



# City of Winter Park Fire-Rescue Standard Operating Guideline

# 600.01

**Title: Operational Considerations for  
Technical Rescue Situations and TRT  
Operations**

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**Purpose:** To establish the operational guidelines for the department's activities at all victim rescues involving technically specific scenarios. For the purposes of this guideline technical rescues are considered those in which the patient/victim must be removed from an area where normal means of egress are not available or when entry into the space is considered dangerous for the rescuer. These areas may be, but are not limited to High Angle Rescue, Confined Space Entry as defined by OSHA and Open Trench Entry and Rescue.

**Scope:** The nature of "Technical Rescues" may require an Incident Commander and other Rescuers to act outside of these guidelines. While this is understood, in all cases, the **safety of rescuers is paramount** to every operation. All personnel should be familiar with the limitations of all specialized equipment and should not deviate from the manufacturer's recommendations. Those designated by the department as being members of the department's Technical Rescue Team shall be considered as having technical expertise in these areas and serve as consultants to anyone in an Incident Command position. Authority to deviate from these basis operational considerations rests with the Incident Commander. The guidelines found in NFPA1670 should also be considered as the industry standard for these operations.

## **General:**

### **600.01.01. High Angle, Elevated or Rope Assisted Rescue:**

#### **Purpose:**

- To outline basic operating guidelines used at the scene of emergencies when rope and rope accessories are required to perform a victim / patient rescue.
- The department recognizes the dangers to its personnel during any rope-assisted rescue; which takes members to extreme heights or into confined spaces. These operating guidelines are designed to ensure the safety of each rescuer during such operations.

### Overview:

- In the case of a High Angle or rope assisted rescue, the purpose of the Technical Rescue Team (TRT) is to relocate patients which cannot be reached by any piece of fire department equipment other than rope and rope accessories. Relocation is made to a place of safety, where first aid can be given or transportation to a medical facility initiated.
- Personnel should think of rope rescue as the ability to extend the rescuer's reach, making it possible for a rescuer to reach a patient at any location, whether it be an above or a below ground location.

### Definitions:

- **Technical Rescue Team (TRT)** - Department members identified as having completed specialized training as outlined in NFPA 1670. All classes will be held at an approved training site and will follow NFPA 1670 operations or technician guidelines. Confined Space, Rope Rescue, Trench Rescue and Structural Collapse will be the minimum requirements for membership on the team.
- **TRT Coordinator** - A member of the Winter Park Fire Department appointed to coordinate the activities and organization of the TRT.
- **Scene Leader** - The TRT member on scene who will serve as liaison between the TRT and the Incident Commander. The leader may have the responsibility of Safety Division/Group.

### Individual Responsibilities:

- The Battalion Chief or Acting Battalion Chief will be responsible for the overall incident command and control of the scene.
- The Incident Commander, with the assistance of the Scene Leader, will decide if the situation can be handled by Winter Park's TRT or if other teams will be needed. The Incident Commander will coordinate with the Team Leader on decisions involving number of rescuers to put on rope, equipment to be used, and additional support needs.
- The TRT Coordinator is responsible for goal setting, determining budgetary needs, holding Team meetings and obtaining data for the Quarterly Performance Report for the team.
- The Team Coordinator will organize TRT training for TRT members and all other department members with the Captain of Fire Training in the LSS Division. The

TRT Leader will also provide a TRT Activity Report to the Assistant Fire Chief on a quarterly basis.

- It will be the goal of each operation to have members of the TRT come in contact with the patient(s). Their primary responsibility is getting to the patient, packaging, and maintaining contact with the patient until they have reached a safe location for further treatment/transportation. The skills that these members can expect to be performing are:
  - *Rappelling*
  - *Ascending*
  - *Being lowered by a rope system*
  - *Riding with the patient*
  - *Being lowered into sub-grade areas*
  - *Rigging and mechanical advantages*
  - *Anchoring techniques*
- Other members of standard response assignment have the responsibility of supporting the TRT members. Their primary responsibility is rigging and operating the secondary belay lines. The skills that these members can be expected to be performing are:

*Lowering and belay safety*  
*Back-up systems for safety*

- Other members of standard response assignment will have the responsibility of supervising all parts of the operation, from technique to safety. The Team Leader has the primary responsibility to oversee and visually check each operation as a back-up.

### **Training Requirements:**

- Technical Rescue Team members will be required to participate in a minimum of one (1) day training session per quarter, and 4 hours of in-service training per month.

### **Procedures:**

- Initial Response to all technical rescues will include the first alarm assignment for an industrial accident: 1 Truck Company, 1 Squad with Trailer, 1 Engine Company, 1 Rescue and 1 Battalion Chief. All TRT members should have available a minimum of a harness and protective gear; i.e., helmet, gloves, and uniform shoes.

- Operational Plan is established once the Incident Commander and the Team Leader have investigated and evaluated the scene. The operational plan is then implemented.
- The mode of the Operation is determined by the Incident Commander and the Scene Leader, as to the number of teams needed, how the Team members are going to get to the patient, what equipment they will use, and how many rescuers are going to get on the rope.

#### **Critical Rescue Mode:**

- When the patient is in a situation in which time becomes an important factor in the patient's recovery, i.e., patient hanging from unstable/failing structures or submerged under water in a confined space, the Incident Commander and Scene Leader must come up with a plan of action quickly that will include the most important aspect of the operation, the safety of the team members.

#### **Non-Critical Rescue Mode:**

- When the patient is not injured and in no immediate danger. The patient is in a position that he/she cannot get down or out of without assistance.

#### **Scene Evaluation:**

- (Upon arrival) to determine the number of patients and their locations. Remove all surface trapped patients who are located in dangerous position; i.e., directly under a failed scaffolding which is still hanging, positioned under broken out windows above, or a patient that has pulled themselves out of a sub-grade location, but is close to the edge.
  - Determine location of patient to enable members to choose the proper equipment.
  - Locate the quickest and safest route to take all personnel and equipment to the operation site.
  - Secure the area below the patient. If this is a sub-grade location, secure the area above the patient.
  - When hauling systems are used, the Incident Commander should consider requesting an additional Engine Company for manpower.
  - Upon arrival, all TRT members shall report to the Incident Commander for a situation report and other pertinent information. Based on the information given, the responding team shall decide the following action:

*Control of the situation.*

*Most direct access to the patient.*

*Initial responsibilities as directed in the SOG's.*

- All technical rescues shall be addressed at three levels of decision making:

*Training*

*Equipment availability*

*Number of team members on the scene*

### **On-Scene Special Guidelines:**

- Whenever a rescue line is tied off to an anchor point, a second anchor should be established. If it is impossible to establish a second anchor for the safety tag lines, the Team Leader will make a determination as to the relative safety of using a single anchor to execute the rescue operation.
- Only ½" or greater static Kernmantle rope will be used for rescue. This rope must meet or exceed the criteria established in NFPA 1983 for Life Support Rope.
- Safety tag lines, guide lines, and personal safety roof edge lines, must be a minimum of static Kernmantle rope.
- Individual personal escape ropes meet these criteria.

### **Rope Rescue Safety Standards:**

- No member of the team goes on a rope or starts an operation until he/she is checked by another team member.
- Every part of the rescue system must be backed up with a safety.
- Each line shall have a safety person. The rescue person that is rappelling shall always get the attention of the safety personnel before they start their rappel.
- Rope shall not be deployed or hung over any height without being anchored off first. Each member that is going to work on a line shall check his/her anchor.
- If a roof does not have a parapet wall, (at least 3 ft. high), any person within 5 ft. of the roof edge must be attached to a safety tag line.

- If a roof has a parapet, personnel shall hook-up to the rescue/descent line prior to mounting the parapet wall.
- If the rescue is a vertical basket lowering, a safety line must be attached to all personnel working with the basket near the roof edge, whether the roof has a parapet wall or not.
- All ropes and equipment shall be inspected before and after each training session and/or rescue operation.
- Any piece of hardware equipment dropped onto a hard surface from a height five feet shall be taken out of service.
- Each team member is responsible for the safety of all other team members. Any team member observing an unsafe practice shall correct the situation immediately.

## **600.01.02. Rope Rescue**

### **Introduction:**

This procedure establishes guidelines for performing rope rescues under fire ground operations and under non-fire operations. A rope rescue is defined as any incident which involves the removal of a patient(s) by Winter Park Fire Department personnel with the use of rope and rope accessories from locations unreachable by standard fire department equipment; structures out of reach of aerial ladders, elevated areas inaccessible by ground ladders or tower ladders, confined areas as in sub-grade locations and shaft ways.

Rope and rope accessories can be thought of as an extension of the rescuer's arm, enabling the rescuer to reach the patient(s) and to assist in their relocation to a place of safety.

### **Arrival:**

- The First Arriving Officer must secure the area under the patient if that patient is in an elevated location. If the patient is in a sub-grade location, the area surrounding the location shall be secured. If the patient is in an elevated location, securing the area means roping or coning off a large area below the patient's locations. One person must maintain visual contact with the patient at all times throughout the operation if that is possible from the ground.
- The First Arriving Officer should consider waiting for the arrival of the TRT before committing personnel to the rescue. The following tasks should be handled by the First Arriving Officer:

- *Summon the TRT members currently on-duty within the Department*
- *Secure the area below or around the patient*
- *Identify the route to be taken by the rescuers and location where the rescue personnel will set up operations.*
- *Have personnel maintain eye contact with the patient at all times from the ground. A member of the first arriving unit, which would have the equipment to perform medical aid, should handle this assignment.*
- *Make contact with the person in charge of the structure to gain access to all areas of the building structure.*

### **Command Responsibilities:**

- The first arriving Battalion Chief should request a liaison officer with Winter Park Police report to the Command Post to assign control of the perimeter, as needed. Command should make sure that a Rescue unit, and their proper medical equipment, is set up at the closest and safest area to access the patient. Command should appoint the TRT Scene Leader as Safety Division/Group and to act as liaison to Command. Command must decide if additional Technical Rescue Teams should be dispatched or just put on standby. The potential hazards to team members can be electrocution, unstable structure, high winds, bad weather, condition, fatigue from climbing or an unstable patient.

### **Safety Responsibilities:**

- The TRT Scene Leader or Safety Officer must get to the point known as the "edge" as quickly as possible. The edge is the point at which the rescuer is going over: on a building this point would be the roof top above the patient; at a sub-level location, the edge would be at the point where the ground opens up to the hole; or on a structure like a radio tower, the edge would be the point at the base of the tower. The edge could be thought of as the point at which the rescuer is going to start descending or ascending to reach the patient.
- The TRT Scene Leader must decide how many rescuers will be on the rope.
- The TRT Scene Leader and or the Scene Safety Officer is responsible for making sure all rappellers have a secondary line with a secondary anchor, that all climbers have a safety rope (in the form of a climbing system) and all personnel working close to the edge have a safety line attached to them.

**Special Notice:**

The only situation in which a secondary line is not used when rappelling on the Winter Park Fire Department is under fire-ground operations, whether it be a rope rescue or a firefighter emergency escape.

**Treatment Divison/Group Responsibilities:**

If the situation is an elevated structure, the treatment area should be as close to but not under the area where the patient is being lowered. If the situation is below grade, the treatment area should be as close to but not in an area which would jeopardize the integrity of the sub-grade location.

**600.01.03. Structural Collapse Operations**

**Introduction:**

The following guidelines are set for officers who arrive on the scene of building/structural collapse.

**Upon Arrival:**

Shoring, timber shoring, etc.



**Command Responsibilities:**

The Incident Commander responsibilities may include:

- An immediate hazard assessment, quickly Divison/Grouping if it is apparent it will be a campaign situation.
- Summon those Winter Park Fire–Rescue TRT members on-duty to the scene.
- Appointment of a Safety Divison/Group Officer to check for hazards associated with the structural collapse.
- Requesting a Law Enforcement liaison report to the Command Post to establish an open roadway in and out of the collapse site and to establish a perimeter to keep incoming civilian personnel out of the immediate area.
- Appointments of a Medical Divison/Group Officer to account for, treat, and transport victims.

- The appointment of an Extrication Divison/Group to devise a plan for search teams.

### **Safety Divison/Group Responsibilities:**

- Safety Divison/Group should check for hazards directly associated with the structural collapse:

*Potential for secondary collapse.*

*Explosion or fire associated with broken gas and electric lines.*

*Falling debris.*

*Toxic atmosphere*

- After advising Command of hazards present, initial arriving companies should be directed to the removal of victims seen on the surface.
- After initial surface victim removal has been completed, Safety Divison/Group should ensure that all personnel are removed from the collapse site. This will give rescue personnel time to re-group, and a specific action plan implemented for the search and rescue of any remaining trapped victims. This will also allow for the removal of all civilians from the area.
- After the Safety Divison/Group has removed personnel for re-grouping, Safety Divison/Group should attempt to locate structural engineers and/or Fire Department personnel specifically trained in recognition of structural collapse.
- Any further rescue attempts should be delayed until input from the Safety Divison/Group is received.

### **Medical Divison/Group Responsibilities:**

- Medical Divison/Group should set up an area away from the immediate hazards of the collapse, and designate a Treatment and Transportation Divison/Group to report to him. Based on the number of victims, the collapse could require mass casualty procedures to be implemented and the formation of additional Divison/Groups under the direction of the Medical Divison/Group.

### **Extrication Divison/Group Responsibilities:**

- Extrication Divison/Group should coordinate and work closely with Safety.
- The extrication officer should designate specific search teams that may incorporate any special equipment that may assist (e.g., fiber optics, dog teams, etc.). After building(s) have been evaluated, search-teams will conduct searches of those buildings and use the building marking system (later noted) to reduce duplication of efforts.

- If victims are located, rescue teams should attempt to gain access vertically. The horizontal breaching of walls should be done only if there is no other means to reach the void space where victims may be trapped. Horizontal breaching of load bearing walls may precipitate a secondary collapse of the structure. The potential for secondary collapse is less if rescue teams breach structural members from above or below. Prior to breaching a structural load-bearing member, a specially trained structural collapse specialist (structural engineer, architect) should approve and oversee the breaching operation. If the atmospheric conditions are not known in the room of desired entry, a “pilot” hole shall be punched to monitor the atmosphere prior to breaching operations.
- Once victims are removed, they will be transferred to the Medical Divison/Group for treatment and/or transportation.
- If rescue teams have not been able to locate victims through other methods, then they should be located by removing debris. If there is a potential for live victims, rescue teams must be very careful when removing debris so as not to cause a secondary collapse.
- If a victim's location is known (either by family members or previously rescued victims) an attempt should be made to remove debris to reach that victim.
- In lightweight frame construction buildings, cutting and hand removing structural members could accomplish this.
- If the building is of reinforced concrete, it may require breaking large pieces into smaller and more manageable size pieces. This may also require the use of a crane to pick and move the structural components to reach potential victims.
- Rescue team members should assist in the break-up and removal of structural components. Safety Divison/Group shall oversee all of these operations to ensure site safety for all operating personnel. If structural components are removed from the site, they should be marked in some way so as to I.D. them with the particular building for future investigative purposes.
- As debris is removed, all operations should be stopped periodically to search (listening, dog team, hailing) for victims. After enough debris has been removed to reasonably ascertain that there are not any victims, then search and rescue operations can be suspended in that building.
- After it has been determined that no victims could be found alive in the building, a general debris removal can begin. If there is a potential for

deceased victims to be trapped in the rubble, removal crews should be alert for signs of those deceased victims.

- During general debris removal, if heavy equipment operators spot a sign of a deceased victim or victims, a selected debris removal shall be conducted to remove the victim(s) respectfully. The Coroner and/or other investigative personnel should be notified to handle the removal of the victim(s).
- Command should consider CISD and provide frequent relief for crews, to reduce fatigue and exposure to stressful situations.
- Before termination of the incident. Command shall account for all personnel that have been operating at the collapse site. Each company officer should ensure crew and equipment accountability before returning to service. If Command has not previously addressed the issue of C.I.S.D., he/she may consider doing so during the termination phase.

#### **600.01.04. Confined Space Rescue**

##### **Introduction:**

- This procedure establishes guidelines for conducting confined space rescue. Confined spaces include tunnels, pipes, tanks, caverns or any other location where access and ventilation are restricted by the configuration of the space.

##### **Upon Arrival:**

- The first arriving officer must first determine the nature of the situation or hazard and whether victims are unconscious, or possibly overcome by the atmosphere inside the confined space.
- The officer must assume that an unsafe atmosphere exists until testing establishes it to be safe and then must decide whether the operation will be conducted in a rescue or recovery mode, based on the victim's survivability. By radio, the officer shall request a Haz Mat unit. Control of the perimeter must be quickly established.

##### **Command Responsibilities:**

- The first arriving Battalion Chief should appoint a Safety Officer to assist in determining what hazards are present, establish perimeter control, and control ventilation to the space, if needed.

- Summon those Winter Park Fire–Rescue TRT members on-duty to the scene.
- The IC may also appoint an Extrication Divison/Group to actually affect the rescue

#### **Safety Divison/Group Responsibilities:**

- In conjunction with members from the Haz Mat Divison/Group, the safety officer must determine exactly what hazards and products are within the confined space; this may include the readings of oxygen concentration, explosive gas or vapor concentrations, carbon monoxide, and hydrogen sulfide levels, etc.
- The Safety Divison/Group should establish ventilation to provide fresh air, or exhaust contaminated air. If a flammable hazard within the confined space is suspected, any equipment taken in, including lighting should be explosion-proof. It is also important to be aware of other physical hazards including: falls, direct flame impingement, and energized equipment or surroundings.

#### **Extrication Divison/Group Responsibilities:**

- Extrication Divison/Group should assign a minimum of a two-person team to make entry, and one back-up team properly outfitted.
- The Extrication Divison/Group will dictate the proper level of personal protective equipment after consultation with the Haz Mat Divison/Group Leader and the Incident Commander.
- All entry and back-up personnel shall use breathing apparatus, and have their SCBA cylinder pressures recorded at time of entry. Extrication Divison/Group will ensure that personnel do not travel to a space beyond a point that provides air reserve to return and exit safely, with a 5-minute margin for error. Many times rope rescue systems are utilized to extricate victims. Responding an additional Engine company with TRT capabilities will be necessary to perform this function properly.
- If deemed feasible and appropriate, rescuers will have a tag line affixed **before** entry. Should a victim be located, immediate treatment of life threatening injuries should begin. The method of extrication should already have been determined.

#### **600.01.05. Trench Rescue**

##### **Introduction:**

- This procedure establishes guidelines for first-arriving officers at trench rescue operations.
- Personnel should be aware that this type of operation may take an extended period of time, and that an early determination must be made whether a rescue is possible (meeting safety concerns), or whether it is a body recovery situation (not warranting the placing of rescue personnel in a hazardous situation).
- When a trench collapse has taken place, there is a 50% chance the same trench will collapse again.

#### **Upon Arrival:**

- The first arriving officer at the scene of a trench rescue situation shall park the apparatus a minimum of 150 feet from the trench. Have Communications dispatch the nearest Technical Rescue Team (TRT)
- Evacuation of the perimeter and control of same must be quickly established.

#### **Command Responsibilities:**

- The first arriving Battalion Chief should assign a Safety Officer for site control. The IC should also assign an Extrication Division/Group, to actually affect the rescue. Command considerations may include:

*Job foreman, supervisor's name, and company they work for.*

*Address and telephone numbers.*

*Dimensions of trench.*

*Soil condition (packed, loose, sandy, wet, etc.).*

*Surface encumbrances such as power poles, walls, structures, and heavy equipment.*

*Weather conditions (raining, sunny, etc.).*

*Other factors (e.g., traffic proximity, vibration, utilities, etc.).*

- After workers leave the trench, do not allow anyone back in. Command must determine patient location and number, and the need for treatment and transportation.
- Summon those Winter Park Fire–Rescue TRT members on-duty to the scene.

#### **Safety Division/Group Responsibilities:**

- The Safety Division/Group should take immediate control of the perimeter, establishing a hazard zone radius of at least 50 feet, where non-essential

rescue personnel will be removed. Safety must assure that all vehicles are parked at least 75 feet from the hazard site.

- A police liaison should be established to coordinate rerouting of traffic for at least 300 feet around the excavation to minimize vibrations.
- The Safety Divison/Group must constantly evaluate conditions within the site with CO meter, etc.; and provide for PPV within the trench when needed.
- The Safety Divison/Group shall monitor the time workers are within the site and limit that time to a maximum of 15 minutes, before sending them to Rehab on a rotating basis.
- If a Safety Divison/Group is not established, the responsibility for all the items mentioned in this section becomes that of the IC.

#### **Extrication Divison/Group Responsibilities:**

- Extrication Divison/Group should assemble all available equipment in a formal staging area for easy access and evaluate the need for shoring, hydraulic expanders, visquene backing (to prevent sloughing of sand between shoring), hand tools, and plywood sheeting (for stability around the opening of the excavation).
- The Extrication Divison/Group officer should recognize and request, through the IC, any outside resource needed, e.g.; building materials, heavy equipment, etc.
- Ladders should be placed on both sides, at no more than 12-foot intervals, for access into and out of the trench, during the entire operation.

#### **Vehicle Machinery Rescue**

##### **Introduction:**

- This procedure establishes guidelines for first arriving officers at a Vehicle and Machinery Rescue.

##### **Upon Arrival:**

- Establish scene safety zones, given scene security barriers , incident location , incident information and personal protective equipment , so that action hot warm and cold safety zones are designated.

##### **Command Responsibilities:**

- The first arriving Battalion Chief should assign a Safety Officer for site control. The IC should also assign an extrication Divison/Group, to actually affect the rescue. Command considerations should include:

Type of vehicles involved  
Number of vehicles  
Immediate hazards  
Number of victims  
Types of machinery involved.  
Time of day  
Potential for lengthy extrication

Summon those Winter Park Fire–Rescue TRT members on-duty to the scene if vehicle extrication is lengthy or machinery is involved.

#### **Safety Divison/Group Responsibilities:**

- The Safety Divison/Group should take immediate control of zones making sure non essential people are not in the perimeters.
- The Safety Divison/Group should immediately establish the need for any type of lock out tag out of the vehicles or machinery if needed. The car battery should be disconnected as soon as possible to lessen the chance of an undeployed airbag being inadvertently deployed.
- The Safety Divison/Group should make sure everybody involved in the extrication has the proper PPV on.

#### **Extrication Divison/Group Responsibilities:**


- Ensure the vehicle or machinery involved is locked out tagged out.
- Ensure the vehicle or machinery involved is stabilized prior to the extrication. This may involve setting up a separate Stabilization Divison/Group if needed.
- Determine the vehicle or machinery's access and egress points, given the structural and damage characteristics and potential victim location.
- Create access and egress openings for rescue, victim care and removal while maintaining stability.


#### **Medical Divison/Group Responsibilities:**

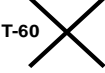
- Make sure victim is removed to a safe area given a victim transfer device using a designated egress route, without compromising patent packaging and causing undo injury while maintaining stabilization.


## FEMA Task Force Search and Rescue Marking System


The "X" measuring 2ft. x 2ft. should be spray-painted in the color **INTERNATIONAL ORANGE**


- 

Single Sash drawn upon entry to a structure or area indicates search operations are in progress
- 

Crossing Slash drawn upon search personnel exit from the structure or area.
- 


Left Quadrant - Rescue Team Identifier = Truck 60
- 


Top Quadrant - Time and Date Task Force Personnel left structure
- 


Right Quadrant - Personnel Hazard
- 


Bottom Quadrant - Number of Live and Dead Victims still inside structure ( X = NO VICTIMS)

The Structural Specialist will make a 2ft x 2ft box on the building adjacent to the most accessible entry. The BOX is spray painted with **INTERNATIONAL ORANGE** and marked as follows:

- 

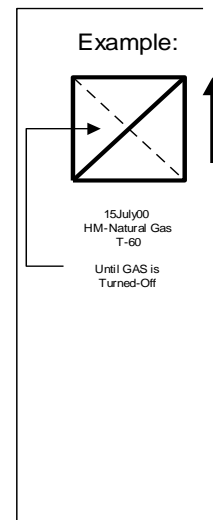
Structure is relatively safe for TRT operations. Damage is such that there is little danger of further collapse. ( May be pancaked building )
- 

Structure is significantly damaged. Some areas may be relatively safe, but other areas may need shoring, bracing, or removal of hazards.
- 

Structure is NOT SAFE for rescue operations and may be subject to sudden collapse. Remote search operations may proceed at significant risk. If rescue operations are undertaken, safe haven areas and evacuations routes are required.
- 

An Arrow located next to the marking BOX indicates the direction of safest entry to the structure.
- HM

Indicates Haz-Mat condition in or adjacent to structure. TRT operations normally will not be allowed until conditions are better or eliminated.




James E. White  
Chief of Department