

Texas Department of Transportation  
IH 635 Managed Lanes Project  
Technical Provisions

**Attachment 26-1A**  
Amendments to NFPA 502

**AMENDMENTS TO NFPA 502 (2008 EDITION) FOR  
THE IH 635 MANAGED LANES PROJECT**

**Chapter 1 - Administration**

<b>Section</b>	<b>Subheading</b>	<b>Amendment</b>
1.1.1		This standard provides fire protection and fire life safety requirements for road tunnels in the IH 635 Managed Lanes Project.
1.1.4		Delete
1.3.2		Delete
1.3.3		The portion of this standard that covers emergency procedures applies to new facilities in the IH 635 Managed Lanes Project.
1.4	Retroactivity	Delete
1.4.1		Delete
1.4.2		Delete
1.4.3		Delete

**Chapter 2 - Referenced Publications**

Not amended

**Chapter 3 - Definitions**

<b>Section</b>	<b>Subheading</b>	<b>Amendment</b>
3.2.1	Approved	Delete
3.2.2	Authority Having Jurisdiction (AHJ)	TxDOT or it's designee.
3.2.3	Labeled	Equipment or materials to which has been attached a label, symbol, or other identifying mark of an organization that is concerned with product evaluation, that maintains periodic inspection of production of labeled equipment or materials, and by whose labeling the manufacturer indicates compliance with appropriate standards or performance in a specified manner.
3.2.4	Listed	Equipment, materials, or services included in a list published by an organization that is concerned with evaluation of products or services, that maintains periodic inspection of production of listed equipment or materials or periodic evaluation of services, and whose listing states that either the equipment, material, or service meets appropriate designated standards or has been tested and found suitable for a specified purpose.
3.3.2	Alteration	Delete
3.3.6	Bridge	Delete
3.3.10	Communications	Radio, telephone, and messenger services throughout the facility and particularly at the operations control center.
3.3.17	Facility	A road tunnel.
3.3.25.2	Elevated Highway	Delete
3.3.34	Point of Safety	An exit enclosure that leads to a public way or safe location outside the structure, or an at-grade point beyond any enclosing structure, or another area that affords adequate protection for motorists.

**Chapter 4 - General Requirements**

<b>Section</b>	<b>Subheading</b>	<b>Amendment</b>
4.3.2	Limited Access Highways	Delete
4.3.3	Bridges and	Delete

	Elevated Highways	
4.3.4	Depressed Highways	Delete
4.3.6	Roadway Beneath Air-Right Structures	Delete
4.3.7	Ancillary Facilities	All related ancillary facilities that support the operation of road tunnels shall be protected as required by all applicable NFPA standards and applicable building codes except as modified in this standard.
4.4.1		The Developer for the IH 635 Managed Lanes Project shall carry out a complete and coordinated program of fire protection that shall include written preplanned emergency response procedures and standard operating procedures.
4.4.3		Emergency response procedures and the development of an emergency response plan shall comply with the requirements of Chapter 12 and the Book 2A Technical Provision.
4.5	Emergency Communications	Delete "by the authority having jurisdiction".

#### Chapter 5 - Limited Access Highways

Delete		
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#### Chapter 6 - Bridges and Elevated Highways

Delete		
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#### Chapter 7 - Road Tunnels

Section	Subheading	Amendment
7.3.2		Delete "or other curve that is acceptable to the AHJ".
7.4.1.2.3		For the IH 635 Managed Lanes Project, each manual fire alarm box shall be securely mounted, with the operable part of each manual fire alarm box not less than 3½ ft and not more than 4½ ft above floor level. Where located at cross passageways or exits, the operable part of the manual fire alarm box shall be within 5 ft of the exit doorway.
7.4.2	Fire Alarm Control Panel	A listed fire alarm control panel (FACP) shall be installed, inspected, and maintained in accordance with <i>NFPA 72</i> .
7.5.1		Communications systems in tunnels and ancillary structures shall be in accordance with IH 635 Managed Lanes Project, Book 2A Technical Provisions.
7.8.1		Portable fire extinguishers, with a rating of 2-A:20-B:C, shall be located along the roadway in listed wall cabinets at intervals of not more than 300 ft.
7.14.1.1		The means of egress requirements for all road tunnels in the IH 635 Managed Lanes Project shall be in accordance with NFPA 101, Chapter 7, except as modified by this standard, and the Book 2A Technical Provisions.

#### Chapter 8 - Roadways Beneath Air-Right Structures

Delete		
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### Chapter 9 - Standpipe and Water Supply

Section	Subheading	Amendment
9.1.1		Standpipe systems in the IH 635 Managed Lanes Project shall be designed, installed, inspected, and maintained as Class I systems in accordance with NFPA 14, except as modified by this standard.
9.1.2		Standpipe systems in the IH 635 Managed Lane Project shall be inspected and maintained in accordance with NFPA 25.
9.1.3		For the IH 635 Managed Lanes Project, standpipe systems shall be either wet or dry, depending on the climatic conditions, the fill times, and shall be established in coordination with the Participating Agencies and meet the requirements of the Book 2A Technical Provisions, or any combination thereof.
9.2.2		For the IH 635 Managed Lanes Project, dry standpipe systems shall have water supply in accordance with 9.2.3 that is capable of supplying the system demand for a minimum of 1 hour.
9.2.3		(1) Dallas Water Utilities. (2) Automatic or manually controlled fire pumps that are connected to a Dallas Water Utilities water source. (3) Delete
9.3.3		For the IH 635 Managed Lanes Project, fire department connections shall be protected from vehicular damage.
9.3.4		Fire department connections shall be in accordance with IH 635 Managed Lanes Project, the Book 2A Technical Provisions, and shall be coordinated with emergency access and response locations.
9.4.4		For the IH 635 Managed Lanes Project, hose connections shall have 2-1/2 in. external threads in accordance with NFPA 1963, and meet the requirements of the Participating Agency having responsibility for resolving fire-related emergency incidents.
9.6.1		For the IH 635 Managed Lanes Project, identification signage for standpipe systems and components shall be developed with input from the Participating Agency having responsibility for resolving fire-related emergency incidents.

### Chapter 10 - Emergency Ventilation

Section	Subheading	Amendment
10.1.1		Delete "and shall be permitted only where approved by the authority having jurisdiction."
10.6.7		For the IH 635 Managed Lanes Project, where separation is not possible, intake openings shall be protected by other proven means or devices, which have a documented operating history of previous and/or current usage, or devices that are listed, to prevent smoke from re-entering the system.

### Chapter 11 – Electrical Systems

Section	Subheading	Amendment
11.4.2		Emergency circuit wiring shall remain functioning for a period of not less than 1 hour when exposed to fire conditions in accordance with the RWS Fire Test Procedure or shall be protected by other equivalent means.
11.5.1		Delete "and dual level bridges"

## Chapter 12 - Emergency Response

Section	Subheading	Amendment
12.1	General	The Developer for the IH 635 Managed Lanes Project shall anticipate and plan for emergencies. Participating Agencies shall assist with the preparation of the Emergency Response Plan in accordance with the Book 2A Technical Provisions.
12.3	Emergency Response Plan	The emergency response plan shall be prepared, reviewed, updated, and maintained in accordance with IH 635 Managed Lanes Project, Book 2A Technical Provisions, and shall include, as a minimum, the following:
12.4	Participating Agencies	Participating Agencies and organizations that shall be considered to coordinate and assist, depending on the nature of the emergency, shall be in accordance with IH 635 Managed Lanes Project, Book 2A Technical Provisions.
12.5.6		Delete "by the operating agency".
12.6.1		An up-to-date list of all liaison personnel from Participating Agencies shall be maintained by the Developer and shall be part of the emergency procedure plan.
12.8.1		The Developer and Participating Agency personnel shall be trained to function efficiently during an emergency.
12.8.3		To optimize the emergency response plan, comprehensive training programs shall be organized and conducted by the Developer for all personnel and agencies that are expected to participate in emergencies.
12.8.5		Exercises and drills shall be conducted at least twice a year to prepare the Developer and participating personnel for emergencies.
12.8.5.1		The scope and content of the drills for meeting the intent of 12.8.5 shall be in accordance with IH 635 Managed Lanes Project, Book 2A Technical Provisions.

## Chapter 13 - Regulated and Unregulated Cargoes

Section	Subheading	Amendment
13.1.1		The facility Developer shall develop procedures regarding the transportation of regulated and unregulated cargoes in accordance with Section 24.3.5 of Book 2A.

## Annex A - Explanatory Material

Section	Subheading	Amendment
A.3.2.1	Approved	The National Fire Protection Association does not approve, inspect, or certify any installations, procedures, equipment, or materials; nor does it approve or evaluate testing laboratories. In determining the acceptability of installations, procedures, equipment, or materials, acceptance may be based on compliance with NFPA or other appropriate standards. In the absence of such standards, evidence of proper installation, procedure, or use shall be required. Reference shall also be made to the listings or labeling practices of an organization that is concerned with product evaluations and is thus in a position to determine compliance with appropriate standards for the current production of listed items.
A.3.2.2	Authority Having Jurisdiction (AHJ)	Delete
A.3.2.4	Listed	The means for identifying listed equipment may vary for each organization concerned with product evaluation; some organizations do not recognize equipment as listed unless it is also labeled. The system employed by the listing organization shall be utilized to identify a listed product.

A.3.3.16	Engineering Analysis	A written report of the analysis that recommends the fire protection method(s) that provides a level of fire safety commensurate with this standard shall be submitted as a part of the Developer's release for construction documentation.
A.3.3.41.1	Air-Right Structure	Delete
A.4.1		Fire protection for road tunnels can be achieved through a combination of facility design, operating equipment, hardware, software, subsystems, and procedures that are integrated to provide requirements for the protection of life and property from the effects of fire.
A.5.2		Delete
A.5.3		Delete
A.6.1		Delete
A.6.3		Delete
A.6.6		Delete
A.7.1		Delete
A.8.1		Delete
A.8.4.1.1		Delete
A.9.1.5		Calculations, including transit and fill times, shall be submitted as a part of the Developer's release for construction documentation.
A.12.4		The Participating Agencies for the IH-635 Managed Lanes Project are as listed in Book 2A, Technical Provisions, Section 24.

#### **Annex B - Tenable Environment**

<b>Section</b>	<b>Subheading</b>	<b>Amendment</b>
B.4	Time Considerations	Delete "with the approval of the authority having jurisdiction".

#### **Annex C - Temperature and Velocity Criteria**

Not amended

#### **Annex D - Critical Velocity Calculations**

Not amended

#### **Annex E – Water-Based Fixed Fire-Fighting Systems in Road Tunnels**

<b>Section</b>	<b>Subheading</b>	<b>Amendment</b>
E.4.1	Application	The installation of water-based fixed fire fighting systems should be considered applicable only where the passage of hazardous cargo is considered. However, even in these cases, the Developer and the local fire department should consider the advantages and disadvantages of such systems as they apply to a particular tunnel installation.
E.4.3.1		An integrated graphic display of the fixed fire-fighting system zones, fire detection system zones, tunnel ventilation system limits, and emergency access and egress locations should be provided at the control room to allow the Developer and responding emergency personnel to make initial response decisions.

#### **Annex F - Emergency Response Plan Outline**

Not amended

#### **Annex G - Alternative Fuels**

Not amended

#### **Annex H – The Memorial Tunnel Fire Ventilation Test Program**

Not amended

**Annex I - Tunnel Ventilation System Concepts**

Not amended

**Annex J - Fire Apparatus**

<b>Section</b>	<b>Subheading</b>	<b>Amendment</b>
J.4	Bridges and Elevated Highways.	Delete

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**Annex K – Motorist Education**

Not Amended

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**Annex L - Informational References**

Not amended