Wilmington Fire Department		
	Standard Operating Guideline	**319**
		Safety & Wellness
Safe Operation of Emergency Vehicles		
Issue Date:	Supersedes: February 22, 2012	
Prepared By: Deputy Chief J.S. Mason	Approved By: C.V. Martinette, Jr. Fire Chief	
Reviewed: March 24, 2025		

1.0 SCOPE

1.1 Fire Apparatus shall be operated only by members who have completed an approved driver training program or by student drivers who are under supervision. An Emergency Vehicle Driver (EVD) certification is required for drivers and student drivers. Personnel promoted to Master Firefighter after May 1, 2017, shall meet the requirements as specified in NFPA 1002, Chapters 4 & 5 "*Standard for Fire apparatus/Operator Professional qualifications*".

1.2 All City of Wilmington employees are required to use seat belts at all times when operation a City vehicle equipped with seat belts. Anyone riding as a passenger/attendant in a City vehicle is also required to use seat belts (i.e., rescue, engine, ladder, utility, service van, staff vehicle, etc.) The company officer or driver of the vehicle will confirm that all personnel and riders are on board are properly attired and have seat belts on before the vehicle is permitted to move. (ref. NFPA 1500 4-3.1)

2.0 REQUIREMENTS

2.1 Drivers of a fire apparatus shall have a valid North Carolina Class B or Class A driver's license, based on an apparatus assignment. Vehicles shall be operated in compliance with all traffic laws, including sections pertaining to emergency vehicles and any requirements of the authority having jurisdiction. Drivers of fire apparatus shall meet the requirements as specified in NFPA 1002, chapters 4 & 5 "*Standard for Fire Apparatus Driver/Operators Professional qualifications*." (ref. NFPA1500 4-2.1).

2.2 Drivers of fire apparatus shall be directly responsible for the safe and prudent operation of the vehicles under all conditions. When the driver is under the direct supervision of an officer, that officer shall also assume responsibility for the actions of the driver (ref. NFPA 1500 4-2.3)

2.3 Firefighters shall not be permitted to drive until completion of EVD. This includes Probationary Firefighters. Fire department personnel shall only be permitted to drive EMS units/ambulances after completing a driver training program approved by WFD & NHREMS

3.0 PROCEDURES

3.1 Response codes for all engines, trucks, squads, and rescue will be determined by the company officer based on information received from alarm, time of day, traffic conditions, weather conditions, etc.

3.2 Drivers shall operate vehicles under emergency conditions only when audible and visual warning devices are operating. ***Air horns are mandatory at all green and red-light intersections.*** The Rumbler siren will be equipped on the Squads, Air Truck and new Engines starting in 2023. During non-emergency operation, the use of low-beam headlights is recommended for increased visibility.

3.3 At multi-company stations, the lead apparatus shall be at the discretion of the company officers. Proper vehicle spacing of approximately three hundred feet (300') should be allowed.

4.0 EMERGENCY RESPONSES

4.1 During emergency responses, drivers of fire department vehicles shall proceed at a speed slow enough to enable the vehicle to be stopped, if necessary, in the following conditions:

A. When directed by a law enforcement officer.
B. Red traffic light.
C. Stop sign
D. Negative right-of-way intersection.
E. Blind intersection
F. When the driver cannot account for all lanes of traffic in an intersection.
G. When encountering a stopped school bus with flashing warning lights.
H. All railroad crossings (ref. NFPA 1500 4-2.7).

.

4.2 During non-emergency travel, drivers of fire department vehicles shall obey all traffic control signals and signs, and all laws and rules of the road of the jurisdiction for the operation of motor vehicles (ref. NFPA 1500 4-2.5)

4.3 When responding emergency traffic, warning lights must be on and sirens must be sounded to warn drivers of other vehicles, as required by the NC Motor Vehicle Code.

4.4 The use of sirens and warning lights does not automatically give the right-of-way to the emergency vehicle. These devices simply request the right-of-way from other drivers, based on their awareness of the emergency vehicle's presence. Emergency vehicle drivers must make every possible effort to make their presence and intended actions known to other drivers and must drive defensively to be prepared for the unexpected inappropriate action of others.

4.5 At no time shall fire department apparatus be operated in excess of **10 MPH** over the posted speed limit.

4.6 Emergency traffic response is authorized only in conjunction with emergency incidents. Unnecessary emergency response shall be avoided. In order to avoid any unnecessary emergency response, the following rules shall apply:

A. When the first unit reports on the scene with "nothing showing" or an equivalent report, any additional units shall continue, but shall not exceed the posted speed limit.

B. The first arriving unit will advise additional units to downgrade to non-emergency whenever appropriate.

5.0 INTERSECTIONS

5.1 Engines, trucks, and rescues should have two (2) Wilmington Fire Department members in the front seats of the apparatus whenever possible while responding. The driver is responsible for operating the vehicle safely. The co-driver is responsible for being a second set of eyes and ears any time that a unit is responding. Driver and co-driver must be focused on intersection management any time a WFD vehicle enters into an intersection.

5.2 Intersection management requires the undivided attention of the driver and the co-driver. The co-driver in addition to the driver should be accounting for clearance in all traffic lanes, accounting for all pedestrian traffic, and announcing if it is clear or not clear to proceed. Drivers shall proceed through intersections only when the driver can account for all lanes of traffic in the intersection (ref. NFPA 1500 4-2.7.1)

5.3 Intersections present the greatest potential danger to emergency vehicles. When approaching and crossing an intersection with the right-of-way, drivers shall not exceed the posted speed limit.

5.4 Operating emergency vehicles in opposing traffic lane is extremely hazardous under all conditions and should only be considered under exceptional circumstances (i.e., if there is no alternate route of travel).

5.5 When emergency vehicles must use center or oncoming traffic lanes to approach controlled intersections (traffic light or stop sign), they must come to a complete stop before proceeding through the intersection, including occasions when the emergency vehicle has a green traffic light.

5.6 Emergency vehicles approaching a negative right-of-way intersection (red light, stop sign) shall stop and only proceed through the intersection when the driver can account for all oncoming traffic in all lanes yielding the right of way.

6.0 VEHICLE BACKING

6.1 Backing of fire department vehicles should be avoided whenever possible. When backing is unavoidable, spotters shall be used. In addition, spotters shall be used when vehicles must negotiate forward turns with restrictive side clearances and when height clearances are uncertain.

6.2 Under rare circumstances when the vehicle is manned by only the driver, that vehicle driver shall attempt to utilize any available fire department personnel to act as spotter. When no personnel are available to assist, the vehicle driver shall get out of the vehicle and make a complete three hundred sixty-degree (360°) survey of the area around the vehicle to determine if any obstructions are present.

6.3 When an engine, ladder, squad, or rescue is backed, **all crew members (except the drive**r) shall dismount the apparatus and act as spotters; this includes the company officer. Spotters should be located at as many corners as possible with at least one spotter at the left rear

corner of the apparatus. When only a single spotter is available, he/she should be located off the left rear corner and will act as the primary spotter.

6.4 Spotters are not permitted to ride tailboard positions while backing fire apparatus.

6.5 Spotters will discuss the backing plan with the driver before proceeding. The communication (warning) process will be agreed upon prior to backing. Both door windows (driver and front passenger) will be in the down position to allow for maximum communication (hearing) between spotters and the driver. Fire radio volumes will be lowered.

6.6 The vehicle shall not be backed until all spotters are in position and communicate their approval to start the backing. Spotters will remain visible to the driver. Any time that the driver loses sight of the primary spotter, the vehicle will be stopped immediately until the spotter is visible, and the communication to continue backing is processed.

6.7 When vehicles must be backed when other vehicle traffic exists, the vehicle's emergency lights (if equipped with such lights) shall be operating, and reflective safety vests shall be worn by all spotters.

6.8 The company officer is responsible for compliance with this procedure and the safe backing of the apparatus.

7.0 BACKING SIGNALS

7.1 STRAIGHT BACK: One hand above the head with palm toward face, waving back with other hand at the spotter's side (left or right hand optional). See Figure 1.

7.2 TURN: Both arms pointing the same direction with index fingers extended. See Figure 2. Driver will advise the spotter which way the turn will be made. The spotter will then assist the driver in backing apparatus. The driver's intentions must be verbally communicated to the spotter.

7.3 STOP: Both arms crossed with hands in fist. See Figure 3. The spotter must be sure to yell the "stop" order loud enough that the driver can hear the warning.

Figure 1 – Straight Back

Figure 2 – Turn

Figure 3 – Stop

8.0 PASSING, PLACEMENT, AND PARKING

8.1 During an emergency response, fire vehicles should avoid passing other emergency vehicles. If passing is unavoidable, permission must be obtained from the driver of the lead vehicle (following vehicle may contact lead vehicle by radio to gain permission to pass).

8.2 The unique hazards of driving on or adjacent to the fire ground requires the driver to use extreme caution and to be alert and prepared to react to the unexpected.

8.3 Drivers must consider the dangers that the moving vehicle poses to fire ground personnel and spectators who may be preoccupied with the emergency and may inadvertently step in front of or behind a moving vehicle.

8.4 When stopped at the scene of an incident, vehicles should be placed to protect personnel who may be working in the street; warning lights will be used to make approaching traffic aware of the incident. At night, vehicle mounted floodlights and any other available lighting shall be used to illuminate the scene. All personnel working in or near traffic lanes shall wear high visibility vests.

8.5 If it is not necessary to park vehicles in or near traffic lanes, whenever possible, the approved vehicle(s) should be pulled off the road to parking lots, curbs, etc.

8.6 Wheel chocks are to be used on vehicles equipped with air brakes at all times other than when in quarters. The driver will utilize two-wheel chocks appropriately to secure the apparatus

8.7 Where appropriate**,** apparatus returning to quarters will stop prior to entering the apparatus bay in order to have the Plymovent hose attached to the apparatus' exhaust. This is done to minimize exhaust gases from entering the building. When the hose has been securely fastened to the apparatus, the member attaching the hose will communicate with the driver that it is safe to pull into the station.

9.0 EMERGENCY RESPONSE POLICY

9.1 Wilmington Fire Department vehicles shall be operated in a manner that provides for the safety of all persons and property. Safe arrival shall always have priority over unnecessary speed and reckless driving enroute to an emergency incident.

9.2 Prompt, safe response shall be attained by:

A. Leaving the station in a standard manner
    1. Quickly mounting apparatus
    2. All personnel on board, seated, and belts on
    3. Station doors fully open.
B. Driving defensively and professionally at reasonable speeds.
C. Knowing where we are going
D. Using warning devices to move around traffic and to request the right-of-way in a safe and predictable manner.

9.3 Fast response shall not be attained by:

A. Leaving quarters before crew has mounted safely and before apparatus doors are fully open.
B. Driving too fast for conditions

C. Driving recklessly or without regard for safety.
D. Taking unnecessary chances with negative right-of-way intersections.
E. Intimidating or scaring other drivers.

9.4 Emergency Response Criteria:

A. Maximum ten miles per hour (10 mph) over posted speed limit.
B. Traveling in center or oncoming traffic lanes, twenty-eight miles per hour (28 mph) maximum
C. Traveling in center or oncoming traffic, complete stop at all traffic lights, stop signs.
D. Posted speed limit when entering intersections with green light.
E. Stop at all red lights, stop signs.

10.0 Traffic Signal Preemption

When approaching intersections equipped with Emergency Vehicle Pre-emption (EVP) devices, drivers shall proceed cautiously. The approaching apparatus *should* be given a green traffic light. However, drivers should not assume that the traffic signal preemption will always work therefore, the driver shall be prepared to come to a complete stop at a red light. When EVP devices are functioning properly, they will provide additional safety for responding through intersections.

For more information about the operation of EVP devices as well as current intersection locations, please refer to the attached Addendum.

10.1 Emergency Vehicle Preemption Chief Officer / Battalion / Safety / Squad vehicles. When enroute to a call LIGHT SWITCH should be set to 3, upon arrival and placing the vehicle in park this emergency light switch shall be set to 2

11.0 Vehicle Operation- High Water Conditions

A. As a general rule, vehicles shall not be driven into standing water that is deeper than 8". Vehicles should never be driven through swiftly moving water or into areas of standing water in which the operator cannot distinguish the boundaries of the roadway.
B. Vehicles should not be driven into standing water in which other similar sized vehicles have already been stranded. If it appears that it may be safe for the vehicle to pass through the area, 8" of the vehicle wheels shall still be used as a reference point for the maximum depth of water in which the vehicle may be driven.
C. Before allowing the vehicle to be driven into the standing water, the officer or AIC shall conduct a risk/benefit analysis and take appropriate actions as dictated by the situation. When high water is encountered during an emergency response the officer or AIC shall immediately notify the dispatcher of the situation and request an alternative unit/company to respond if appropriate.
D. Before entering standing water, the operator shall bring the vehicle to a complete stop, and then proceed with caution at a slow rate of speed. Vehicle passengers should be assigned to observe the water depth from inside the vehicle. Every effort should be taken to drive the center or highest point of the roadway. If necessary, use warning lights to secure the right of way from oncoming traffic. If the water becomes too deep, the vehicle shall be stopped and backed out of the area.
E. Upon leaving the standing water, the operator should check the vehicle brakes to ensure they are functioning properly after being submerged in water.

F. As soon as practicable after a high water event has passed, vehicles that have been driven through standing water in accordance with the procedures outlined in this SOP shall be scheduled for a service call to Fleet Maintenance for inspection and maintenance of axles, wheel bearings, drive shafts, rear differential and other equipment that may have been exposed to or damaged by water.

11.1 Deep Water Fording

While operating apparatus, you may encounter situations when deep water fording is necessary because of rapid rising water levels during hurricane season. As a reminder, if you are required to ford water higher than 8" of your apparatus; please be aware of the following areas of concern.

A. Low engine tunnel designs in the Pierce Saber chassis require the engine air intake port to be located at or below frame level. This air filter design has the potential to allow water ingestion into the engine, which may hydrostatically stall your engine causing sever engine damage.
B. The engine fan blade used on the Pierce Velocity and Sutphen chassis is a direct drive design. This direct drive design limits the ability of the apparatus to negotiate areas of high water due to the rotating engine fan blade being placed directly into the water, resulting in possible fan and/or radiator damage.
C. Temporary loss of full braking capability due to wet brake linings.
D. Temporary loss of supplemental braking (Telma) due to wet electrical components.
E. Water contamination of certain components.

Areas for possible water entry causing contamination on all apparatus include:

A. Engine air filter
B. Transmission vent
C. Fire pump transmission vent
D. Differential vent
E. Wheel seals

Areas for possible water entry causing contamination on all ambulances include:

A. Engine air filter
B. Transmission vent
C. Differential vent
D. Wheel seals

If any apparatus has been driven in high water conditions, or water contamination/ingestion is suspected, please contact the garage for inspection. If water contamination is found, wheel bearings and gearboxes will need to be flushed and air filters changed.

The information included in this document covers the general operation of the devices and basic times for traffic signals to change.

Currently there are 27 intersections being controlled with preemption devices. Traffic Cabinets are equipped with preemption signal hardware and antennae that use GPS and radio communications to communicate with approaching vehicles.

Vehicle kits are wired into Master Switch on light bar. Emergency master switch must be on to actuate preemption. This must be on for the signal cabinet to detect the vehicle. The GPS will acquire a satellite signal and start broadcasting shortly after master switch is activated. For the vehicles, the master switch for emergency lights when turned on lets the intersection know to preempt the signal. If the master switch is not on it will not place a call. If the vehicle is in the station it will take a little longer to acquire satellites once the vehicle pulls out. Once the vehicle is at the scene and the emergency brake is set it will disable the preemption call.

The master switch does not have to be turned off at this time. If the emergency vehicle receives a second call, they will have to close all doors, release parking brake, and power down the emergency lights master switch and turn it back on for the preemption to reactivate.

The intersection equipment can detect the vehicles 2500 feet from the intersection from all approaches, that's when the system can start to see the vehicle. All intersections are programmed to place the call in the 2500' zone. Based on vehicle speed at 1000 feet or 30 seconds from the signal the lights will begin the change process. The equipment will call the signal at 1000 feet, approximately 30 seconds away.

(i.e. 23mph = 34fps = 30 sec of travel time for 1000')

(i.e. 35mph = 51fps = 20sec of travel time for 1000')

This is when the system is telling the controller to change/hold the green in the phase of the vehicle approach direction. The controller will change and hold the signal green for the approaching vehicle (maximum hold time setting is 4 min. 15 seconds). This can be adjusted as we deem necessary.

Emergency Vehicle Pre-emption (EVP Intersections

Drivers must be very cautious when approaching an intersection with an EVP device. When approaching an EVP equipped intersection, the apparatus should be given a green traffic light. If the traffic light does not turn green, the Driver should proceed as normal for a red traffic light. Remember this is another technology to add safety to our response but always obey all traffic rules if the signals do not operate.

Current Intersections that have Operating Pre-emption Devices:

16th & Dawson

16th & Market

16th & Wooster

17th & Dawson

17th & Market

17th & Wooster

3rd & Dawson

3rd & Market

3rd & Wooster

Eastwood & Market

Eastwood & Military Cutoff

Market & Cinema

Market & Kerr

Market & New Centre

Market & Covil

Wrightsville & Independence

Oleander & Greenville Loop

Oleander & Independence

Oleander & S. College

Randall & S. Kerr

S. College & Wrightsville

S. College & new Centre

S. College & Randall

S. College & S. 17th

S. Kerr & Cinema

Shipyard & Carolina Beach Road

Shipyard & 17th