

**PHOENIX REGIONAL
STANDARD OPERATING PROCEDURES**

PAPAGO TUNNEL RESPONSE

M.P. 205.15A

04/17-R

04/22-SR

INTRODUCTION

The I-10 Papago Freeway Tunnel is located in Central Phoenix south of McDowell. The tunnel extends from Third Avenue to Third Street. The most direct access is off of Seventh Avenue and Seventh Street. There is no direct access to the tunnel from above (i.e., Margaret T. Hance Park).

VEHICULAR TUNNELS

There are two vehicular tunnels--eastbound vehicular, westbound vehicular. There are five lanes of traffic in each direction. Each vehicular tunnel also has two emergency lanes. The maximum volume of traffic is 8,000 autos/hour/tunnel.

BUS TRANSIT TUNNEL

There is a single Bus Transit Tunnel between the two vehicular tunnels to service bus traffic. This tunnel will not be in service for some time and has large fence gates at each end of the tunnel to restrict access. Gates will be large enough to allow fire apparatus to enter.

IT IS EXTREMELY DIFFICULT TO TURN FIRE APPARATUS AROUND IN THIS TUNNEL

Four access doors provide access from this transit tunnel to the vehicular tunnels (two on the eastbound side and two on the westbound side) and are located approximately one-third of the way in from the vehicular entrance/exit points.

VENTILATION

Each tunnel has mechanical ventilation. There are four ventilation rooms, two for each vehicular tunnel, that control air flow. Normal air flow is drawn into the tunnel near the middle and flows to exit points at either end of the tunnel. Air flow volume is determined by carbon monoxide readings. The higher the CO levels, the greater the air flow. The Bus Transit Tunnel does not have any mechanical ventilation.

Each vent room controls the following functions for one-quarter mile of its respective tunnel:

- Lighting
- Ventilation
- Fire Detection
- CO Monitoring

There is an Uninterrupted Power Supply (UPS) that provides "bare bones" bridging power between the loss of APS power and the start-up of the generator. Each vent room provides power, ventilation and fire detection control to a quadrant of the tunnel.

**PHOENIX REGIONAL
STANDARD OPERATING PROCEDURES**

PAPAGO TUNNEL RESPONSE

M.P. 205.15A

04/17-R

04/22-SR

Each vent room can be accessed from the surface via the structures at the park level. NOTE: These rooms have essentially one way in and one way out by means of a long stairwell. There are two separate levels to vent rooms 1-3 that go to a depth of nearly 40 feet below the surface (there is only one level to vent room 4).

WATER SUPPLY

- There are hydrant cabinets in the two vehicle tunnels located approximately every 300 feet on alternating sides of the tunnel (600 feet separation on the same side). Each cabinet has a 2 1/2" fitting and a 4" hydrant fitting.
- The hydrants are fed by 6" water mains.
- The location of the cabinets is indicated by a blue and white hydrant sign.
- The tunnel standpipe system is a wet system.
- A four-way fire department standpipe connection to support the wall hydrant system is located on Culver Street, 50' west of Central. Intake fittings on the connection is 2 ½ inch.

There is no water supply in the central Bus Transit Tunnel. Use of the emergency access doors one-third of the way in from the portals will allow access to the wall hydrants in the vehicular tunnels.

HUMAT VALVES WILL NOT FIT INTO THE HYDRANT BOXES IN THE VEHICLE TUNNELS. A DIRECT HOSE CONNECTION WILL BE REQUIRED. THERE IS NO WATER SUPPLY IN THE VENT ROOMS.

RADIO REPEATER SYSTEM

A radio repeater system has been installed in the tunnel to provide for communications. The following frequencies will operate in the tunnel:

- Fire Channels 1, 5, 8 (A-Deck)

Because of the approximate half-second time element needed to capture the repeater, the first part of a radio message can be lost. Companies should repeat their company identity twice at the front-end of the radio transmission to avoid loss of message (i.e., "Engine Four, Engine Four to Alarm").

EMERGENCY TELEPHONE CABINETS

There are emergency telephone cabinets located every 150 feet on both sides of the eastbound and westbound tunnels. The location of these cabinets is indicated by large reddish brown vertical stripes on the walls which are numbered 1 to 9 in the direction of traffic flow. Each cabinet is equipped with the following:

- An emergency telephone that is connected directly with the (Arizona Department of Transportation) ADOT Traffic Operations Center.
- A dry chemical fire extinguisher.

**PHOENIX REGIONAL
STANDARD OPERATING PROCEDURES**

PAPAGO TUNNEL RESPONSE

M.P. 205.15A

04/17-R

04/22-SR

- A fire alarm pull station.
- A security tamper switch to alert the operator when a cabinet is opened.

The emergency telephone is an intercom system that can be used as an alternative communication system as well as to talk to the ADOT Traffic Operations Center.

LIGHTING

Lighting in the freeway tunnels is on 24 hours and controlled by an automated system. There is lighting in the center Bus Transit Tunnel that can be turned on remotely or by a switch within the transit tunnel.

EMERGENCY POWER

There is one emergency diesel generator that supplies emergency power to the tunnel. There are Uninterrupted Power Supply (UPS) systems in each vent room that provide 15 minutes of bridge power between the loss of APS power and the start-up of the generator. The following systems are on emergency power:

- Limited lighting
- Fire Detection
- CO Monitoring

VIDEO CAMERA SYSTEM

A video monitoring system has been installed throughout the tunnel. There are cameras monitored at the ADOT Traffic Operations Center.

ALARM/DISPATCH

All emergencies detected by the ADOT Traffic Operations Center are reported to the Department of Public Safety (DPS), which is co-located within the ADOT Traffic Operations Center. The Department of Public Safety (DPS) will notify Phoenix Dispatch Center of all emergencies requiring a Fire Department response.

For serious incidents or conflicting information, Phoenix Dispatch Center should call the ADOT Traffic Operations Center to verify the situation. The ADOT Traffic Operations Center's video camera system can provide some additional information and adjustments to the dispatch can then be made.

RESPONSE AND OPERATIONS CONSIDERATIONS

Fire Department response to routine small-scale incidents should be routed through the most direct route, with the flow of traffic. The most direct access to the tunnel is off of Seventh Avenue and Seventh Street. The next most direct access is off of 19th Avenue and 16th Street.

**PHOENIX REGIONAL
STANDARD OPERATING PROCEDURES**

PAPAGO TUNNEL RESPONSE

M.P. 205.15A

04/17-R

04/22-SR

Significant emergencies requiring the dispatch of a 2-1 or larger should follow the following guidelines:

- The first due company should enter the freeway with the flow of traffic by the most direct route. This company must advise Dispatch and other units of traffic congestion and access to the incident, and redirect other companies as necessary to achieve a rapid arrival on the scene.
- If traffic congestion is severe; creating significant delays in reaching the incident site, the second due company should consider entering the Bus Transit Tunnel. This company should enter the freeway with the flow of traffic from the opposite direction. In order to safely reach the entrance to the Bus Transit Tunnel, companies must enter the freeway at either 16th Street or 19th Avenue. The entrance to the Bus Transit Tunnel is located in the middle between the two freeway tunnels. Companies approaching the tunnel should ease towards the median lane in order to enter the Bus Transit Tunnel. The fence gate must be opened to enter. Once in the tunnel, this company can go to one of the emergency access doors located approximately 1/3 of the way into the tunnel to gain access to the incident site.
- The first Chief Officer should respond to the incident site with the flow of traffic, or as otherwise directed by the first due company and traffic coordinators.
- Considerer sending a Chief Officer to the ADOT Traffic Operations Center to provide liaison for the Incident Command.
- A 2-1 or larger will have two Battalion Chiefs assigned.

STAGING

Other companies should Level II Stage on Culver Street, just west of Central (the tunnels hydrant system standpipe connection is located there). The first due company or Command may opt to re-direct these companies to a staging location on the freeway or directly to the tunnel as needed.

INCIDENT COMMAND

Phoenix Fire Department Standard Operating Procedures and Incident Management System will be utilized for any emergencies in the tunnel. The Command Post will utilize a Unified Command with other affected agencies represented at the incident. The Incident Commander must notify Dispatch of the Command Post location as soon as it is established.

Major Incidents/Tactical Considerations

There are four probable major incident scenarios for an emergency in the tunnel, and they are listed below.

1. Major Medical

- Access to patients may be severely limited. Access will be from each end of the incident rather than all four sides.
- Secure access against traffic flow. **DPS MUST STOP ALL TRAFFIC ENTERING THE FREEWAY AT SEVENTH STREET AND SEVENTH AVENUES.**
- A DPS liaison must be requested to the Command Post as early as possible.

**PHOENIX REGIONAL
STANDARD OPERATING PROCEDURES**

PAPAGO TUNNEL RESPONSE

M.P. 205.15A

04/17-R

04/22-SR

- Move apparatus staging to the freeway entry point or tunnel as appropriate.
- Watch for moving traffic.
- Because of possible restricted access around the sides of a major incident, two or more Treatment Sectors may be required.
- Have the ADOT Traffic Operations Center increase the lighting in the tunnel as necessary.
- Have ADOT adjust the exhaust fans' direction and volume as needed.
- A hazardous materials problem may exist--ruptured fuel tanks or truck cargo (see Haz Mat Incidents).
- A fire may be present (see Fire Incident).
- Protective hoselines may be required.
- Additional personnel may be needed to move and carry patients over and around vehicles and debris for some distance.

2. Major Fire

- Access with the flow of traffic may be severely restricted.
- Confirm exact location of the incident with the ADOT Traffic Operations Center.
- Route crews from opposite direction into Bus Transit Tunnel, and against traffic WHEN SAFE TO DO SO and as needed to access the incident site.
- Have DPS stop traffic so that emergency vehicles can enter against traffic.
- Confirm with the ADOT Operations Room that the exhaust fans are working at maximum volume and in the direction needed to control the tunnel environment.
- Confirm with ADOT that the sump pump system is turned off.
- Confirm the lighting system is on maximum.
- Consider surface wind direction and speed in the approach and positioning of the fire apparatus. Wind direction may make a down wind approach impossible.
- SCBA's must be donned prior to entry with evidence of a working fire in the tunnel.
- Victims caught in traffic congestion will need rescue and escorting out of the tunnel.
- The Bus Transit Tunnel should be checked for victims using the emergency access doors to evacuate.
- Apparatus should be located uphill from the drain system to avoid runoff exposure.
- Ensure adequate foam capacity is on scene before initiating a foam attack.
- First attack lines should protect victims and rescuers.
- Second attack lines should address fire control and extinguishment.
- Because of extensive debris and limited access to the seat of the fire, stang guns may prove effective for reach and knockdown.
- Address runoff as a hazardous materials contamination and control/seal/dike freeway drains.
- Consider air contamination and evacuation needs of the neighborhood around the tunnel and Margaret T. Hance Park.

**PHOENIX REGIONAL
STANDARD OPERATING PROCEDURES**

PAPAGO TUNNEL RESPONSE

M.P. 205.15A

04/17-R

04/22-SR

- Assign an engine company to pump the tunnel's hydrant standpipe system located on Culver Street West of Central.
- Utility company lighting in the tunnel may be required as the fire/heat will damage the tunnel's lighting system.
- Move Level II Staging to the freeway near the tunnel if appropriate.
- The Bus Transit Tunnel may serve as an alternate attack/access point via the emergency access doors. No water supply is available in the Bus Transit Tunnel but can be obtained by hand-jacking a supply line through an access door to a wall hydrant in one of the vehicular tunnels.
- Positive pressure ventilation may be needed at the transit access doors to prevent smoke passage.
- The Bus Transit Tunnel may also serve as a Rehab location and Resource Sector operation. A utility company will be needed for lighting and Rehab operations.
- The incident may be deep within a contaminated atmosphere. Crews may run out of SCBA air by walking in. A taxi/shuttle system should be considered or use of the Bus Transit Tunnel as a safe refuge.
- The Command Post may need to be established outside of the tunnel to ensure adequate Command-to-Dispatch communications.
- Strict lobby control and personnel accountability must be maintained.

Sectors to consider for a major fire incident include:

- Lobby Sector(s)
- East and West Sectors
- Haz Mat Sector
- De Con Sector
- Bus Transit Tunnel Sector
- Resource Sector
- Rehab Sector
- ADOT Traffic Operations Center (Liaison Sector)
- Staging Sector
- Extrication Sector
- Treatment Sector
- Transportation Sector
- Police/DPS Liaison Sector
- Safety Sector
- Accountability Sector(s)
- Public Information Sector (coordinated with, ADOT and DPS)

**PHOENIX REGIONAL
STANDARD OPERATING PROCEDURES**

PAPAGO TUNNEL RESPONSE

M.P. 205.15A

04/17-R

04/22-SR

3. Hazardous Materials Spill/Release

- Access with the flow of traffic may be severely restricted.
- Confirm exact location with ADOT Traffic Operations Center.
- Route crews from opposite direction, Bus Transit Tunnel, and against traffic WHEN SAFE TO DO SO and as needed to access incident site.
- Confirm with ADOT that the exhaust fans are working at maximum volume and in the direction needed to control the tunnel's environment.
- Confirm with ADOT that the sump pumps are shut down.
- Confirm with ADOT that lighting is at maximum.
- SCBA's must be donned prior to entry into the tunnel with evidence of a hazardous materials spill or release.
- Initiate diking of drain systems as needed to control runoff.
- Consider surface wind direction and speed as a factor in the apparatus and attack positioning.
- Apparatus should be located uphill of the drain to avoid runoff contamination.
- Address victim rescues and escorting of tunnel wounded out of the tunnel or to safe refuge in the Bus Transit Tunnel.
- Address search-and-rescue of Bus Transit Tunnel for any victims who used emergency access doors to seek safe refuge.
- Consider air contamination of the tunnel, Margaret T. Hance Park, and neighborhood.
- Address area evacuation as required.
- Upwind Level II Staging on the freeway may be appropriate.
- The Bus Transit Tunnel may serve as a safe refuge, rehab, resource, and main attack point.
- Positive pressure of the Bus Transit Tunnel access door may be required to protect the transit tunnel refuge area from contamination.
- Utility company lighting will be required in the Bus Transit Tunnel.
- The incident depth within the tunnel may not permit adequate SCBA airtime to reach the incident. A vehicle shuttle (taxi) or use of the Bus Transit Tunnel to access the incident should be considered.
- The Command Post may need to be established outside the tunnel and in a safe location.
- Strict lobby control and personnel accountability must be maintained.

Sectors to Consider for a Major Hazardous Materials Incident:

- Lobby Sector
- East and West Sectors
- Haz Mat Sector
- De Con Sector
- Bus Transit Tunnel Sector
- Resource Sector
- Rehab Sector

**PHOENIX REGIONAL
STANDARD OPERATING PROCEDURES**

PAPAGO TUNNEL RESPONSE

M.P. 205.15A

04/17-R

04/22-SR

- ADOT Traffic Operations Center (Liaison Sector)
- Staging Sector
- Police/DPS Liaison Sector
- Safety Sector
- Accountability Sector
- Public Information Sector (coordinated with, ADOT and DPS)

4. Below Ground Fire

There are five below-ground facilities related to the tunnel operations. Four of the facilities are for ventilation fan room operations. The fifth facility is the power and equipment room (Central Avenue). Each of the facilities have multiple levels and go down nearly 40 feet below grade. SCBA's must be worn.

A fire in one of these below-grade facilities poses extreme risk to rescuers or firefighters. Smoke, lack of lighting, multiple levels, and staircases all increase the risk. Such events should be considered as confined space operations and appropriate procedures applied (MP 205.09 Confined Space Rescue).

If persons are reported trapped, consider their survival profile (utilizing the risk management system) before committing rescue operations. Apply all safety systems as required and proceed cautiously.

If no persons are believed trapped, or the survival profile suggests no rescue should be attempted, the best approach may be to seal the facility, secure all power, and let the fire burn itself out. Use of inert gas may be considered to extinguish the fire.

Once the fire is extinguished, adequate ventilation, lighting and air sampling should be completed prior to entry. Entry will be considered a confined space rescue requiring all appropriate safety procedures.

COMMUNICATIONS FAILURE

As indicated, the tunnel has radio repeater systems for fire channels 1, 5, and 8 (A-Deck). Should the assigned channel repeater fail, on-site radio communications should be switched to the other tactical radio channel (e.g., channel 5 fails, crews go to channel 8). Should all systems fail, Command must establish a communications relay Company (or Sector) to provide a communications link to Dispatch that is located outside the tunnel.