



Emergency Vehicle Size and Weight Regulation Guideline



Introduction

Emergency vehicles in general, and fire apparatus in particular, are often heavier and larger than typical commercial vehicles. Few people question the need for emergency vehicles, or their axle capacities, when these vehicles show up at the scene of a fire or other emergency. But before they can get to the scene, these vehicles must be moved from their place of manufacture, often crossing through many States, before being delivered to the local department. While most of their miles will be logged within a few miles of the fire station, some emergency vehicles will have the occasion to travel great distances in support of natural disaster relief or to fight wild fires in neighboring counties or States.

Size and weight regulations applicable to emergency vehicles currently vary widely from one State to the next. This situation can lead to confusion, delays, and inefficiency. In an attempt to begin addressing this situation, the International Association of Fire Chiefs (IAFC) and the Fire Apparatus Manufacturers Association (FAMA) offer this document as a guide to U.S. Federal, State and local officials responsible for creating and enforcing vehicle size and weight laws and regulations.

Why are Emergency Vehicles so Large?

Rescues Require Long Ladders

Aerial device horizontal and vertical reach requirements necessitate large vehicles with total mass sufficient to counterbalance the aerial device. These loads could not be made divisible without dramatically increasing the response time as well as the number of personnel required to reassemble the devices at the scene.

Fire Suppression Requires Lots of Water

Fire suppression relies on the ability to deliver water to the scene. Limiting the capacity of tankers and water tenders would increase the response time. Using a greater number of smaller trucks would increase the number of emergency workers required as well as increase vehicle congestion both at the scene, and on the way there.



National Standards Drive Big Axle Capacity

The National Fire Protection Association maintains performance standards that apply to fire apparatus. NFPA 1901 *Standard for Automotive Fire Apparatus*¹ is adhered to by nearly every fire apparatus purchasing authority in the U.S. This NFPA standard establishes operational and safety criteria for all aspects of fire apparatus including the minimum water, equipment and hose capacity for each type of apparatus. These criteria necessitate the use of high capacity axles. The standard intentionally excludes any reference to vehicle size or weight limitations. Various emergency vehicle configurations and their range of typical sizes and weights are presented in Appendix A.

How Do Federal Regulations Apply?

Federal Regulations Allow State Flexibility

Federal truck size and weight regulations are established in 23 CFR Part 658 – *Truck Size and Weight, Route Designations – Length, Width and Weight Limitations*. This regulation allows States to issue special permits for emergency vehicles as nondivisible loads:

658.5 Definitions

Nondivisible load or vehicle

(1) ...nondivisible means any load or vehicle exceeding applicable length or weight limits which, if separated into smaller loads or vehicles, would: (i) Compromise the intended use of the vehicle, i.e., make it unable to perform the function for which it was intended;... (2) A State may treat emergency response vehicles...as nondivisible vehicles or loads.

658.17 Weight.

(h) States may issue special permits without regard to axle, gross, or Federal Bridge Formula requirements for nondivisible vehicles or loads.



The Federal Highway Administration clarifies this further in their “Questions and Answers about Vehicle Size and Weight” website²:

Are some vehicles and articles defined by regulation as nondivisible?

Yes. States may treat emergency response vehicles, such as firetrucks used to protect persons and property from fires and other disasters that threaten public safety ... as nondivisible.

¹ NFPA 1901 Standard for Automotive Fire Apparatus, 2009 Edition

² See Federal Highway Administration, Questions and Answers about Vehicle Size and Weight, <https://fhwaapps.fhwa.dot.gov/vswp/qa/qa.jsp>.

Fire and rescue vehicles would fall within this definition of a nondivisible vehicle since their lifesaving function would be compromised if necessary components (e.g., ladders or hoses) had to be carried on a second vehicle in order to satisfy a weight limitation.

How do States Accommodate Heavy Emergency Vehicles?

Exemptions or Special Regulations

Many State regulations exempt emergency vehicles from vehicle size and weight regulations (See Appendix B). In most other states the regulations are simply not enforced. Yet some State laws have specific requirements that restrict the size and weight of emergency vehicles, placing undue burden on emergency response personnel and placing barriers on the ability for neighboring States to provide mutual assistance in times of national emergency.

Why Should States Regulations be Consistent?

Patchwork Regulation Hinders Interoperability.

The Department of Homeland Security in their National Preparedness Guidelines defines the need for planned interoperability. "Preparedness is the responsibility of every level of government, every department, and every agency consistent with its authorities. This includes coordinating preparedness activities among partners operating within their jurisdictional borders, as well as across jurisdictional and geographic borders when dictated by identified threats and risk assessments."³ The guidelines stress the need for support across local, state, and tribal borders. Uniformity among states is particularly important given the specialized operating and design requirements of the relatively small number of emergency vehicles.



State and local governments, with the support of the federal government, are increasingly forming mutual aid agreements that make equipment and personnel available to other states in the event of major emergencies. For example, many emergency vehicles were loaned to the City of New Orleans and other affected regions following Hurricane Katrina, and those vehicles remained in the region

³ National Preparedness Guidelines, Dept. of Homeland Security, Sept 2007, p.3

during the recovery. Uniform standards are necessary to ensure that emergency vehicles can operate in any state where they happen to be deployed.

Do Emergency Vehicles Damage Roads?

Emergency Vehicle Impact to Roads is Limited.

The average number of miles traveled by any configuration of fire apparatus is less than 5,000 miles per year⁴. This means that the effect of total miles traveled on state and federal roads by these heavy vehicles is minimal.

Local Departments Know their Roads and Bridges.

Fire apparatus operators are trained to be intimately familiar with the roads and bridges over which they travel. They carry detailed maps of their coverage zone and plan routes from the fire station to each potential emergency scene. Routes are planned that avoid low over-passes and incompatible bridges. NFPA 1901 Standard for Automotive Fire Apparatus requires a placard in every apparatus that lists the vehicle height and weight in feet and tons to emphasize the importance of watching for bridge and overpass limits.



How Can State and Local Highway Authorities Help?

Expedite the Permitting Process

Emergency vehicles traveling through States for the purposes of mutual aid, delivery, refurbishment, or repair may encounter difficulties in the permitting process. Time is money and delays, confusion, or round-about routes ultimately increase the cost of the equipment to first responders. Permitting authorities can help by streamlining the process, saving money for the public and reducing frustration for all involved.

Engage with Local Fire Chiefs

History suggests that emergency vehicle axle weights have not proven to be a hazard to U.S. infrastructure. Even so, there may be times when the needs of the fire administration and the highway regulations may be at odds. Permitting authorities and enforcement officials who engage with their local departments prior to equipment acquisition can help the Department to meet the emergency

⁴ Fire Apparatus Duty Cycle White Paper, Fire Apparatus Manufacturers Association, 2004, p. 6

response needs of the community without causing friction with the highway department.

Support Emergency Vehicle Regulation Initiatives

The majority of States already provide size and weight exemptions for emergency vehicles. States that currently do not provide exemptions should consider modifying State codes and regulations to include an emergency vehicle and fire apparatus exemption, or work with their fire protection community to reconcile current practice with State rules. The IAFC and FAMA offer the recommend implementing one of the two following options:

Option 1 – General Exemption

Definition

Emergency Vehicle: A vehicle designed to be used under emergency conditions to transport personnel and equipment, and to support the suppression of fires and mitigation of other hazardous situations.

Size and Weight

The provisions of this code governing vehicle size and weight do not apply to emergency vehicles.

Option 2 – Specific Exemption

Definition

Emergency Vehicle: A vehicle designed to be used under emergency conditions to transport personnel and equipment, and to support the suppression of fires and mitigation of other hazardous situations.

Weight

An emergency vehicle may exceed otherwise applicable vehicle weight limits up to the following maximums:

- 24,000 pounds on a single steering axle;
- 33,500 pounds on a single drive axle;
- 62,000 pounds on a tandem axle; or
- 52,000 pounds on a tandem rear drive steer axle; and
- a maximum gross vehicle weight of 86,000 lbs.

Size

An emergency vehicle may exceed otherwise applicable vehicle size limits up to the following maximum values:

Width: 102 in. Exclusive of rear view mirrors, turn signal lamps, handholds for cab entry/egress, splash and spray suppressant devices, load induced tire bulge, a fixed step up to 3 inches deep.

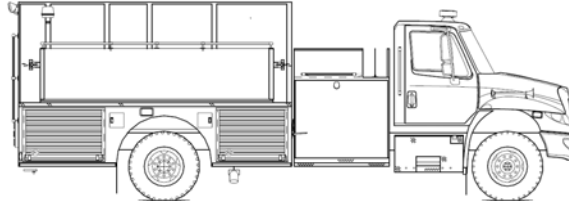
Height: 162 in.

Length: 48 ft. Single Vehicle
 65 ft. Combination Vehicle

Appendix A

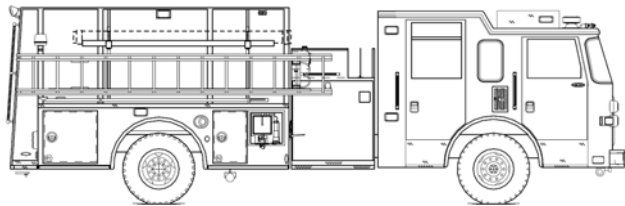
Typical Fire Apparatus Configurations

Commercial Chassis Pumper – Single Rear Axle



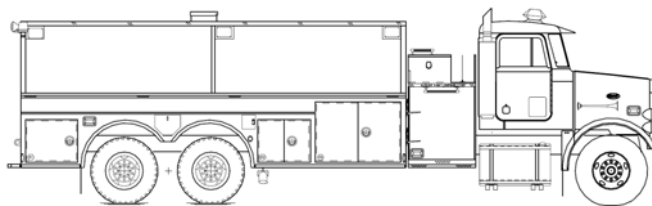
	Min	Max
Front GAWR	12,000	18,000
Rear GAWR	21,000	31,000
Width (in.)	98	100
Height (ft.)	9	12
Length (ft.)	24	35

Custom Chassis Pumper – Single Rear Axle



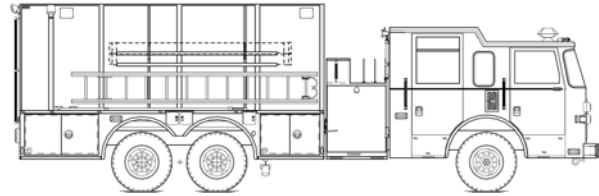
	Min	Max
Front GAWR	18,000	24,000
Rear GAWR	24,000	31,000
Width (in.)	98	100
Height (ft.)	9	12
Length (ft.)	30	34

Commercial Chassis Tanker – Tandem Rear Axle



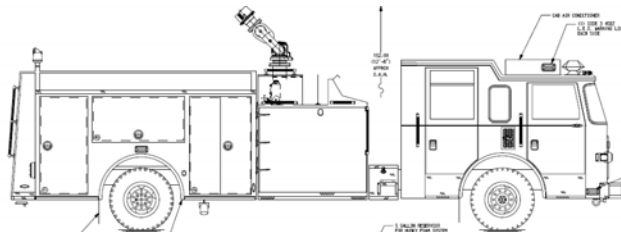
	Min	Max
Front GAWR	12,000	18,000
Rear GAWR	34,000	56,000
Width (in.)	98	100
Height (ft.)	10	12
Length (ft.)	30	40

Custom Chassis Tanker – Tandem Rear Axle



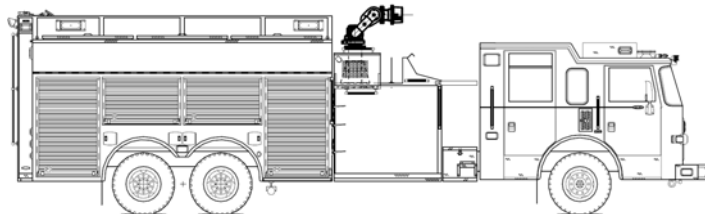
	<u>Min</u>	<u>Max</u>
Front GAWR	18,740	22,800
Rear GAWR	40,000	56,000
Width (in.)	98	100
Height (ft.)	10	12
Length (ft.)	34	40

Industrial Foam Pumper – Single Rear Axle



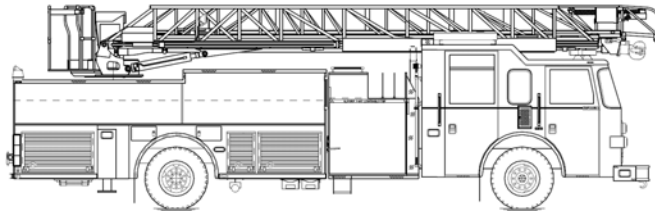
	<u>Min</u>	<u>Max</u>
Front GAWR	20,000	24,000
Rear GAWR	24,000	31,000
Width (in.)	98	100
Height (ft.)	10	12
Length (ft.)	30	36

Industrial Foam Pumper – Tandem Rear Axle



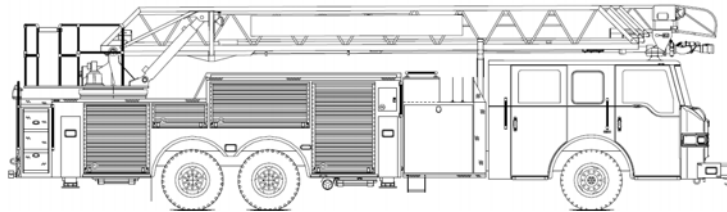
	<u>Min</u>	<u>Max</u>
Front GAWR	20,000	24,000
Rear GAWR	40,000	56,000
Width (in.)	98	100
Height (ft.)	10	12
Length (ft.)	36	40

Aerial Ladder – Single Rear Axle



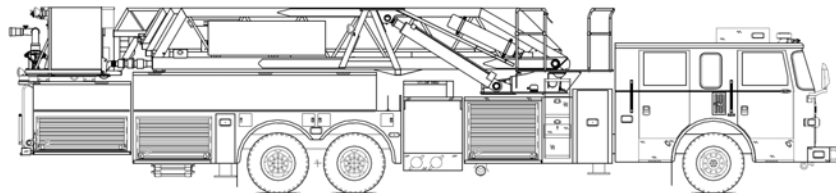
	<u>Min</u>	<u>Max</u>
Front GAWR	20,000	22,800
Rear GAWR	24,000	33,500
Width (in.)	98	100
Height (ft.)	11	12.5
Length (ft.)	36	43

Aerial Ladder – Tandem Rear Axle



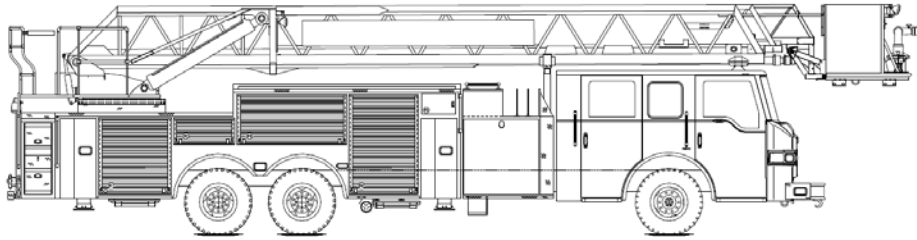
	<u>Min</u>	<u>Max</u>
Front GAWR	20,000	22,800
Rear GAWR	34,000	54,000
Width (in.)	98	100
Height (ft.)	11	12.5
Length (ft.)	39	43

Aerial Platform Mid Mount – Tandem Rear Axle



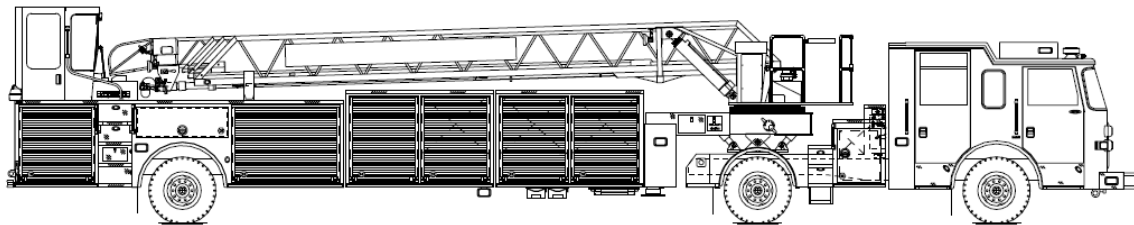
	<u>Min</u>	<u>Max</u>
Front GAWR	21,500	24,000
Rear GAWR	40,000	62,000
Width (in.)	98	100
Height (ft.)	9.5	11.5
Length (ft.)	46	51

Aerial Platform Rear Mount – Tandem Rear Axle



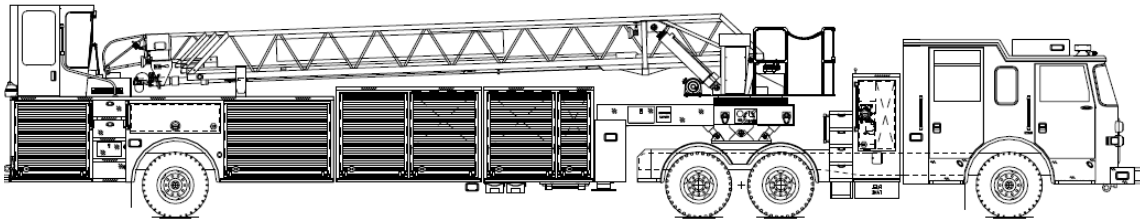
	<u>Min</u>	<u>Max</u>
Front GAWR	21,500	24,000
Rear GAWR	46,000	62,000
Width (in.)	98	100
Height (ft.)	11.5	13
Length (ft.)	46	48

Aerial Ladder – Tiller Single Rear TractorAxle



	<u>Min</u>	<u>Max</u>
Front GAWR	21,500	24,000
Rear GAWR	27,000	31,000
Tiller GAWR	21,500	24,000
Width (in.)	98	100
Height (ft.)	10.5	11.5
Length (ft.)	56	63

Aerial Ladder – Tiller Tractor Tandem Rear Axle



	<u>Min</u>	<u>Max</u>
Front GAWR	21,500	24,000
Rear GAWR	34,000	44,000
Tiller GAWR	21,500	24,000
Width (in.)	98	100
Height (ft.)	10.5	11.5
Length (ft.)	56	63

Appendix B

State Fire Apparatus Size and Weight Regulations

Weight

General Exemption	Specific Emergency Vehicle Regulations	Special Permits Allowed	No Data
Alabama	California	Connecticut	Alaska
Arkansas	New York		Arizona
Colorado	Oregon		District of Columbia
Delaware	Washington		Florida
Illinois			Georgia
Indiana			Hawaii
Iowa			Idaho
Kansas			Massachusetts
Kentucky			Montana
Louisiana			Nebraska
Maine			New Jersey
Maryland			North Carolina
Michigan			North Dakota
Minnesota			Rhode Island
Mississippi			South Carolina
Missouri			South Dakota
Nevada			Tennessee
New Hampshire			Texas
New Mexico			Vermont
Ohio			Virginia
Oklahoma			Wyoming
Pennsylvania			
Utah			
West Virginia			
Wisconsin			
25	4	1	21

Width

Exempt	96 Inches	102 Inches	No Data
Arkansas	Kentucky	Alabama	Alaska
Delaware		Colorado	Arizona
Illinois		Connecticut	California
Indiana		Florida	District of Columbia
Kansas		Georgia	Iowa
Maryland		Hawaii	Nebraska
Michigan		Idaho	South Carolina
Minnesota		Louisiana	
Mississippi		Maine	
Missouri		Massachusetts	
New Mexico		Montana	
Ohio		Nevada	
Oklahoma		New Hampshire	
Pennsylvania		New Jersey	
Utah		New York	
Virginia		North Carolina	
West Virginia		North Dakota	
		Oregon	
		Rhode Island	
		South Dakota	
		Tennessee	
		Texas	
		Vermont	
		Washington	
		Wisconsin	
		Wyoming	
17	1	26	7

Height

Exempt	Less Than 162 in. (13.5 ft)	162 in. (13.5 ft)	168 in. (14 ft)	No Data
Arkansas	Kentucky	Alabama	Hawaii	Alaska
Delaware	Colorado	Connecticut	Idaho	Arizona
Illinois		Florida	Montana	California
Indiana		Georgia	Nevada	District of Columbia
Kansas		Louisiana	North Dakota	Iowa
Maryland		Maine	Oregon	Nebraska
Michigan		Massachusetts	Washington	South Carolina
Minnesota		New Hampshire	Wyoming	
Mississippi		New Jersey		
Missouri		New York		
New Mexico		North Carolina		
Ohio		Rhode Island		
Oklahoma		Tennessee		
Pennsylvania		Texas		
South Dakota		Vermont		
Utah		Wisconsin		
Virginia				
West Virginia				
18	2	16	8	7

Length

Exempt	40 Feet	45 Feet	48 Feet or Greater	No Data
Arkansas	Alabama	Colorado	North Dakota	Alaska
Delaware	Florida	Connecticut	Washington	Arizona
Indiana	Kentucky (26.5 ft)	Hawaii	Montana	California
Maryland	Massachusetts	Idaho	Wyoming	District of Columbia
Michigan	Nevada	Louisiana		Georgia
Minnesota	New Jersey	Maine		Iowa
Mississippi	New York	New Hampshire		Nebraska
New Mexico	North Carolina	South Dakota		South Carolina
Ohio	Oregon	Texas		
Pennsylvania	Rhode Island	Vermont		
Virginia	Tennessee			
West Virginia	Wisconsin			
Illinois				
Kansas				
Missouri				
Oklahoma				
Utah				
17	12	10	4	8