkler, mist, or foam. A hybrid of multiple types of technologies may be an acceptable solution. A hypoxic system has been determined to be infeasible for this application.

The EJMT Fire Detection System is defined as follows:

1. A system to detect and provide alarms of fire conditions within the roadway space.
2. The Fire Detection System shall consist of a linear heat detection system. The Fire Detection System shall include software to reduce fire detection and response times while minimizing false alarms.

The EJMT FFSS Closed Circuit Television Camera (CCTV) System is defined as follows:

1. A very low light level TV camera with pan-tilt-zoom (PTZ) capabilities and 1080p resolution capable of providing full visibility within the roadway space.
2. This camera system is separate from, and in addition to, the existing CCTV system currently installed at the EJMT.
3. Redundant network video recorders and the supporting data network.

The Project shall also include:

1. Modifications to the EJMT Control Room.
2. Power and communication systems to support the FFSS equipment.

1.2 Project Basic Configuration

The following describes the Basic Configuration for the Project:

1. Design and Construction of a Fire Detection System and a Fixed Fire Suppression System to limit a design fire with a growth rate of 20 Megawatt (MW) per minute to a maximum heat release of 35 MW for a period of one hour.
2. Construction and Commissioning of all necessary water supply and monitoring and control systems necessary for fully functional Fire Detection and Fixed Fire Suppression Systems. The EJMT has an existing ventilation system. The Fire Detection and Fixed Fire Suppression Systems must integrate with the operation of the existing tunnel and tunnel systems, including the existing ventilation system.
3. Contractor Maintenance and Operations assistance of the system for a period of five years following Project Completion and Interim Acceptance. CDOT staff will be the primary operators of the system during the five-year period, but the Contractor shall be responsible for all maintenance activities including preparing an annual maintenance plan; performing all required routine and scheduled maintenance; responding to and repairing all system faults and failures of the system to operate per specifications; planning and performing the annual system

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test; and completing other system testing, checking, troubleshooting, and repairs to keep all system components in working order.

4. Short-term and long-term Operational Plans and guaranteed availability of replacement parts for a period of 30 years. The short-term Operational Plan shall include details regarding system operations, tunnel staff training, testing, troubleshooting, and onsite assistance as necessary to maintain system performance. The short-term Operational Plan shall have a duration of five years following System Interim Acceptance. The long-term Operational Plan shall describe required maintenance of the systems installed to be performed by CDOT over the 25 remaining years beyond the required five year Maintenance performance period. The long-term Operational Plan shall address means and methods for CDOT to obtain replacement parts that do not meet the 30 year performance period.
5. Any proprietary components shall be demonstrated to have a life span of 30 years. If these components have a life span less than 30 years, replacement components shall be supplied and included in the spare parts list.

The Basic Configuration is further defined as completing the Work within the existing Right-of-Way in consideration of the following:

1. Water Supply Tank and Supply Lines:
 - The existing tunnel standpipe system at EJMT is charged from a 120,000 gallon storage tank located above the west portal. This storage tank is filled from water collected from a diversion dam on Straight Creek. CDOT has existing water rights on Straight Creek of 0.03 cfs. A water supply system shall be developed to provide water to the FFSS. At a minimum, the water supply system shall include a connection to the existing pipeline that runs from the existing water storage tank to any necessary pressure pumps. A Freeze Protection System shall be provided to all portions of the FFSS water supply system, as required to maintain continuous functionality of the water supply system at all ambient weather conditions.
2. Any construction of runoff collection, treatment, or storage facilities shall occur within the existing footprint of the facility, and in accordance with the USFS easement agreement.

1.3 Options

NONE