

Description:

The purpose of the section is to highlight criteria pertaining current applicable UMD Design Standards to accommodate fire protection apparatus.

Related Sections:

- TBD

Effective Date:

January 1, 2020

Applicable Standards:**Mandatory Codes:**

- The Maryland State Fire Prevention Code adopts by reference the NFPA 1 National Fire Prevention Code which provides that "the code official shall require and designate public or private fire lanes as deemed necessary for the efficient and effective operation of fire apparatus.
- Fire lanes shall have a minimum width of 20 feet". NFPA 1, 3-5.2. Where buildings are under construction, alteration or demolition, fire department access and fire lane requirements are defined by Section NFPA 1, 41-2.1.
- The State Building Code (IBC) provides an option to increase building area provided there is access to an open space by a street or fire lane 20 feet wide.

Reference Standards

The latest edition of the following code and standards include fire lane information and guidance:

- NFPA 1 Fire Prevention Code
- NFPA 241 Safeguarding Construction, Alteration and Demolition Operations
- NFPA 1141 Fire Protection in Planned Building Groups

General Requirements:**Definitions:**

- Access Control means the method used to limit access, such as breakable or removable bollards, gates or control arms.
- Entry Point means the area of transition from one type of fire lane to another.
- Fire Department Connection means piped inlet or outlet which is used by the fire department to supply water to a fire protection system.
- Fire Hydrant means a valued connection on a water supply system which is used to supply water to the Fire Department.
- Fire Lane means a roadway, driveway, sidewalk or other area necessary for the passage or positioning of fire apparatus, personnel, or equipment. A fire lane is a Street (Type I), Fire Access Road (Type II), Fire Access Sidewalk (Type III), or Fire Access Surface (Type IV), Access Control, Entry Point, or area of Fire Protection Water Supply.
 - Type I means a paved surface open to the passage of all vehicles at all times. (Street)
 - Type II means a paved surface open to the passage of fire apparatus and emergency vehicles, but closed to the general public or controlled to allow only authorized entry. (Fire Access Road)
 - Type III means a paved surface ordinarily used for pedestrian traffic, but required for emergency access. (Fire Access Sidewalk)
 - Type IV means a ground cover not 100% paved, but available for emergency access. (Fire Access Surface)

- Fire Protection Water Supply is the prescribed amount of water required for a building, hazard, or fire protection system calculated by the methods and standards of the Washington Suburban Sanitary Commission, Insurance Services Office and the National Fire Protection Association. Fire Protection Water Supply includes Water Mains, Fire Hydrants, and Fire Department Connections.
- High Rise Buildings
 - Refers to a building or structure defined in the High Rise Building Safety Law or the State of Maryland - the Law defines all buildings four (4) or more stories or 45 feet above the lowest grade as High-Rise Buildings.
 - High-Rise Buildings above 75 feet are fully sprinklered.
 - High-Rise Buildings below 75 feet = fully sprinklered -OR- accessibility provided on the sides (50%) of the building perimeter by a street (minimum 21 feet in width) and accessible to allow fire department aerial equipment to reach the building to 75 feet in height.

Fire Lane Structure

- Fire Lanes shall be structurally capable of supporting minimum vehicular weights of twenty-five (25) tons (35 tons is preferred) in all weather-conditions.
- Fire Lanes shall be clear of all obstructions overhead to a minimum height of 13 feet 6 inches (14 feet is preferred) above grade.
- Fire Lanes shall provide a complete surface adequate for turning fire apparatus. The turning path shall have a 50 foot minimum centerline turning radius and a 20 foot path width increasing to 22 feet at the widest part of the turn.
- Fire Lane slopes and gradients shall not restrict fire apparatus movement or position, but provide adequate drainage. (Should not exceed 10% and 3% within 100 feet of intersections)
- Fire Lanes shall be structured and maintained clear of all obstructions or impediments.

Fire Lane Design

- Fire Lanes shall be designed as required by the Maryland High-Rise Building Safety Law where the law applies.
- Fire Lanes shall be installed within ten (10) feet of each building on all sides except as noted below:
 - Fire Lanes shall be installed on a minimum of two sides of a building (50% of the perimeter) where no more than three (3) levels or thirty (30) feet exist above the lowest grade level.
 - Fire Lanes shall be installed on a minimum of one side of a building (25% of the perimeter) where no more than three (3) levels or thirty (30) feet exist above the lowest grade level and the building is fully sprinklered. Exception: A building may require a wet standpipe or additional access where large ground spaces are provided.
 - Fire Lanes shall be installed on a minimum of two sides of a building (50% of the perimeter) exceeding three (3) levels or thirty (30) feet above the lowest grade level and the building is fully sprinklered and a complete wet standpipe system is available for fire department use.
- No less than two (2) Fire Lanes (primary and secondary) shall be provided to reach each building or building complex. Any combination of fire lane types may be used to provide fire apparatus access to a building within noted travel distance and use restrictions. Exception: Additional Fire Lanes may be required where a deficiency of Fire Protection Water Supply or an extra hazard exist.
- Fire Lanes shall be marked as required to permit legal enforcement as identified below:
 - Curbs shall be painted yellow and stenciled in red "NO PARKING FIRE LANE". Signs shall be red letters on white background "NO PARKING FIRE LANE".
 - A maximum spacing of 75 feet between signs or stencils is required.
- **Fire Lane Type I - Street**
A street shall meet the same minimum requirements as Fire Access Roads.

- **Fire Lane Type II - Fire Access Road**
 - Fire Access Roads shall be provided to every building where no more than three (3) levels or thirty (30) feet exist above the lowest grade level and set back more than 150 feet from a Public Road.
 - Fire Access Roads shall be provided to every building exceeding three (3) or more levels or thirty (30) feet above the lowest grade level and set back more than 50 feet from a street.
 - Any dead-end more than 150 feet long shall be provided with a turn-around with a minimum centerline radius of 50 feet.
- **Fire Lane Type III - Fire Access Sidewalk**
 - Fire Access Sidewalks leading toward a Fire Lane at a building shall be no less than ten (10) feet in width increasing in width to accommodate turns.
 - Fire Access Sidewalks at a building shall be no less than 20 feet in width. No obstruction is permitted where aerial fire apparatus positioning is required.
 - Fire Access Sidewalks may be used as a secondary fire access to every building set-back no more than four hundred (400) feet from a street or Fire Access Road.
- **Fire Lane Type IV - Fire Access Surface**
 - Fire Access Surfaces shall be the same minimum dimensions as a Fire Access Sidewalk.
 - Fire Access Surfaces may be provided in lieu of Fire Access Sidewalks as a secondary means of access.
 - Fire Access Surfaces shall not exceed two hundred (200) feet travel distance.
 - A Fire Access Surface may be used as a border for a Fire Access Sidewalk at a building, provided that a minimum sidewalk width of ten (10) feet is maintained.
 - The boundaries of a surface shall be obvious or marked so that the fire department can readily see the limits of the surface.
- **Entry Points**
 - Entry Points shall be of sufficient size to allow fire apparatus turning into a fire lane on a completely paved surface without the necessity of stopping and backing up.
 - Curb cuts or drop roll top curbs shall be provided at Entry Points when the elevation difference is more than (4) inches in height.
 - No less than two (2) Entry Points, as separate and remote from each other as possible, shall be provided for fire apparatus access to every building, building complex, or courtyard.
- **Access Control**
 - Access Control devices shall be approved (in accordance with the project procedure) for each individual application. Access control gates are the preferred method.
 - Use only the minimum number of bollards required for access control.
 - Bollards shall not present a hazard when removed.
 - Bollards shall be the UMD standard breakable or removable bollard.
 - Each Access Control device shall have a simple and uniform method of operation. No more than one (1) locking method shall be provided on each Access Control Device. Locks and keyways shall be "UMCP FD-1."
 - Any swinging gate shall swing in the direction of entry or in both directions.
 - No more than one (1) Access Control may be provided for any Fire Lane or combination of fire lanes to a building or building complex.
- **Fire Protection Water Supply**
 - Sufficient numbers and types of Fire Lanes shall exist to deliver the amount of water required by calculated fire flow demand to the building, building complex, or hazard.
 - Fire Hydrants shall be located on Fire Lanes as required by this section.
 - Fire Lanes shall be arranged so that the distance from Fire Hydrants to buildings is minimal, but not more than one hundred (100) feet for the first hydrant (primary) and four hundred (400) feet for the second hydrant (secondary).
 - Where the same Fire Hydrant is used for a number of buildings, the Fire Hydrant shall be located at a Fire Lane intersection.

- Fire Hydrants shall not be located closer than fifteen (15) feet to an Entry Point. Avoid obstructions to fire hydrant operation or visibility.
- Fire Hydrants at Entry Points with Access Control shall be located at the exterior (public) side of the Access Control.
- Fire Lanes shall be arranged so that the distance from a Fire Lane to a Fire Department connection is no further than 100 feet.
- Fire Department Connections shall be visible and unobstructed. The planting plan shall be arranged not to degrade visibility or make obstructions over time.
- **Construction, Alteration and Demolition Plans and Temporary Fire Access**
 - Utilize existing fire lanes and access.
 - Observe guidelines above.
 - Follow the information and guidance of NFPA 241.