

STATEWIDE NON-PROJECT SPECIFIC TUNNEL ENGINEERING SERVICES

SCOPE OF WORK

The type of work may include all or parts of the following activities for new and/ or existing tunnel approaches and tunnel facilities in the State regardless if the facilities are on or off the State system:

- 1) Project Management – These activities include, but are not limited to, performing project management duties for project development, construction, or other projects as needed. The capabilities shall include but are not limited to: coordinate activities; conduct, attend, and record meetings; provide, track and deliver schedules in MS Project; coordinate, track and inform the project team of activities and status.
- 2) Project Development –The scope of work for tunnel project development (design) activities may include, but are not limited to the following:
 - a) Assessment of any tunnel facility or portion of one for a feasibility of new construction or rehabilitation and retrofitting of the existing one.
 - b) Furnish documentation, design, detailing/ drafting and quantity calculations of all or any components of new or existing tunnels which may include but are not limited to:
 1. Roadway surface of tunnel and tunnel approaches;
 1. Electrical
 2. Fire suppression systems;
 3. Roofing
 4. Structural
 5. Lighting;
 6. Heating;
 7. Ventilation;
 8. Water and sewer;
 9. Drainage
 10. Water Quality
 11. Traffic control;
 12. Surveillance,
 13. Energy efficiency,
 14. Control and communication systems;
 15. Intelligent Transportation Systems (ITS);
 16. Any other system related to tunnels or tunnel operations.
 - c) Attend all necessary project meetings and field inspections.
 - d) Prepare final plans and specifications.
 - e) Provide an in-house and independent Quality Control and Quality Assurance program prior to key submittals.
 - f) Review plans developed by others and submit recommendations and comments to CDOT.

- g) Provide specific technical expertise for any tunnel systems or equipment which shall include but not be limited to:
1. The software and hardware development of electronic and electrical tunnel systems;
 2. Interfaces for any existing tunnel equipment; and any other software and hardware development and integration required on the existing system.
 3. Electronic and/or Network specialist capable of providing expertise, design capabilities, and other services as needed for new and existing tunnel communication networks (including ethernet communications with such devices as N-tron units and SCADA communications such as ControlNet).
- 3) All services required for preparation of studies and recommendations for planning purposes of transportation and other types of tunnels and tunnel systems.
- a) Bi-annual Tunnel inspections per national tunnel standards
- 4) Environmental services as related to the tunnel construction and re-construction. Including wastewater and water quality expertise.
- 5) Geotechnical Services as related to the tunnels and tunnel approaches including investigations and analysis of landslides in the areas of tunnel approaches
- 6) Engineering services as related to the evaluation, design and construction activities related to emergency situations resulting from fire, terrorism or any other causes.
- 7) Value Engineering (VE) as related to the tunnels design and construction. The scope of work for value engineering activities may include:
- a) Conduct VE meetings and provide minutes. The VE meetings should be considered for the following efforts:
- Brain Storming
 - Evaluating alternatives upon meeting the project purpose and need
 - Recommended alternatives based upon:
 - Most benefit to purpose and need
 - Minimal or mitigatable impacts
 - Constructability
 - Cost
 - Best overall response to constrains and concerns
- b) Collect and compile VE cost and work-hour data
- c) Provide Final VE report
- 8) Construction Services- The scope for construction services may include but will not be limited to the following:
- a) Provide construction management and engineering personnel including a professionally licensed engineer, inspection and material testing.

- b) Construction inspection to ensure compliance with plans and specifications. Work assignments may be for any shift in the 24-hour day. Project site may be anywhere within Colorado.
- c) Review of contractor's submittals.
- d) Provide necessary equipment including cell phones, computer equipment capable of interfacing with CDOT software/hardware, and vehicles.