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**Project feature:** Site Development / Logistics  
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## 1. Summary

The construction phase of the Delta Conveyance Project (project) would extend over many years and would involve a broad range of activities, including:

- Significant lengths of tunneling
- Construction of major intake structures
- Establishment of pumping stations
- Upgrade of transport infrastructure
- Other general civil construction activities

The project would require sustained incident management operations and support activities throughout the construction period. This technical memorandum (TM) identifies the basis of the ERP for project construction and operation based on regulatory requirements and considering the capabilities of emergency services in the Sacramento-San Joaquin Delta (Delta).

Consistent with the varied nature of planned activities, the types of potential incidents that could occur during construction or operations covers a broad range of situations. Some examples include:

- Vehicle accident
- Fall from height
- Electrocution
- Struck by accidents
- Falling objects
- Fire
- Heat-related illness
- Trench collapse
- Working over or under water

The greatest challenge of the ERP would be to meet the tunneling rescue needs during construction. As stipulated by the Division of Occupational Safety and Health of California (Cal/OSHA), response time by a qualified rescue team to a tunneling incident must be within a half-hour travel time from the entry point. It is assumed that the incident scene could be at any one of the intake structures, tunnel shaft sites, Southern Forebay, or pump station locations. This TM examines the current capability, capacity, and proximity of emergency services agencies in the Delta that could potentially be called upon to respond to an incident during construction of the project.

There is an opportunity for the project to provide project-specific fire and emergency medical resources at the major construction sites, including the intakes, tunnel launch shaft sites, and Southern Complex. However, it could be advantageous to provide these facilities at an existing emergency provider location to take advantage of existing personnel who know the geographic area. In addition, these project emergency resources could be delivered to the local agencies to be used following construction.

Fire department (FD) personnel or project staff would need tunnel and shaft rescue training, heavy rescue equipment and vehicles, confined space training, and confined space rescue equipment, as a minimum.

The operational phase commences after completion of all construction activities and commissioning of the system. During this phase, ERPs would be in place for each facility so that personnel are aware of immediate actions to be taken, including:

- Protect health, life, and property
- Notify emergency services
- Safely evacuate the facility if necessary
- Guide emergency services on arrival

Responsibility for emergency response during project operations would be anticipated to be through DWR and the local FDs.

By implementing these actions, the project would meet mandated safety requirements for construction activities, provide essential protection to the construction workforce, and reduce project risk.

## 2. Purpose

The Delta Conveyance Project is a major water infrastructure project currently being planned through the Delta. Both the construction and operational phases of the project would require coordination with emergency response agencies throughout the region to provide for the safety of those working on the project and nearby land uses, and to comply with government regulations.

This TM examines existing emergency response capacity in the Delta, describes the minimum level of emergency response required, and identifies resources and coordination required to meet the needs of the project.

Recommendations contained in this TM will need to be considered during project development.

## 3. Assumptions

An emergency could occur at any time during construction activities and could involve one or more multiple, highly varied hazards.

All fire districts operate under established mutual aid agreements based on significant information sharing across multiple agencies and jurisdictions, facilitating a coordinated response to resource requests during an emergency during construction. This regional coordination ensures that backup resources are available should the nearest FD be engaged in responding to other calls, such as wildfires.

Effective communications among responding FDs and fire districts are maintained once summoned so that appropriately qualified and equipped rescuers respond to the incident scene.

In addition to an ERP during construction, support to the project would continue into the operational phase, acknowledging the associated change in hazard environment and significant reduction in number of personnel involved.

## 4. Approach

A master list of emergency response agencies in the region, including the Delta, was initially developed. This list was then reviewed to produce a short list of agencies considered close enough to the Central or Eastern corridors to be able to provide support. The principal focus of this short list was Fire Protection Districts (FPDs), given their ability to respond to the range of incidents that could occur on construction projects.

Each short-listed agency was contacted to determine the existing and planned level of support and resources. These conversations were guided by a series of prepared questions designed to enable the team to confirm the capacity and capabilities of each agency and ascertain potential access routes to planned construction and operational work sites.

The jurisdictions of various agencies were considered relative to their individual capabilities, and relative travel times for responding to an incident at any of the planned construction or operational sites. The team also confirmed relevant safety regulations for tunneling and general construction activities to determine the minimum standard of emergency capability and response time required for the project.

## 5. Fire Protection Agencies

### 5.1 Outreach Process

Each of the short-listed agencies was initially contacted by Mr. Tony Meyers, Executive Director, DCO, to establish lines of communication at an agency-to-agency level, introduce the project, and notify the agency of the process for follow-up contact by a member of the DCA consultant team. Subsequent calls by the DCA project representative were guided by a series of questions designed to elicit details of the capabilities and capacity of each individual agency relevant to project construction and operations. Information obtained from this outreach process is summarized in the following subsections.

### 5.2 Information Obtained

The following agencies were contacted, and this section summarizes those interviews:

- Clarksburg FPD
- Cosumnes Community Services District (CSD) FD
- Courtland FD
- East Contra Costa (ECC) FPD
- Isleton FD
- Lodi FD
- Montezuma FPD
- River Delta Fire District
- Thornton Rural Fire District (RFD)
- City of Tracy and South San Joaquin County Fire Authority
- Walnut Grove FPD
- Woodbridge Fire District

### 5.2.1 Clarksburg Fire Protection District

Mark Pruner, as representative of the Clarksburg FPD, was contacted. Mr. Pruner requested a more detailed email on specific information sought by DCA. The email was issued, and a response is awaited.

### 5.2.2 Cosumnes Community Services District Fire Department

Responses from the Cosumnes CSD FD are summarized as follows:

- Cosumnes CSD FD is staffed completely with career fire personnel and includes four individual FDs.
- Cosumnes CSD FD provides ambulance response services to adjacent districts as part of their mutual aid agreement.
- The district boundaries include the cities of Elk Grove and Galt and extends into the Delta to the Sacramento River within Sacramento County.
- Cosumnes CSD FD is capable of confined space rescue and provide this service to adjacent districts (Walnut Grove, Courtland) as part of their mutual aid services.
- City of Sacramento and Sacramento Metro have hazardous materials (HazMat) units available to respond to HazMat situations.
- The district has excavation rescue, technical rescue, and high- and low-angle rescue capabilities.
- Staff has not needed to respond to tunneling or shaft construction emergencies. However, personnel could have the skill set for tunnel and shaft response. Cosumnes CSD FD has ladder trucks and heavy rescue units; however, additional equipment would be needed to perform tunnel and shaft rescue.
- For life flight capabilities, depending upon the location, typically, Cosumnes CSD FD will secure a landing zone. Generally, they do not use an air ambulance. There are two Level 1 trauma centers close by, and their experience is that it is faster to transport on ground than life flight.
- Cosumnes CSD FD has mutual aid networks to coordinate communications with other districts and departments.

### 5.2.3 Courtland Fire Department

Responses from the Courtland FD are summarized as follows:

- There are two fire stations: Stations 91 and 92. Station 91, located in Clarksburg, has a 15-square-mile (mi<sup>2</sup>) response jurisdiction; and Station 92, located along Hood-Franklin Road to the east of Hood, has an 18-mi<sup>2</sup> response jurisdiction.
- Courtland is an all-volunteer FD (22 fire fighters), with an annual budget of \$130,000.
- Courtland FD has the capabilities to provide fire suppression, emergency medical services, HazMat response, fire prevention, and general rescue services.
- Some responders are trained in confined space rescue.
- Courtland FD provides secondary response to the Cosumnes CSD FD.
- Walnut Grove Fire District provides secondary response support to the Courtland FD.
- Courtland FD is planning to add a rescue boat for water rescue.

- Courtland FD is equipped with four engines, one brush fire vehicle, one rescue truck, and one water tender (water tanker truck).
- Courtland FD does not have confined space rescue equipment.

#### 5.2.4 East Contra Costa Fire Protection District

ECC FPD provided a detailed written response, which is summarized as follows:

- Locations of fire stations:
  - ECC FPD currently has three operating fire stations. The ECC FPD has closed five fire stations in the past 20 years.
  - The nearest station to any part of the project is Station 59 on Bixler Road in the Discovery Bay community. Two of the closed fire stations are located near the Southern Complex site in Discovery Bay and Byron.
  - Any incident related to project, other than a standard emergency medical services medic call, would require multiple fire engines to respond.
  - The next nearest engine companies to Byron Tract would be located in Brentwood and Oakley in the ECC FPD and by the adjacent Contra Costa County (CCC) FPD station in Antioch. Due to local traffic, responses from the adjacent communities are frequently delayed.

The ECC FPD also provided comments related to their ability to respond to emergencies near potential project construction areas, as follows:

- Access to Emergencies along State Route (SR)-4:
  - This is a high-traffic area and is prone to vehicle accidents.
  - Any accident in this stretch of road is an automatic two-engine response, regardless of severity. This is per a CCC-wide policy for fire response on freeways, highways, and designated high-traffic roads. This would cause multiple resources from within the ECC FPD jurisdiction to respond to incidents of this nature in this area, thus causing coverage gaps in the western part of the ECC FPD. These coverage gaps would cause an additional burden on the neighboring FDs, including CCC FPD, to provide coverage. Any additional burden placed on the CCC FPD could cause the current automatic aid agreements to either be modified substantially or be changed to mutual aid only requests between supporting districts.
- SR-4 to the east of Old River Bridge:
  - This portion of the highway is located in San Joaquin County and is not covered by ECC FPD. However, ECC FPD will respond to vehicle accidents with confirmed rescue for life safety purposes.
- Access to Clifton Court Forebay (CCF):
  - Response to emergencies at the CCF site generally have longer response times than other locations in the district boundaries because of the distance from Station 59 due to the travel time along Byron Highway.
- Ability to Respond to Special Emergency Situations:
  - The ECC FPD is not trained to conduct any sort of rescue or response within a tunnel, and there is currently no budget for this sort of training.

- The ECC FPD is not trained to conduct any sort of water rescue, and there is currently no budget for this sort of training.
- The ECC FPD staff is only trained to the HazMat First Responder Operations level of training. CCC Health responds from Martinez to handle HazMat incidents. There is currently no budget to upgrade the training levels in the district, nor is there budget for HazMat response vehicles.
- Communications:
  - A large construction project would place additional strain on the East Bay Regional Communications System Authority communications system. Major additions cannot be afforded by ECC FPD.

### 5.2.5 Isleton Fire Department

Responses from the Isleton FD are summarized as follows:

- Isleton FD serves a rural area surrounded by farmland and responds to approximately 200 calls annually.
- The Isleton FD responds to all calls received (All Risk). However, most calls are medical requests.
- The Isleton FD staff consists of a combination of career and volunteer personnel.
- Some responders are trained in confined space rescue and a mix of high- and low-angle rescue.
- The Isleton FD apparatus consists of two Type I engines, one Type 2 engine, one Type 5 engine (brush fire vehicle), and one water tender (tanker).
- Because the trauma centers are far away, the Isleton FD uses life flight for transport when needed from landing zones that can be secured in their response jurisdiction. There are two predetermined landing spots located in Isleton if a landing spot cannot be secured at the scene.
- The Isleton FD has some rescue equipment but does not have a rescue vehicle. Cosumnes CSD FD provides support for heavy rescue needs through their mutual aid agreement.
- Isleton FD also receives support from Rio Vista and Montezuma fire districts as part of their mutual aid agreements.

### 5.2.6 Lodi Fire Department

Responses from the Lodi FD are summarized as follows:

- The Lodi FD provides emergency services within City of Lodi boundaries.
- Deputy Chief Penix indicated that the Lodi FD jurisdiction is located to the east of potential project construction sites. However, the Lodi FD would provide support, if needed.
- The Lodi FD is capable of confined space rescue and excavation rescue.
- There are four FDs in Lodi, including four engine companies and one truck company (ladder truck).
- The Lodi FD has some heavy rescue equipment on a trailer. The response time could be longer because of preparations for hitching the trailer to fire apparatus.

### 5.2.7 Montezuma Fire Protection District

Responses from the Montezuma FPD are summarized as follows:

- The Montezuma FPD provides emergency services to Solano County between the Sacramento River and Travis Air Force Base. The district consists of two fire stations, Stations 51 and 52, covering 300 mi<sup>2</sup> along the Sacramento River in Solano County. This district staff is a combination of career and volunteer responders.
- Montezuma FPD equipment includes mostly fire engines and one ladder truck. Montezuma FPD does not have rescue apparatus. The district is not equipped with a rescue rig and equipment.
- Montezuma FPD has limited confined space rescue capabilities; and some responders are trained in heavy rescue, and low- and high-angle rescue.
- Montezuma FPD uses portable very-high frequency (VHF) radios to communicate among themselves and adjacent responding departments.
- Montezuma FPD can deploy up to 30 people to a scene. Adjacent districts would provide additional support, as needed.
- Responders need to complete heavy rescue I and II training and confined space rescue training. Montezuma FPD also needs rescue equipment.
- Montezuma FPD receives approximately 450 calls a year, which are mostly rural area responses.

### 5.2.8 River Delta Fire District

Responses from the River Delta Fire District are summarized as follows:

- The River Delta Fire District serves approximately 30 mi<sup>2</sup> and is located near SR-12 and SR-160 near the cities of Rio Vista and Isleton. These two highways are major commute and truck routes to and from San Francisco and San Joaquin Valley.
- In 2019, the River Delta Fire District responded to a total of 328 calls, including 78 fire, 239 medical, and 11 special operations calls.
- The River Delta Fire District is an All Risk department, which means that it will respond to the needs of the community regardless of the nature of the incident.
- The River Delta Fire District apparatus consists of two Type 1 fire engines, one Type 6 brush vehicle used for wildland fires, one breathing support vehicle, two command unit vehicles, and one rescue boat.
- Capabilities include structural fires, wildfires, emergency medical care, HazMat response, urban search and rescue, and water and flood rescue.
- Every member of the River Delta Fire District is an Emergency Medical Technician (EMT) and is cardio-pulmonary resuscitation and automatic electronic defibrillator (CPR/AED) certified. Most of the emergency calls are medical service and vehicle incidents.
- The River Delta Fire District has a mutual aid agreement with Sacramento County fire agencies. It also has an automatic aid agreement with the Woodbridge Fire District. The fire district is currently developing an agreement with the Montezuma FPD.
- The department is strategically located so that it can access most populated areas in their jurisdiction, including being located near Highway 12 and Highway 160, so that they can respond to incidents safely.

and efficiently in an effective response time. The average recorded response time has been 7 to 8 minutes.

### **5.2.9 Thornton Rural Fire District**

Responses from the Thornton RFD are summarized as follows:

- The Thornton RFD staff is mostly volunteer, with some full-time and part-time paid personnel.
- Thornton RFD services include standard rescue, brush fires, and water rescue. The Thornton RFD is not capable of tunnel, shaft, and confined space rescue, and refers these calls to Urban Search and Rescue teams from Sacramento.
- Thornton RFD response jurisdiction covers 43.8 mi<sup>2</sup> in northwest San Joaquin County.

### **5.2.10 City of Tracy and South San Joaquin County Fire Authority**

The City of Tracy and San Joaquin County Fire Authority provides service to the community of Mountain House through Fire Station 98. Contact with this fire station was not established during preparation of this TM.

### **5.2.11 Walnut Grove Fire Protection District**

The Walnut Grove FPD provides service to the unincorporated community of Walnut Grove from the Mokelumne River on the east, Solano County on the west, Courtland FPD on the north, and River Delta FPD on the south. Contact with this FPD was not established during preparation of this TM.

### **5.2.12 Woodbridge Fire District**

The Woodbridge Fire District provides service in northern San Joaquin County to the unincorporated communities of:

- Woodbridge
- Acampo
- Forest Lake
- Flag City
- Tower Park
- Suburban Lodi

Contact was not established with this fire district during preparation of this TM.

## **6. Medical Facilities**

### **6.1 Approach**

Medical facilities located relatively close to the project limits and that operate 24 hours a day, 7 days per week (24/7) were reviewed. The following information was obtained from website research for the following medical centers:

- University of California (UC) Davis Medical Center (designated Trauma Center in Sacramento County)
- Sutter Medical Center, Sacramento
- Kaiser Permanente South Sacramento Medical Center



- John Muir Health Trauma Center (designated Trauma Center in CCC)
- Sutter Medical Center, Antioch
- San Joaquin General Hospital (designated Trauma Center in San Joaquin County)
- Saint Joseph's Medical Center
- Dameron Hospital

## **6.2 Background**

### **6.2.1 University of California Davis Medical Center, Sacramento**

The UC Davis Medical Center is located in Sacramento. It serves a 65,000-m<sup>2</sup> area that includes 33 counties and 6 million residents across Northern and Central California. UC Davis is the designated Trauma Center for Sacramento County. The 625-bed acute care teaching hospital maintains an annual budget of roughly \$1.7 billion. UC Davis admits more than 30,000 patients per year and handles nearly 1 million visits. The Medical Center's emergency room sees more than 210 patients per day on average. The Medical Center has a heliport (UC Davis Health, 2020).

Travel time from the Twin Cities Complex launch shaft could be approximately 35 minutes to the Medical Center by road without traffic congestion.

### **6.2.2 Sutter Medical Center, Sacramento**

Sutter Medical Center is located Sacramento. The Center offers 24/7 emergency care. Sutter Medical Center offers helipad and life flight and transfer center services for patients in need of emergency transport. The Medical Center offers life flight helicopters (Sutter Health, 2020a).

Travel time from the Twin Cities Complex launch shaft could be approximately 30 minutes to the Medical Center by road without traffic congestion.

### **6.2.3 Kaiser Permanente South Sacramento Medical Center**

The Kaiser Permanente South Sacramento Medical Center is located in Sacramento. It offers 24/7 emergency services (Kaiser Permanente, 2020).

Travel time from the Twin Cities Complex launch shaft could be approximately 25 minutes to the Medical Center by road without traffic congestion.

### **6.2.4 John Muir Health Trauma Center**

The John Muir Health Trauma Center is located in Walnut Creek in CCC. The Center offers 24/7 emergency trauma care. Critically injured patients are brought by helicopter or ambulance directly from the injury site to their Trauma Center, where rapid diagnosis and treatment provide the best chance of surviving a traumatic injury (John Muir Health, 2020).

Travel time from the Southern Forebay site could be approximately 45 minutes to the Trauma Center by road without traffic congestion.

### 6.2.5 Sutter Delta Medical Center, Antioch

The Sutter Delta Medical Center is an acute care facility serving residents around the following communities:

- Antioch
- Brentwood
- Byron
- Discovery Bay
- Knightsen
- Oakley
- Pittsburg

The Medical Center is located in Antioch. It offers 24/7 emergency care (Sutter Health, 2020b).

Travel time from the Byron Tract area launch shaft could be approximately 26 minutes to the Medical Center by road without traffic congestion.

### 6.2.6 San Joaquin General Hospital

San Joaquin General Hospital is located in French Camp, south of Stockton. The hospital offers 24/7 emergency services and is a designated trauma center (San Joaquin General Hospital, 2020).

Travel time from the Lower Roberts Island launch site could be approximately 20 minutes to the Hospital by road without traffic congestion.

### 6.2.7 Saint Joseph's Medical Center, Stockton

This Saint Joseph's Medical Center is located in Stockton. It offers 24/7 emergency care (Dignity Health, 2020).

Travel time from the southern portions of the project could be approximately 28 minutes to the Medical Center by road without traffic congestion.

### 6.2.8 Dameron Hospital, Stockton

Dameron Hospital is located in Stockton. It offers 24/7 emergency care.

Travel time from the southern portions of the project could be approximately 20 minutes to the Hospital by road without traffic congestion.

## 7. Law Enforcement

### 7.1 Outreach Process

The team identified police departments and sheriff departments located relatively close to the project corridors. The following information was obtained from website research for the following agencies.

- California Highway Patrol (CHP)
- Sacramento County Sheriff

- Elk Grove Police Department
- San Joaquin County Sheriff
- Lodi Police Department
- Stockton Police Department
- CCC Sheriff
- Alameda County Sheriff

### **7.1.1 California Highway Patrol**

CHP serves the north Sacramento area. It patrols approximately 1,262 miles of highway throughout northern Sacramento County, including 62 miles of state highway and 1,200 miles of county roads (CHP, 2020). The major thoroughfares through the north Sacramento area are:

- Interstate (I)-5
- I-80
- SR-51
- SR-160
- SR-99

CHP South Sacramento and Stockton offices are located 23 minutes or 18 minutes away from the northern and southern parts of the project, respectively.

### **7.1.2 Sacramento County Sheriff**

The Sacramento County Sheriff Department serves unincorporated areas of Sacramento County, as well as incorporated cities within the county that have contracted with the agency for law enforcement services (Sacramento County Sheriff's Office, 2020).

The closest Sheriff Department office to the potential construction sites is located in Walnut Grove, which is approximately 18 minutes away by road from the potential construction sites in Sacramento County, without traffic congestion.

### **7.1.3 Elk Grove Police Department**

The Elk Grove Police Department has an authorized staff of 146 sworn officers and 108 civilian employees protecting a population of more than 172,000 citizens. It responds to approximately 52,000 service calls each year (Elk Grove PD, 2020).

The Elk Grove Police Department is divided into four divisions. The Field Services Division (patrol) responds to most calls for service and is made up of the following units:

- Patrol teams
- A traffic bureau
- Traffic and hit-and-run investigators
- Canine (K-9) unit
- Community service officers

Travel time from Elk Grove to the Twin Cities Complex would be 17 minutes away by road without traffic congestion. However, the City of Elk Grove could only provide secondary service to the unincorporated areas of Sacramento County.

#### **7.1.4 San Joaquin County Sherriff**

The San Joaquin County Sheriff Department serves unincorporated areas of San Joaquin County. The San Joaquin County Sherriff has over 800 sworn and support personnel (San Joaquin County Sheriff, 2020).

The primary office is located in French Camp, which is up to 23 minutes away by road from most of the potential construction sites in San Joaquin County without traffic congestion.

#### **7.1.5 Lodi Police Department**

The Lodi Police Department has 71 authorized sworn officers and 48 civilian employees, protecting Lodi, a community with a population of more than 66,000 residents. It responds to approximately 38,000 calls for service each year (Lodi PD, 2020).

The department is divided into two divisions. The Operations Division responds to most calls for service and is made up of the following units:

- Patrol
- Traffic
- Parks
- School Resource
- Community Liaison
- Community Service Officers

Chaplains, Partners, and Crime Prevention are also a part of the Operations Division.

Travel time from Lodi to the central portions of the Central and Eastern corridor construction sites would be at least 15 minutes away by road without traffic congestion. However, the City of Lodi could only provide secondary service to the unincorporated areas of San Joaquin County.

#### **7.1.6 Stockton Police Department**

The Stockton Police Department protects an area of 65 mi<sup>2</sup> and a population of over 315,592 residents, with 400 sworn officers and over 150 civilian personnel. The Stockton Police Department works in partnership with the community to build and maintain relationships founded on trust and mutual respect, while reducing crime and improving the quality of life (City of Stockton, 2020).

Travel time from Stockton to portions of the Central and Eastern corridor construction sites along SR-12 would be at least 25 minutes away by road without traffic congestion. Travel time to Lower Roberts Island launch shaft would be less time. However, the City of Stockton could only provide secondary service to the unincorporated areas of San Joaquin County.

#### **7.1.7 Contra Costa County Sheriff**

The CCC Sheriff Department provides service for unincorporated areas of CCC, including a full range of services to over 1,000,000 residents in the 715-mi<sup>2</sup> county. The main office is located in Martinez and is the largest law enforcement agency in CCC, with over 1,100 sworn and professional employees (Contra Costa County Office of the Sherriff, 2020).

The CCC Sheriff office in Martinez is approximately 41 minutes away by road from Byron Tract without traffic congestion.

### 7.1.8 Alameda County Sherriff

The Alameda County Sheriff Department provides service for unincorporated areas of Alameda County. The Department has over 1,500 authorized positions, including over 1,000 sworn personnel. The office closest to the potential construction site is located in Pleasanton (Alameda County Sheriff's Office, 2020).

The Alameda County Sheriff office in Pleasanton is approximately located 35 minutes away by road from Byron Tract without traffic congestion.

## 8. Project Needs Analysis

### 8.1 Cal/OSHA Tunneling Regulations

The information in this section has been extracted from emergency response provisions contained in California Department of Industrial Relations, Subchapter 20 Tunnel Safety Orders:

- 1) Article 9 – Emergency Plan and Precautions
- 2) Article 10 – Emergency Rescue Procedures and Equipment

Additionally, it should be noted that state safety and health standards under approved plans must either be identical to or at least as effective as federal OSHA standards.

#### 8.1.1 Emergency Tunnel Rescue Procedures and Equipment

##### *(a) Rescue Teams*

*(1) On jobsites where 25 or more employees work underground at one time, the employer shall provide (or make arrangements in advance with locally available rescue services to provide) at least two 5-person rescue teams, one on the jobsite or within one-half hour travel time from the entry point, and the other within 2 hours travel time.*

*(2) On the jobsites where less than 25 employees work underground at one time, the employer shall provide (or make arrangements in advance with locally available rescue services to provide) at least one 5-person rescue team to be either on the jobsite or within one-half hour travel time from the entry point.*

*Exception: A rescue crew of at least five persons is not required for tunnels where less than 10 persons are underground at any one time (Labor Code Section 7958).*

*(3) Rescue team members shall be qualified in rescue procedures, the use and limitations of breathing apparatus, and the use of fire-fighting equipment. Qualifications shall be reviewed not less than annually.*

*(4) On jobsites where flammable or poisonous gases are encountered or anticipated in hazardous quantities, rescue team members shall practice donning and using self-contained oxygen breathing apparatus monthly. The equipment for tunnel rescue teams shall be prescribed in the requirements of 30 CFR, July 1, 1994, Part 49, Section 49.6, pages 302-303 of the Federal Mine Safety and Health Administration, which is hereby incorporated by reference except that the number of items prescribed for two teams shall be divided by two when only one rescue team is required.*

##### *(b) The employer shall ensure that rescue teams are familiar with conditions at the jobsite.*

*(c) No person who is physically unfit or who has not had the required training shall be allowed to use permissible self-contained oxygen breathing apparatus for rescue crew work.*

*(d) Left intentionally blank*

*(e) Where self-contained oxygen breathing apparatus is required by this section the following shall prevail:*

*(1) Training for rescue crew members shall be equivalent to the requirements of 30 CFR Part 49.8, except initial training shall consist of at least 24 hours, and the 8-hour refresher training shall be given at least every three months and shall include at least two hours in the wearing and use of self-contained breathing apparatus.*

*(2) Self-contained oxygen breathing apparatus shall be inspected, tested, maintained, repaired and used in accordance with the manufacturer's recommendations.*

*(f) A 1-hour self-rescue device approved by MSHA shall be provided and be immediately available for each person underground. Where a person works on or around mobile equipment, self-rescue devices may be placed in a readily accessible location on such equipment.*

*(g) In tunnels classified as Gassy or Extrahazardous, self-rescue devices shall be worn or carried by each person underground at all times.*

*(h) All self-rescue devices shall be inspected, tested and maintained in accordance with the manufacturer's requirements. Particular attention shall be given to insure the established service life is not exceeded.*

*(i) Each person shall be trained in the proper inspection, use and limitations of the self-rescue device before being permitted to go underground and at least every three months thereafter. Records of this training shall be maintained on the job site in accordance with Section 3203(b) of the General Industry Safety Orders.*

### **8.1.2 Emergency Plan and Precautions**

#### ***Emergency Plan***

*(a) Every employer shall prepare a general plan of action for use in time of emergency.*

*(b) The plan shall outline the duties and responsibilities of each key person so that each will know what is expected of him/her should a fire, explosion or other emergency occur.*

*(c) The plan shall be posted conspicuously on the safety bulletin board and in the project office. In addition, all employees both surface and underground shall be informed of the plan, and each employee shall be told what is expected of him/her in case of explosion, fire, or other emergency. Copies of the plan shall be given to the local fire or designated off-site rescue teams and the Division.*

*(d) The plan shall include such items as maps, ventilation controls, firefighting equipment, rescue procedures, evacuation plans, and communications.*

#### ***Protection Against Water or Gas***

*(a) When shaft openings, tunnels or tunnel portals are located where a sudden inrush of water might logically be expected, adequate precautions shall be taken to protect against this occurrence.*

*(b) Whenever any working place in a tunnel is being advanced within 200 feet of areas that contain or are likely to contain dangerous accumulations of water, gas, petroleum products, or mud, representative vertical test holes shall be drilled from the surface where possible to determine if a hazard is present. Where the likelihood of a dangerous accumulation does exist, horizontal test holes of sufficient depth shall be drilled in advance of such workings to insure that at least 20 feet of tested ground remains beyond the face. Test holes 20 feet deep shall also be drilled at angles of 45 degrees into the walls, roof, and floors when necessary.*

*(c) Employees shall be removed to a safe location at least 2,000 feet from the blasting site before blasting in areas where dangerous accumulations of water, flammable or toxic gas, mud or petroleum products could be encountered. After blasting, the tunnel shall be examined by a competent person and tested by a certified gas tester before other employees reenter the affected area.*

### **Telephone System**

#### **(a) Communications**

*(1) During periods of major construction or repair, tunnels that will be more than 2,000 feet long shall have at least one underground telephone as soon as the length reaches 1,000 feet. Other phones are to be added as the work progresses so that there is never less than one phone to serve each length-zone of 2,000 feet, and one for any remaining zone exceeding 1,000 feet in length. They shall be conveniently located and properly identified. Arrangements shall be such that calls will be answered promptly. A telephone or communication system shall be provided when more than 5 employees are underground.*

*(2) When natural unassisted voice communication is ineffective, a power assisted means of voice communications shall be used to provide communications between the workforce, the bottom of the shaft and the surface.*

*(b) Telephone systems shall be independent of the tunnel power supply and shall be installed so that the destruction of one telephone will not interrupt the use of other telephones on the same system.*

*(c) Telephones shall be equipped with an audible or visual signal suitable for the conditions present and capable of adequately alerting the employees of an in-coming call. Equivalent communication systems may be used when accepted by the Division.*

*(d) Communication systems shall be tested upon initial entry of each shift to the underground, and as often as necessary at later times, to ensure that they are in working order.*

*(e) Telephone and low potential signal wire shall be protected from contacting energized power conductors or any other power source by isolation or suitable insulation, or both.*

## **8.2 General Civil Construction Requirements**

### **8.2.1 Emergency Medical Services**

*(a) Provision of Services. Where more than one employer is involved in a single construction project on a given construction site, each employer is responsible to ensure the availability of emergency medical services for its employees. The employers on the project may agree to ensure employee access to emergency medical services for the combined work force present at the job site. Such an emergency medical service program shall be adequate to service the combined work force present, but only one emergency medical program need be established at such site.*

*(b) Appropriately Trained Person. Each employer shall ensure the availability of a suitable number of appropriately trained persons to render first aid. Where more than one employer is involved in a single construction project on a given construction site, the employers may form a pool of appropriately trained persons. However, such pool shall be large enough to service the combined work forces of such employers.*

*Exception: Engineering contractors or service providers on a job site not engaged in construction activity (e.g., operation of tools, equipment or machinery directly associated with construction) that are in compliance with the requirements of Section 3400(b) of the General Industry Safety Orders.*

*(c) Not used.*

*(d) Informing Employees of Emergency Procedures. Each employer shall inform all of its employees of the procedure to follow in case of injury or illness.*

*(e) Provision for Obtaining Emergency Medical Services. Proper equipment for the prompt transportation of the injured or ill person to a physician or hospital where emergency care is provided, or an effective communication system for contacting hospitals or other emergency medical facilities, physicians, ambulance and fire services, shall be provided. The telephone numbers of the following emergency services in the area shall be posted near the job telephone, telephone switchboard, or otherwise made available to the employees where no job site telephone exists:*

- (1) A physician and at least one alternate if available.*
- (2) Hospitals.*
- (3) Ambulance services.*
- (4) Fire-protection services.*

*(f) Not used.*

*(g) Emergency Call Systems. A two-way voice emergency communication system shall be installed, for buildings and structures five or more floors or 48 feet or more above or below ground level, to notify persons designated in the emergency medical services plan. The location and condition of the employee shall be able to be communicated over the system. The use of the construction passenger elevators for medical emergencies shall take precedence over all other use.*

*Exception: Where jobsite conditions prevent or impair the communication of the required information over the system, an alternative system acceptable to the Division shall be used.*

*(h) Not used.*

*(i) Written Plan. The employer shall have a written plan to provide emergency medical services. The plan shall specify the means of implementing all applicable requirements in this section. When employers form a combined emergency medical services program with appropriately trained persons, one written plan will be considered acceptable to comply with the intent of this subsection.*

## **8.2.2 Confined Space in Construction**

### **General Requirements.**

*(a) Before it begins work at a worksite, each employer shall ensure that a competent person identifies all confined spaces in which one or more of the employees it directs may work, and*



*identifies each space that is a permit space, through consideration and evaluation of the elements of that space, including testing as necessary.*

### 8.3 Operational Requirements

Operation of the facilities would meet DWR's emergency action plan requirements for operating agency personnel, as amended to include facilities constructed and commissioned by the DCA project. Key hazards anticipated during operations include:

- Fire
- Confined space and gas intrusion
- Flood inundation
- Seismic events
- HazMat exposure
- Water rescue at the intakes and spillway, including maintenance tasks using divers

## 9. Methods to Provide Emergency Services to the Project

This section provides a comparison between the stated capacity of emergency response agencies in the region and the needs of the project considering travel times. It further makes a preliminary recommendation on how to provide emergency services to each main work site.

### 9.1 Background

Figure 1 shows the tunnel alignments and locations of the intake, launch, reception, and maintenance shafts and the FDs in the area. Law Enforcement may also be called upon to help with vehicle accidents involving construction traffic, but most emergency incidents for the project are anticipated to need local FD support.

No FDs or districts meet the tunneling rescue requirements needed to support the project, (Table 1). Coordination with the FDs and fire districts would be needed in the next phase of project development to confirm additional resources and equipment necessary to meet the tunnel rescue requirements, and to identify the actions to address disparities. These actions could include one or more of the following:

- Establishment of dedicated emergency resources at selected construction sites, with personnel and equipment specific to the needs of the project furnished by the contractor. For example, construction of intakes could require water rescue capability, and tunneling would need specialized tunnel rescue teams. These resources would be provided by the project and could potentially move to subsequent construction sites dependent on the overall schedule. Where a work site is selected to include temporary emergency response services facilities and this site is to use by multiple contractors, the contract documents would assign the primary contractor at the site the responsibility for furnishing the equipment and personnel to provide these services. This is customary practice where multiple large contractors work from a single site. The contract documents would also clearly delineate the scope and coverage of these services in order to cover all contracts being worked on from that work site.
- Also, establishment of dedicated resources through augmentation or expansion of existing local emergency response agency facilities. For example, Courtland FPD Station 92 at Hood is located close to each of the proposed intakes and could be expanded to provide a base for emergency response teams. On completion of the project, these facilities and equipment could be handed over to the local FPD to boost their capability.

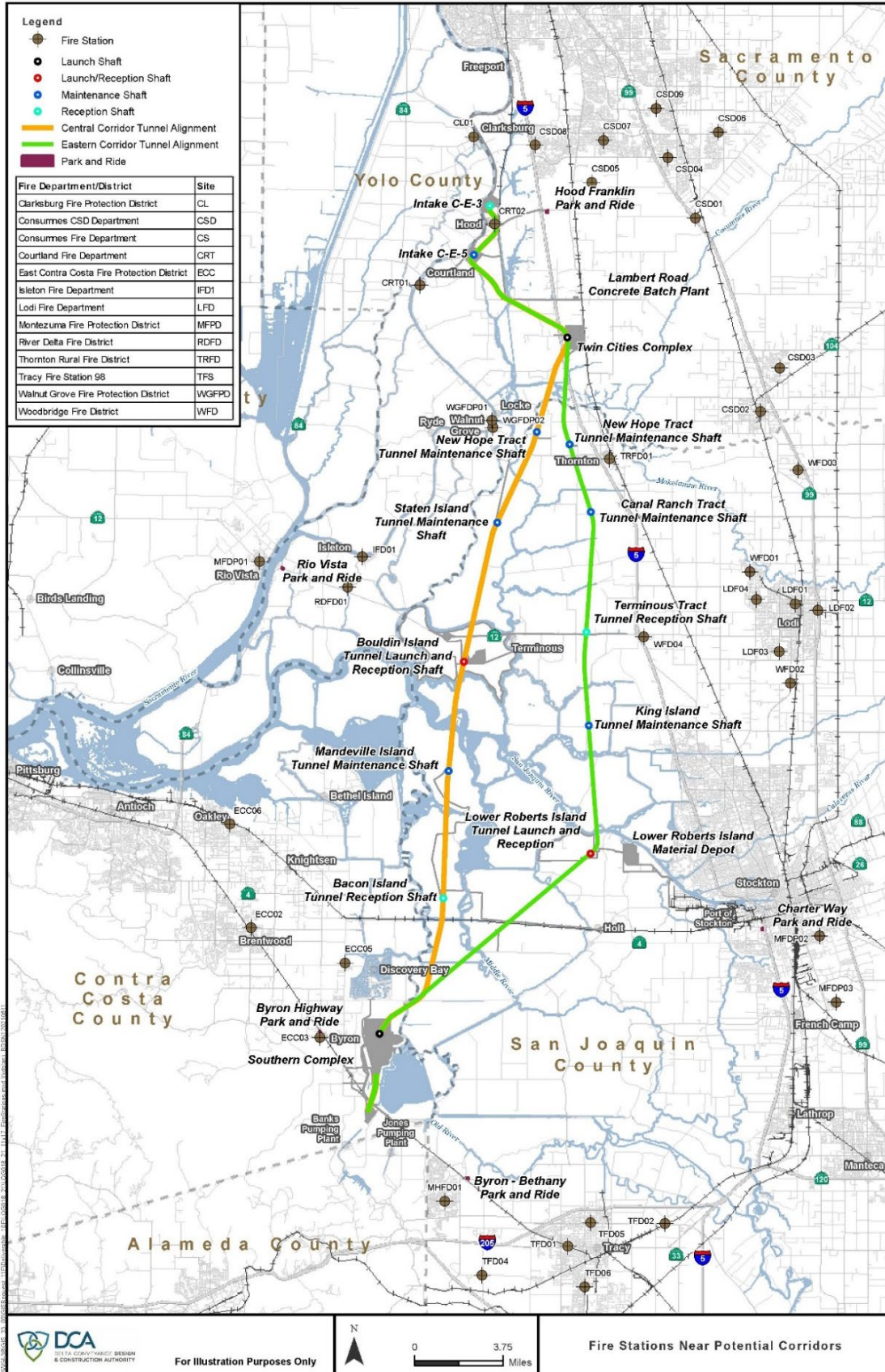


Figure 1. Fire Station Locations

**Table 1. Fire Department Services**

FD or FPD	Site No.	No. of Operating Stations	Medical Emergency Service	Confined Space Rescue	HazMat Response	Excavation or General Rescue	Low- or High-Angle Rescue	Equipment for Tunnel Rescue
Clarksburg FPD	CL	No response to inquiries						
Cosumnes CSD FD	CSD	4	Yes	Yes	Yes	Yes	Yes	No
Courtland FD	CRT	2	Yes	No	Yes	Yes	No	No
ECC FPD	ECC	3	Unknown	No	No	No	No	No
Isleton FD	IFD	Unknown	Unknown	Yes	Unknown	Unknown	Yes	No
Lodi FD	LFD	4	Unknown	Yes	Unknown	Yes	Unknown	Some
Montezuma FPD	MFPD	2	Unknown	No	Unknown	No	No	No
River Delta Fire District	RDFD	Unknown	Yes	Unknown	Yes	Unknown	Unknown	Unknown
Thornton RFD	TRFD	Unknown	Unknown	No	Unknown	No	No	No
Tracy Fire Station 98	TFS	No response to inquiries						
Walnut Grove FPD	WGFPD	No response to inquiries						
Woodbridge Fire District	WFD	No response to inquiries						

## Notes:

HazMat = Hazardous Materials

No. = number

- Direct provision of equipment and sponsoring of additional personnel at existing emergency services agencies, together with training in the types of incidents that could potentially occur at nearby construction sites. Again, the equipment would be retained by the agency after construction completion as a project legacy.

A dedicated helipad or an open, paved area designated for a helicopter landing zone during emergencies could be included at the main work sites. Patients needing medical evacuation by air ambulance would be transported to one of the medical facilities noted in Section 6 that has this capability.

## 9.2 Work Site Emergency Response Recommendations

The following subsections present preliminary recommendations on providing emergency response services to each of the project's work sites.

### 9.2.1 Intake Sites C-E-2, C-E-3, and C-E-5

Intake sites C-E-2, C-E-3, and C-E-5 are within 6 miles of each other and within Sacramento and Courtland FD. The closest fire stations to the intakes are operated by Clarksburg FPD, Cosumnes CSD, and Courtland FD. Approximate travel times are listed in Table 2. Having a rescue team at any of these locations would meet the half-hour response requirement for one team.

**Table 2. Estimated Travel Times without Traffic Congestion for Intakes C-E-2, C-E-3, and C-E-5**

Intake Location	FD or FPD	Site No.	Distance (miles)	Travel Time (minutes)
C-E-2	Clarksburg FPD	CL01	8.9	22
C-E-2	Cosumnes CSD FD	CSD08	11.8	26
C-E-2	Courtland FD	CRT01	7.9	14
C-E-2	Courtland FD	CRT02	3.9	7
C-E-3	Courtland FD	CRT02	1.4	3
C-E-3	Clarksburg FPD	CL01	10.8	28
C-E-3	Cosumnes CSD FD	CSD05	6.9	14
C-E-3	Cosumnes CSD FD	CSD08	9.3	20
C-E-5	Courtland FD	CRT02	1.9	3
C-E-5	Cosumnes CSD FD	CSD05	9.8	22
C-E-5	Clarksburg FPD	CL01	15.2	24

The proposed emergency response services strategy for the intake sites is as follows:

- Primary – construct temporary facilities emergency response facilities at the Intake C-E-3 work site, which would include fire, rescue and medical equipment and personnel along with a helipad (refer to *Engineering Project Report | Central & Eastern Options, Volume 2 of 3 – Engineering Concept Drawings* (DCA 2021)). Depending on the number of intakes being constructed, the intent is that these emergency response facilities would service all of the intake construction sites. Alternatives with a single intake, temporary facilities emergency response facilities would be established at the Intake C-E-5 work site.

- Secondary – make arrangements with the Courtland FD to use Station 92 in Hood to provide backup emergency response services, including support for additional equipment and training as deemed necessary to perform this backup role.

### 9.2.2 Twin Cities Complex

The Twin Cities Complex, which includes two launch shafts, is located in Sacramento County and the Cosumnes CSD. The closest fire stations are operated by Cosumnes CSD, Courtland FD, Thornton RFD, and Walnut Grove FPD. Approximate travel times are listed in Table 3. Having a rescue team at any of these locations would meet the half-hour response requirement for one team.

**Table 3. Estimated Travel Times without Traffic Congestion to the Twin Cities Complex**

Shaft Location	FDs or FPDs	Site No.	Distance (miles)	Travel Time (minutes)
Twin Cities Complex	Courtland FD	CRT02	11.4	18
Twin Cities Complex	Cosumnes CSD FD	CSD05	10	22
Twin Cities Complex	Thornton RFD	TRFD01	7.2	14
Twin Cities Complex	Walnut Grove FPD	WGFPD01	11.6	17

The proposed emergency response services strategy for the Twin Cities Complex is as follows:

- Primary – construct temporary facilities emergency response facilities at the Twin Cities Complex work site, which would include fire, rescue and medical equipment and personnel along with a helipad (refer to *Engineering Project Report | Central & Eastern Options, Volume 2 of 3 – Engineering Concept Drawings* (DCA 2021), which would be shared by all contractors working from this main work site. The assigned contractor would provide qualified and trained personnel for both primary and backup response.
- Secondary – make arrangements with the Cosumnes CSD FD to provide backup emergency response services, including support for additional equipment and training as deemed necessary to perform this backup role.

### 9.2.3 Central Corridor – New Hope Tract and Staten Island Maintenance Shafts

New Hope Tract (Central) is located in San Joaquin County and within the boundaries of the Thornton Rural Fire District. Staten Island is located in San Joaquin County and Woodbridge FD. The closest fire stations to the New Hope Tract (Central) maintenance shaft are operated by Walnut Grove FPD and Thornton RFD. The closest fire stations to Staten Island are operated by Walnut Grove FPD, Isleton FD, and Thornton RFD. Approximate travel times are listed in Table 4. Having a rescue team at any of these locations would meet the half-hour response requirement for one team.

**Table 4 Estimated Travel Times without Traffic Congestion to the New Hope Tract and Staten Island Shafts**

Shaft Location	FDs or FPDs	Site No.	Distance (miles)	Travel Time (minutes)
New Hope Tract	Walnut Grove FPD	WGFPD01	4.8	10
New Hope Tract	Thornton RFD	TRFD01	4.1	10

Staten Island	Walnut Grove FPD	WGFPD02	8.8	13
Staten Island	Thornton RFD	TRFD01	7.2	14
Staten Island	Isleton FD	IFD01	13.6	22

The proposed emergency response services strategy for the New Hope Tract and Staten Island Maintenance Shafts are as follows:

- Primary – since these sites would be part of the tunnel drive originating at the Twin Cities launch shaft, provide emergency response services to both these shaft sites from the temporary emergency response facilities constructed for the project at the Twin Cities Complex work site.
- Secondary – make arrangements with the Thornton RFD to provide backup emergency response services to the New Hope Tract (Central) site and the Walnut Grove FPD for the Staten Island work site, including support for additional equipment and training as deemed necessary to perform this backup role.

#### 9.2.4 Central Corridor – Bouldin Island Launch and Reception Shaft

Bouldin Island is located in San Joaquin County and within the boundaries of the Woodbridge Fire District. The closest fire stations to Bouldin Island are operated by Isleton FD, River Delta Fire District, Montezuma FPD, and Woodbridge Fire District. Approximate travel times are listed in Table 5. Having a rescue team at any of these locations would meet the half-hour response requirement for one team.

**Table 5. Estimated Travel Times without Traffic Congestion to the Bouldin Island Launch and Reception Shaft**

Shaft Location	FDs or FPDs	Site No.	Distance (miles)	Travel Time (minutes)
Bouldin Island	Isleton FD	IFD01	7.6	14
Bouldin Island	River Delta Fire District	RDFD01	6.5	10
Bouldin Island	Montezuma FPD	MFPD01	10.6	17
Bouldin Island	Woodbridge Fire District	WFPD04	10.5	16

The proposed emergency response services strategy for the Bouldin Island Launch and Reception Shaft is as follows:

- Primary – construct temporary facilities emergency response facilities at the Bouldin Island work site, which would include fire, rescue and medical equipment and personnel along with a helipad (refer to *Engineering Project Report | Central & Eastern Options, Volume 2 of 3 – Engineering Concept Drawings* (DCA 2021). The assigned contractor would provide qualified and trained personnel for both primary and backup response.
- Secondary – make arrangements with the River Delta Fire District to provide backup emergency response services, including support for additional equipment and training as deemed necessary to perform this backup role.

### 9.2.5 Central Corridor – Mandeville Island Maintenance Shaft and Bacon Island Reception Shaft

Mandeville Island and Bacon Island are located in a portion of San Joaquin County that is not included in any fire protection district. The closest fire station to Mandeville Island and Bacon Island is located in Solano County and is operated by Montezuma FPD. Approximate travel times are listed in Table 6. Rescue teams at either of these locations would not meet the half-hour response requirement for one team.

**Table 6. Estimated Travel Times without Traffic Congestion to the Mandeville Island Maintenance Shaft and Bacon Island Reception Shaft**

Shaft Location	FDs or FPDs	Site No.	Distance (miles)	Travel Time (minutes)
Bacon Island	Montezuma FPD	MFPD02	19	31
Mandeville Island	Montezuma FPD	MFPD02	26	>45

Notes:

> = greater than

As both these work sites are only associated with the construction of shafts and do not involve tunnel excavation activities, make arrangements with the Montezuma FPD to provide emergency response services to both these work site, including support for additional equipment and training as deemed necessary to perform this primary response role.

### 9.2.6 Eastern Corridor – New Hope Tract and Canal Ranch Tract Maintenance Shafts

New Hope Tract and Canal Ranch Tract maintenance shafts are located in San Joaquin County and within the boundaries of the Thornton Rural Fire District. The closest fire stations to the New Hope Tract and Canal Ranch Tract are operated by Walnut Grove FPD and Thornton RFD. Approximate travel times are listed in Table 7. Having a rescue team at any of these locations would meet the half-hour response requirement for one team. However, New Hope Tract and Canal Ranch Tract are not located in the Walnut Grove FPD jurisdictional area, which is located in Sacramento County.

**Table 7. Estimated Travel Times without Traffic Congestion to the New Hope Tract and Canal Ranch Tract Maintenance Shafts**

Shaft Location	FDs or FPDs	Site No.	Distance (miles)	Travel Time (minutes)
New Hope Tract (East)	Walnut Grove FPD	WGFPD01	7	14
New Hope Tract (East)	Thornton RFD	TRFD01	4.4	10
Canal Ranch Tract	Walnut Grove FPD	WGFPD02	8.2	14
Canal Ranch Tract	Thornton RFD	TRFD01	5.2	10

The proposed emergency response services strategy for the New Hope Tract and Canal Ranch Tract Maintenance Shafts are as follows:

- Primary – since these sites would be part of the tunnel drive originating at the Twin Cities launch shaft, provide emergency response services to both these shaft sites from the temporary emergency response facilities constructed for the project at the Twin Cities Complex work site.
- Secondary – make arrangements with the Thornton RFD to provide backup emergency response services to both these work site, including support for additional equipment and training as deemed necessary to perform this backup role.

### 9.2.7 Eastern Corridor – Terminous Tract Reception Shaft and King Island Maintenance Shaft

Terminous Tract and King Island are located in San Joaquin County and in the Woodbridge Fire District. The closest fire station to the Terminous Tract and King Island Maintenance shaft is operated by Woodbridge Fire District. Approximate travel times are listed in Table 8. Having a rescue team at either of these locations would meet the half-hour response requirement for one team.

**Table 8. Estimated Travel Times without Traffic Congestion to the Terminous Tract Reception Shaft and King Island Maintenance Shaft**

Shaft Location	FDs or FPDs	Site No.	Distance (miles)	Travel Time (minutes)
King Island	Woodbridge Fire District	WFD04	10.9	16
Terminous Tract	Woodbridge Fire District	WFD04	2.6	5

The proposed emergency response services strategy for the Terminous Tract Reception Shaft and King Island Maintenance Shaft are as follows:

- Primary – make arrangements with the Woodbridge Fire District to provide emergency response services to both these work site, including support for additional equipment and training as deemed necessary to perform this primary role.
- Secondary – since these sites would be part of the tunnel drive originating at the Lower Roberts Island launch shaft, provide backup emergency response services to both these shaft sites from the temporary emergency response facilities constructed for the project at the Lower Roberts Island work site.

### 9.2.8 Eastern Corridor – Lower Roberts Island Launch and Reception Shaft, and Upper Jones Tract Maintenance Shaft

Lower Roberts Island and Upper Jones Tract are located in a portion of San Joaquin County that is not included in any fire protection district. The closest fire station to the Lower Roberts Island and Upper Jones Tract shaft sites is operated by Montezuma FPD. However, Lower Roberts Island and Upper Jones Tract are located in San Joaquin County, and Montezuma FPD is located in Solano County. Approximate travel times are listed in Table 9. Having a rescue team at any of these locations would meet the half-hour response requirement for one team.



**Table 9. Estimated Travel Times without Traffic Congestion to the Lower Roberts Island Launch and Reception Shaft, and Upper Jones Tract Maintenance Shaft**

Shaft Location	FDs or FPDs	Site No.	Distance (miles)	Travel Time (minutes)
Lower Roberts Island	Montezuma FPD	MFPD02	13	27
Upper Jones Tract	Montezuma FPD	MFPD02	17	25

The proposed emergency response services strategy for the Lower Roberts Island and Upper Jones Tract work sites are as follows:

- Lower Roberts Island Primary – construct temporary facilities emergency response facilities at the Lower Roberts Island work site, which would include fire, rescue and medical equipment and personnel along with a helipad (refer to *Engineering Project Report | Central & Eastern Options, Volume 2 of 3 – Engineering Concept Drawings* (DCA 2021). The tunnel contractor would provide their own qualified and trained personnel for both primary and backup response.
- Upper Jones Tract Primary – since this site would be part of the tunnel drive originating at the Southern Complex launch shaft, provide emergency response services to this shaft site from the temporary emergency response facilities constructed for the project at the Southern Complex work site.
- Secondary – make arrangements with the Montezuma FPD to provide backup emergency response services to both these work site, including support for additional equipment and training as deemed necessary to perform this backup role.

### 9.2.9 Southern Complex

The Southern Complex, including Byron Tract and areas to the west of Byron Highway, are located within Contra Costa County and ECC FPD. Approximate travel times are listed in Table 10. Having a rescue team at most of these locations would meet the half-hour response requirement for one team. However, due to limited existing resources, the response time could be longer if the engine crews are responding to other events.

**Table 10. Estimated Travel Times without Traffic Congestion to the Southern Complex**

Shaft Location	FDs or FPDs	Site No.	Distance (miles)	Travel Time (minutes)
North Shaft and Working Shaft, Pumping Plant, and Southern Forebay on Byron Tract	ECC FPD	Station 59 (Discovery Bay)	3 to 5 miles depending on location on Byron Tract	Up to 20 minutes
Reception and Launch Shafts west of Byron Highway	ECC FPD	(Discovery Bay)	5 miles	Up to 20 minutes

The proposed emergency response services strategy for the Southern Complex is as follows:

- Primary – construct temporary facilities emergency response facilities at the Southern Complex work site, which would include fire, rescue and medical equipment and personnel along with a helipad (refer to *Engineering Project Report | Central & Eastern Options, Volume 2 of 3 – Engineering Concept Drawings* (DCA 2021), which would be shared by all contractors working from this major work site.

The assigned contractor would provide qualified and trained personnel for both primary and backup response.

- Secondary – make arrangements with the ECC FPD to provide backup emergency response services, including support for additional equipment and training as deemed necessary to perform this backup role.

### 9.3 Emergency Response Services During Operations

Operational requirements for the project could range from a full-time workforce presence at pump stations, to planned, routine maintenance inspections for facilities at the maintenance shafts. Safety provisions, such as seismic monitors, air quality detectors, fire alarms, automated fire suppression systems, and emergency escape routes, would be incorporated into each facility where routine access by DWR personnel would occur.

DWR has existing operational ERPs that would be progressively expanded to include each newly commissioned facility. These plans would address immediate actions to be taken to:

- Protect life and property
- Notify emergency services
- Safely evacuate the facility if necessary
- Assist emergency services on arrival

## 10. Conclusions

The construction phase of the project would extend over many years and would involve a broad range of activities, including:

- Significant lengths of tunneling
- Construction of major intake structures
- Establishment of pumping stations
- Upgrades to transport infrastructure
- Other general civil construction activities

Most of the tunnel construction sites for both the Central and Eastern corridors would be within a half-hour travel time to an existing fire station. However, none of the FDs are currently capable of responding to a tunneling incident with suitably trained and equipped resources to meet Cal OSHA regulatory requirements for safe construction operations. Therefore, the primary approach to providing emergency response services for the majority of the work sites is for the project to provide its own temporary facilities, equipment and personnel, which is customary practice in the tunneling industry. Where multiple contractors work from a site, one contractor would be appointed to provide the emergency response services covering all contractors work activities. The existing emergency response providers, for the most part, would provide support and backup to the contractor supplied emergency response services if/when needed, which will require project support for additional equipment and training as deemed necessary to perform this backup role.

The project has identified emergency resources to be included at the main work sites. These facilities would be located at each main work site during construction, which could also provide services to reception and maintenance shafts. Each main work site would also be supported by nearby existing emergency service providers as backup.

Overall, additional training would be required for the following:

- Tunnel and shaft rescue training
- Appropriate heavy rescue equipment and vehicles
- Confined space training
- Confined space rescue equipment

Future development of the ERP would need to consider the best means of supporting construction activities, working in close consultation with emergency response agencies throughout the Delta. Future development of the ERP would need to consider a range of factors, including the following:

- Risk profile for each major construction activity
- Relative construction schedules
- Capacity and participate of local emergency service providers at the time of construction
- Changes in road networks or traffic congestion over time
- Other factors

The project would aim to enhance local emergency response capabilities and to leave a legacy in the way of equipment or training, for example, upon project completion.

DWR's existing operational ERPs would be expanded to include each new facility and would provide detailed procedures for responding to a range of incidents.

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## 12. Document History and Quality Assurance

Reviewers listed have completed an internal quality review check and approval process for deliverable documents that is consistent with procedures and directives identified by the Engineering Design Manager (EDM) and the DCA.

Approval Names and Roles			
Prepared by	Internal Quality Control review by	Consistency review by	Approved by
Terry Krause / EDM Project Manager	Bob Cermak / EDM QC Reviewer	Gwen Buchholz / DCA Environmental Consultant  Phil Ryan / EDM Design Manager	Graham Bradner / DCA Executive Director

This interim document is considered preliminary and was prepared under the responsible charge of Bob Cermak, California Professional Engineering License C31524.