THE UNIVERSITY OF TEXAS AT AUSTIN
CENTER FOR TRANSPORTATION RESEARCH

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Summary: Federal Oversize / Overweight Vehicle Statutes and Guidance

Requested for: Representative Joseph Pickett
Chair – House Committee on Transportation Planning, Select

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Background

The Federal Government has enacted and administers national Commercial Motor Vehicle (CMV) legal size and weight limits as documented in Title 23 United States Code (U.S.C.) 127, U.S.C. Title 49, Section 31115, Title 23 Code of Federal Regulations (CFR) CFR 657 and Title 23 CFR 658. These laws establish nationwide standard conventional truck size and maximum weight limits that facilitate interstate commerce and enforcement requirements. In addition, other Code and Regulations have set maximum size and weight limits for vehicles operating on the Eisenhower Interstate Highway (IH) System.

It is important to understand Federal standard size and weight limits and the purpose of Federally designated highway systems when considering State Oversize/Overweight (OS/OW) permitting practices. This is because there are no Federal Laws specifically establishing nation-wide OS/OW vehicle limits, nor does the Federal government issue OS/OW permits. Regarding vehicles travelling on the Federally funded system, the states enact and enforce laws and issue OS/OW permits in compliance with Federal legal size and weight Code, regulations, definitions, regulatory exemptions and the Federal Bridge Formula (FBF - 1975). Pavement consumption is related to axle and axle group weights. Bridge consumption is a function of both axle / axle group weights and the spacing between axles. The FBF is used to calculate allowable axle and axle group loads for a specified axle spacing to protect overstressing of bridges. Short heavy trucks generally result in higher bridge consumption rates than a long truck of the same weight.

Federally Funded Road System and Networks

The Federally funded roadway system has been organized into different networks to designate routes for specific purposes including the:

1. National Truck Network 1982;
2. National Highway system (NHS) 1991;
3. National Highway Freight Network (NHFN) 2015;

The National (Truck) Network (referred to in literature as the NN or NTN)

Federal Code and rules apply to the Interstate Highway System and other Federal Aid System routes that comprise the NTN which was created in 1982 by the Surface Transportation Assistance Act (STAA). The NTN was developed to establish national limits on truck size and weight to facilitate interstate commerce. The NTN differs in extent and purpose from the NHS, which was created more than a decade later by the National Highway System Designation Act of 1995. The NTN and NHS also differ from the National Highway Freight Network (NHFN) which was created by the Fixing America's Surface Transportation (FAST) Act of December 4, 2015. [TS&W 1995] [CT&SW 2015]

The NTN and NHS networks both comprise about 200,000 miles of roadway, but the NTN includes approximately 65,000 miles of highways beyond the NHS, and the NHS includes about 50,000 miles of highways that are not on the NTN. The NTN supports interstate commerce by regulating the size and weight of trucks, while the NHS supports interstate commerce by focusing federal investments. The NHFN focuses Federal policy and resources to improve performance of the U.S. freight transportation network. [FHWA 2016]

STAA baseline combinations include a truck tractor coupled with one semitrailer up to 48 feet in length or a tractor coupled with a 28-foot semitrailer and 28-foot trailer combination (STAA Double) (E.1), with truck widths up to 102 inches. Every state must permit operation of these baseline configurations on designated portions of the NTN.

E.1 STAA Double truck tractor and one 28-1/2' semitrailer and one 28-1/2' trailer*

(*note: An STAA Double is not a type of Longer Combination Vehicle (LCV)

Interstate Highway System legal size and weight limits

However, 48-feet is no longer the maximum length of a single trailer. Twenty-five states (including Texas) allow single 53-foot trailers without special permits and an additional 3 states permit 53-foot trailers subject to further limits. Texas allows up to 59-foot semi-trailers to operate based on 'grandfathered' state laws though 53-foot trailers are by far the most common. In addition, STAA established maximum truck weight limits for the Interstate Highway System.

- Gross Vehicle Weight: 80,000 lbs (maximum allowable weight of the truck and cargo)
- Single axle weight: 20,000 lbs
- Tandem axle weight: 34,000 lbs (2 closely spaced axles that act as an axle group)

It is important to note that though Texas and other states are required to permit and enforce the Federal maximum truck size and weights on the Interstate Highway System, not every state has adopted the Federal maximum allowable truck size and weights on other portions of their highway networks. Other states enforce lower and higher maximum weight limits on non-Interstate portions of their state highway systems.

Texas enforces Federal allowable size and weight limits on both the Federal and State funded highway systems. However, in response to the 1956 Federal increase in the truck Gross Vehicle Weight limit to 73,280 lbs, approximately 17,000 miles of Texas FM roads were load-posted at 58,420 lb GVW on October 21, 1959 [MO 46593]. This load limit was the legal maximum GVW in Texas from 1951 to 1959 [Texas SB 57] [THD 1953] Approximately 16,400 miles of FM roads, about 20% of the Texas system, remain load posted at this limit. The 1946 FBF, which differs from the 1975 FBF, was used to compute the Texas maximum 58,420 lb GVW limit based on a 37-foot truck outer bridge length (distance from the center of the steering axle to the rear most axle on the trailer).

The Federal Bridge Formula further establishes weight limits for closely spaced axle groups and axle spacing.

- Tridem axle weight: 42,000 lbs (3 closely spaced axles that act as an axle group)
- Quad axle weight: 50,000 lbs (4 closely spaced axles that act as an axle group)

- Minimum outer bridge spacing: 51'-0" for a 5-axle 80,000 lb tractor semi-trailer

- Minimum inner Bridge spacing***: 36'-0" between 2 tandem axle sets not more than 68,000 lbs **(U.S.C. 127 (2))

Texas Administrative Code (TAC) 621.11 4(b) incorporates the FBF exemption provided in U.S.C. 127 (2). In addition, though Texas has adopted the Federal Bridge Formula, Texas State law enacted by SB 89 March 18, 1975, sections (3) and (4) states:

> (3) 'Nothing in this section shall be construed as permitting size or weight limits on the national system of interstate and defense highways in this state in excess of those permitted under 23 USC 127.
>
> (4) Nothing in this section shall be construed to deny the operation of any vehicle or combination of vehicles that could be lawfully operated upon the highways and roads of this state as of December 16, 1974.

The Texas State Permissible Weight Table is given at the following website:

http://www.txdmv.gov/component/k2/item/2123-permissible-weight-table

A footnote to the Table indicates that a portion of the permissible weight table comes from (Vernon Civil Statutes) rather than calculations based on FBF 75:

"*These figures were carried forward from Article 6701d-11, Section 5(a)(4) when Senate Bill 89 of the 64th Texas Legislature amended it on December 16, 1974. The amendment provided that axle configurations and weights that were lawful as of that date would continue to be legal under the increased weight limits."

The portion of the permissible weight table that is from Texas State Law rather than FBF 75 can be found in the amendment to Motor Vehicles – Weight Limits, Chapter 94 S.B. No 11 [SLRL 2016]. In addition, the 1960 Amendment to the 1948 Vernon Civil Statutes contains the original amended permissible weight table in Article 827a, Sec. 5 Weight of Load. [VCS 1960]. This amendment increased the State maximum GVW from 58,420 lbs to a maximum of 72,000 lbs.

These allowable loads and spacings guide Texas Department of Motor Vehicles (TxDMV) Motor Carrier Division (MCD) when considering permit weight and spacing requirements and by the Texas Department of Public Safety (DPS) during truck size and weight enforcement activities.

The National Highway System (NHS)

The NHS has been expanded since its original creation and now comprises a system of 223,668 miles of roadway (18,722 miles in Texas) important to the nation's economy, defense and mobility. Key NHS routes were initially designated in the Intermodal Surface Transportation Efficiency Act (ISTEA) of 1991 and finalized by the National Highway System Act of 1995 [NHS 1995]. The NHS comprises these facilities:

1) Eisenhower Interstate Highway System;
2) other principal urban and rural arterials that provide access to major ports, airports, public transportation and other intermodal facilities;
3) the Strategic Highway Network (STRAHNET) which are highways important to the Nation's Defense; and
4) Intermodal Connectors that provide highway access to rail and other intermodal facilities.

Texas has passed state statutes and exemptions and/or issues permits that allow OS/OW vehicles to operate on the non-Interstate portion of the NHS. A listing of statutes, exemptions and permit types can be found at the following websites:

TxDMV – OS/OW permits
http://www.txdmv.gov/motor-carriers/oversize-overweight-permits

FHWA – Summary of Texas State Exemptions that Exceed Federal Limits
http://ops.fhwa.dot.gov/FREIGHT/policy/rpt_congress/truck_sw_laws/app_a.htm#tx

The National Highway Freight Network (NHFN)

The NHFN focusses planning and funding on freight routes critical to the nation's economy and is composed of four networks;

1. Primary Highway Freight Network (PHFN) – Deemed the most critical in terms of national freight movement, this network comprises 41,518 centerline miles (37,436 IH and 4,082 non-IH routes) (3,727.7 Texas center line mile).

2. Other Interstate Highway portions not part of the PHFN – though not considered as critical to freight movement as PHFN routes, these remaining portions of the Interstate provide freight access and connectivity and comprise 9,511 miles. (95.01 Texas centerline miles)
3. Critical Rural Freight Routes – (CRFC) rural public routes that provide connectivity and access to the Interstate, ports, public transportation and other intermodal facilities (Texas mileage limit: 745.55 miles) [FAST Act 2016]
4. Critical Urban Freight Routes – (CUFC) urban public routes that provide connectivity and access to the Interstate, ports, public transportation and other intermodal facilities. (Texas mileage limit: 372.78 miles) [FAST Act 2016]

The States and some Metropolitan Planning Organizations designate CRFC (limited to 150 miles or 20% of that state's PHFN) and CUFC routes (limited to 75 miles or 10% of that state's PHFN)

Federal Oversight of State Size and Weight Enforcement

Federal Legislation and policy governing the size and weight and safe operation of vehicles are administered by the Federal Highway Administration (FHWA) and the Federal Motor Carrier Safety Administration (FMCSA).

The FHWA requires each state to certify that it is enforcing its truck size and weight laws and that the state is complying with the regulatory freeze established by ISTEA in June 21, 1991 (known as the 'ISTEA Freeze'). The Freeze restricted future use of Longer Combination Vehicles (LCVs) by states that did not already allow LCV operations prior to this date. State laws pertaining to vehicle size and weight in place before the ISTEA Freeze were 'grandfathered', permitting continued operation of LCVs, which incorporate specific OS/OW vehicle configurations. However, states that did not have these statutes prior to June, 1991 are not permitted to operate LCVs on the Federally funded system; this restriction includes Texas. Other laws governing OS/OW vehicle operations vary by states based on additional 'grandfathered' state statutes included in Federal law as exemptions.

Failure to certify or enforce truck size and weights on highways that were designated Federal-aid Primary, Federal-aid Secondary, or Federal-aid Urban systems prior to October 1, 1991 will result in sanctions including a 10% reduction in NHS funding for the next fiscal year. Failure to enforce IH System size and weight laws may lead to sanctions including a 100% reduction in NHS funding for the next fiscal year. If state laws are found

to be inconsistent with Federal Regulations, sanctions may include a federal suit in court for injunctions. [23 CFR 657.21 and 49 U.S.C. 31116] [FHWA 2016]

Federal Exemptions to legal size and weight

Pre-existing state laws

Federal law also provides truck size or weight exemptions applicable to specific U.S. states, to specific highway routes, or to particular types of vehicles or cargo. In part, these exemptions are based on state truck size and weight laws that existed prior to national implementation of lower size or weight limits by the Federal Government. In certain cases, higher state size and weight limits that existed prior to lower national limits are 'grandfathered' by the Federal Government, meaning that a state may continue to operate trucks under these pre-existing laws. This will be discussed in more detail in a later section.

Divisible and Non-Divisible Loads

In addition, exemptions to legal size and weight laws are based on the Federal, general definition of a 'divisible' or 'non-divisible' load and the application of these definitions to specific types of cargo or truck configurations. These Federal exemptions allow OS/OW trucks to operate on the Federal System contingent on state laws and state permitting processes based on these exemptions.

Definition: Divisible Load

1. A state cannot issue an OS/OW permit for a divisible load travelling on a federally funded route **(IH).** A divisible load is one that can be easily dismantled into smaller weight or size components (such as gravel or fuel); however, certain Federal exemptions to this definition apply as will be discussed.

Definition: non-Divisible Load

2. A state may issue an OS/OW permit for a non-divisible load for travel on a federally funded route. Depending on the OS/OW vehicle size / weight the state permitting agency will route the vehicle along specific highways to minimize consumption of or safety risks to bridges and pavements. A non-divisible load is defined as a load that would be damaged by dismantling or would require 8 or more hours dismantle (such as a bull dozer).

States may issue OS/OW permits for non-divisible loads without regard to Federal GVW, axle weight, axle group weights, axle spacing or the Federal Bridge Formula. TxDMV, TxDOT and DPS work together to route non-divisible loads to ensure the safety of the public and to protect Texas infrastructure assets. In addition, TxDPS enforces state laws through truck size, weight, maintenance, registration and permitting inspections.

Federal Exemptions for specific routes or types of cargo

The Federal Government has also defined the following types of trucks or cargo as a 'non-divisible load' or has enacted exemptions to allow operation of OS/OW vehicles on Federally Funded Routes based on pre-existing state laws and established permitting processes:

a. The FHWA has defined an OS/OW Ocean Container, moving in international commerce with a U.S. Customs Seal as a 'non-divisible' load. This is an interpretation of the definition and is not contained in Code or Federal Regulations. The FHWA further clarified that states are not required to consider sealed ocean containers as a non-divisible load.

   http://ops.fhwa.dot.gov/freight/sw/faqs/qa.cfm?category=9

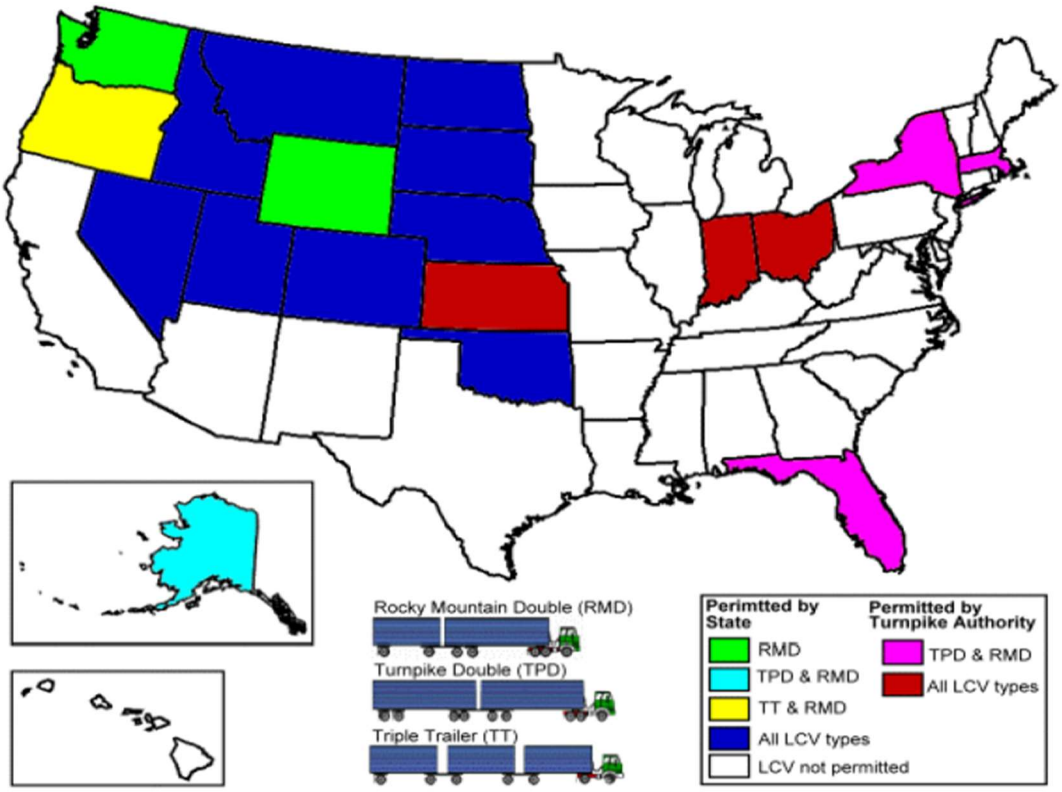
   Over forty states and local governments have passed statutes that permit operation of OS/OW ocean containers on selected corridors including the IH and NHS system in some states. The OS/OW Ocean Container vehicle axle, axle group and GVW limits vary from state to state.

b. The FAST Act provided an exemption to 23 U.S.C. 127(n) that grandfathered vehicles that could legally operate in Texas on US 59, US 77, US 281, US 84, SH 44 and other segments now designated IH 69.

c. The FAST Act amended U.S.C. 127 and has defined a vehicle carrying liquid milk as a non-divisible load. Thus, states may pass statutes and issue OS/OW permits for vehicles above 80,000 lb GVW that are transporting milk.

d. Heavy Duty Wreckers may operate above size and weight limits during recovery of a disabled vehicle.

e. An LCV may continue to operate only if the configuration type was authorized by state statute or regulation and was in actual operation on or before June 1, 1991 (the effective date of the ISTEA Freeze) E.2 maps the states allowed to operate LCVs on a grandfathered basis. Examples are shown in E.3 – E.6) of vehicles that can operate on Federally funded routes if state statutes permitted operation of vehicles prior to the 'ISTEA Freeze'. [Walton et al 2010a] [Walton et al 2010b]



E.2 States permitted to operate LCVs based on 'grandfathered' state laws

E.3 Rocky Mountain Double – truck tractor with one long and one shorter trailer

E.4 Turnpike Double – truck tractor with two long trailers

E.5 Turnpike Triple – truck tractor with three 28-1/2’ trailers

E.6 Michigan ‘Caterpillar Rig’ tractor with two trailers – 11 axles

LCV OS/OW permitted lengths and weights vary from state to state.

Additional exemptions regarding trucks size and weights on the IH or NHS routes include the following:

f. Trucks operating on the IH System may not exceed an overall gross weight of 80,000 pounds, including all enforcement tolerances, except for vehicles using Interstate Route 29 between Sioux City, Iowa, and the border between Iowa and South Dakota or vehicles using Interstate Route 129 between Sioux City, Iowa, and the border between Iowa and Nebraska.

g. With respect to the State of Colorado, vehicles designed to carry two or more precast concrete panels shall be considered a nondivisible load.

h. With respect to the State of Michigan, laws or regulations in effect on May 1, 1982, shall be applicable for the purposes of §127 Vehicle Weight Limits – Interstate System, subsection (7).

i. With respect to the State of Maryland, laws and regulations in effect on June 1, 1993, shall be applicable for the purposes of §127 Vehicle Weight Limits – Interstate System, subsection (8).

j. The State of Louisiana may allow, by special permit, the operation of vehicles with a GVW of up to 100,000 pounds for the hauling of sugarcane during the harvest season, not to exceed 100 days annually.

k. With respect to Interstate Routes 89, 93, and 95 in the State of New Hampshire, State laws (including regulations) concerning vehicle weight limitations that were in effect on January 1, 1987, and are applicable to State highways other than the Interstate System, shall be applicable in lieu of §127 Vehicle Weight Limits – Interstate System, subsection (10).

l. With respect to all portions of the IH System in the State of Maine and Vermont, laws (including regulations) of those States concerning vehicle weight limitations applicable to other State highways shall be applicable in lieu of the requirements under §127 Vehicle Weight Limits – Interstate System, subsections (11A and 11B) through December 31, 2031.

m. Subject to §127 Vehicle Weight Limits – Interstate System - subparagraphs (B) and (C), in order to promote reduction of fuel use and emissions because

of engine idling, the maximum gross vehicle weight limit and the axle weight limit for any heavy-duty vehicle equipped with an idle reduction technology shall be increased by a quantity necessary to compensate for the additional weight of the idle reduction system. The weight increase under subparagraph (A) shall be not greater than 550 pounds.

n. *Operation of Certain Specialized Hauling Vehicles on Interstate Route 68* - Maryland.

The single axle, tandem axle, and bridge formula limits shall not apply to the operation on Interstate Route 68 in Garrett and Allegany Counties, Maryland, of any specialized vehicle equipped with a steering axle and a tridem axle and used for hauling coal, logs, and pulpwood if such vehicle is of a type of vehicle as was operating in such counties on United States Route 40 or 48 for such purpose on August 1, 1991.

o. Operation of Certain Specialized Hauling Vehicles on Certain Highways in Wisconsin.

If the 104-mile portion of Wisconsin State Route 78 and United States Route 51 between Interstate Route 94 near Portage, Wisconsin, and Wisconsin State Route 29 south of Wausau, Wisconsin, is designated as part of the Interstate System under section 103(c)(4)(A), the standard single axle weight, tandem axle weight, gross vehicle weight, and bridge formula limits set forth in §127 Vehicle Weight Limits – Interstate System, subsection (a) shall not apply to the 104-mile portion with respect to the operation of any vehicle that could legally operate on the 104-mile portion before the date of the enactment of this subsection.

p. Operation of Certain Specialized Hauling Vehicles on Certain Highways in Wisconsin.

If the segment of United States Route 220 between Bedford and Bald Eagle, Pennsylvania, is designated as part of the Interstate System, the single axle weight, tandem axle weight, gross vehicle weight, and bridge formula limits set forth in §127 Vehicle Weight Limits – Interstate System, subsection (a) shall not apply to that segment with respect to the operation of any vehicle which could have legally operated on that segment before the date of the enactment of this subsection.

Texas OS/OW Truck Corridors

In addition to TxDMV-MCD OS/OW permits State Legislation has authorized development of OS/OW corridor by Ports, Regional Mobility Authorities (RMAs), Cit(ies) and Count(ies). Through Texas Transportation Code (TTC) Subchapter K 'Port Authority Permits' Section 623.210 and TAC code Title 43, Part 1, Chapter 28, Subchapters A – F, H. that specify the rules associated with these corridors, the Texas Department of Transportation (TxDOT) negotiates and manages contracts with these local government entities for management of OS/OW corridors serving coastal and inland ports or border ports-of-entry with Mexico.

These OS/OW corridors may comprise state and local roads and enable the managing Port, RMA, City or County to issue OS/OW permits to that encourage local, state, national and international commerce. The final approved routes that comprise these corridors or corridor networks are based on TxDOT field investigations and testing to ensure the safety of the public and protection of transportation assets. The approved routes are designated in contracts negotiated between the Port, RMA, City or County based on approval by the Texas Transportation Commission. The following OS/OW Corridors have been established and are currently (active) or (inactive) as noted:

1. **Port of Brownsville** – (active) TAC Title 43, Part 1, CH 28, Subchapter C
    a. Routes designated, portions of US 77, US 83, SH 48/SH 4, FM 509, FM 511, SH 550, and East Loop (SH 32 – under development)
    b. OS/OW permitted trucks up to 125,000 lbs GVW
    c. Permitted loaded dimensions, 12-feet wide, 15-feet 6-inches high, 110-feet long
    d. Permitted axle and axle group weights exceed legal limits

2. **Chambers County** – (inactive) TAC Title 43, Part 1, CH 28, Subchapter D
    a. Routes have not designated and no permit sales
    b. OS/OW permitted trucks up to 100,000 lbs GVW
    c. Permitted loaded dimensions, 12-feet wide, 16-feet high, 110-feet long
    d. Permitted axle and axle group weights exceed legal limits

3. **Victoria Navigation District** – (inactive) TAC Title 43, Part 1, CH 28, Subchapter E
    a. Routes not designated
    b. OS/OW permitted trucks up to 140,000 lbs GVW

c. Permitted loaded dimensions, 12-feet wide, 16-feet high, 110-feet long

4. **Port of Freeport** – (active) TAC Title 43, Part 1, CH 28, Subchapter F
   a. Routes designated, FM 523, FM 1495, SH 288, SH 36, SH 32
   b. OS/OW permitted trucks up to 125,000 lbs GVW
   c. Permitted loaded dimensions, 12-feet wide, 16-feet high, 110-feet long
   d. Permitted axle and axle group weights exceed legal limits
   e. a few hundred permits have been issued to date

5. **Hidalgo County Regional Mobility Authority (RMA)** – (active) TAC Title 43, Part 1, CH 28, Subchapter H
   a. Routes designated, portions of US 281, FM 1015, FM 2557, FM 3027
   b. Permit sales began July, 2015 and reached approximately 14,000 during the first calendar year. Current year's sales will surpass this number.
   c. OS/OW permitted trucks up to 125,000 lbs GVW
   d. Permitted loaded dimensions, 12-feet wide, 16-feet high, 110-feet long
   e. Permitted axle and axle group weights exceed legal limits

6. **Webb County – City of Laredo** – (inactive) Development authorized by HB 2861
   a. Routes designated, portions of FM 1472 and other routes under development
   b. OS/OW permitted trucks up to 125,000 lbs GVW

7. **Port of Corpus Christi** – (inactive) Development authorized by SB 1059
   a. Routes, portions of US 181, SH 35, SH 361, proposed SH 200
   b. OS/OW permitted trucks up to 125,000 lbs GVW

Summary

TxDMV issues over 800,000 OS/OW divisible and non-divisible load permits annually through the Texas Permitting and Routing Optimization System (TxPROS). TxPROS is considered by many to be a 'best in class' OS/OW permit management system. Approximately 50,000 additional OS/OW permits are issued by local authorities for OS/OW corridors at ports and border ports of entry.

Texas has worked with the Western Association of State Highway and Transportation Officials (WASHTO) to develop uniform OS/OW permitting practices among member states. For the remainder of the U.S., variations in state truck size and weight laws can make interstate movement of OS/OW loads complex and time consuming.

Federal truck size and weight laws and regulations provide national uniformity on the majority of the IH System. Federal exemptions that allow certain states to operate heavier / larger trucks based on historical state laws. However, lack of national uniformity may limit productivity and efficiency in truck freight movements from state to state and with our NAFTA partners; Mexico and Canada. Both Mexico and Canada permit operation of LCVs and heavier, larger vehicles than Texas allows which limits Texas options in terms of allowable configurations and weight limits.

References

1) **Comprehensive Truck Size and Weight Study: Summary Report for Phase I 'Synthesis of Truck Size and Weight (TS&W) Studies and Issues';** Federal Highway Administration, August 1995; available at the following website 9/19/2016 https://www.fhwa.dot.gov/policy/otps/truck/

2) **Compilation of Existing State Truck Size & Weight Laws: Report to Congress;** Federal Highway Administration, May, 2015; available at the following website 9/19/2016 http://ops.fhwa.dot.gov/FREIGHT/policy/rpt_congress/truck_sw_laws/index.htm

3) **Texas Administrative Code:** available at the following website 9/19/2016 http://texreg.sos.state.tx.us/public/readtac$ext.viewtac

4) **Texas Transportation Code:** available at the following website 9/19/2016 http://www.statutes.legis.state.tx.us/?link=TN

5) **Title 23 United States Code (U.S.C. 127);** available at the following website 9/19/2016 https://www.gpo.gov/fdsys/pkg/USCODE-2011-title23/html/USCODE-2011-title23.htm

6) **Title 23 Code of Federal Regulations 657 'Certification of Size and Weight Enforcement':** available at the following website 9/19/2016 https://www.gpo.gov/fdsys/browse/collectionCfr.action?collectionCode=CFR&searchPath=Title+23%2FChapter+I%2FSubchapter+G%2FPart+657&oldPath=Title+23%2FChapter+I%2FSubchapter+G&isCollapsed=true&selectedYearFrom=2016&ycord=1296.5714285714287

7) **Title 23 Code of Federal Regulations 658 'Truck Size and Weight, Route Designations, Length, Width and Weight Limitations';** available at the following website 9/19/2016 https://www.gpo.gov/fdsys/browse/collectionCfr.action?collectionCode=CFR&searchPath=Title+23%2FChapter+I%2FSubchapter+G%2FPart+658&oldPath=Title+23%2FChapter+I%2FSubchapter+G%2FPart+657&isCollapsed=true&selectedYearFrom=2016&ycord=1296.5714285714287

8) **Wheel Loads on Texas Highways 1953;** Texas Highway Department; available at the following website 9/19/2016 http://library.ctr.utexas.edu/digitized/texasarchive/phase3/1953-ms_8173.pdf

9) **Legislative Reference Library of Texas: Archived Text of S.B. 57;** available at the following website 9/19/2016 http://www.lrl.state.tx.us/legis/billsearch/BillDetails.cfm?legSession=52-0&billTypeDetail=SB&billnumberDetail=57&submitbutton=Search+by+bill

10) **Legislative Reference Library of Texas: Archived Text of 'Motor Vehicles – Weight Laws, Chapter 94, S.B. 11';** available at the following website 9/19/2016 http://www.lrl.state.tx.us/scanned/sessionLaws/56-0/SB_11_CH_94.pdf

11) **1960 Supplement to Vernon's Civil Statutes 1948; Article 827a, sec. 5 Weight of Load, pp 810 - 811;** available at the following website 9/19/2016 https://www.sll.texas.gov/assets/pdf/historical-statutes/1960/1960-supplement-to-1948-vernons-texas-statutes.pdf

12) **Federal Highway Administration – Freight Management and Operations – The National Highway Freight Network;** available at the following website 9/19/2016 http://ops.fhwa.dot.gov/freight/infrastructure/nfn/index.htm

13) **Federal Highway Administration – Freight Management and Operations – The National Network;** available at the following website 9/19/2016 http://ops.fhwa.dot.gov/freight/infrastructure/national_network.htm

14) **Federal Highway Administration – The National Highway System;** available at the following website 9/19/2016 http://www.fhwa.dot.gov/planning/national_highway_system/

15) **Federal Highway Administration – The National Highway System Act of 1995;** available at the following website 9/19/2016 https://www.fhwa.dot.gov/legsregs/nhsdatoc.html

16) **U.S. Government Publishing Office, U.S.C. Title 49 Subchapter II, Section 31115 'Enforcement';** available at the following website 9/19/2016 https://www.gpo.gov/fdsys/pkg/USCODE-2007-title49/pdf/USCODE-2007-title49-subtitleVI-partB-chap311-subchapII-sec31115.pdf

17) **Federal Highway Administration – Freight Management and Operations – Questions and Answers ';** available at the following website 9/19/2016

http://ops.fhwa.dot.gov/freight/sw/faqs/qa.cfm

18) **FAST Act Section 1116 National Highway Freight Program (NHFP) Guidance**: Designating and Certifying Critical Rural Freight Corridors and Critical Urban Freight Corridors (Questions and Answers); April 26, 2016 updated, May 23, 2016; available at the following website 9/19/2016 http://www.ops.fhwa.dot.gov/fastact/crfc/sec_1116_gdnce.pdf

19) **Longer Combination Vehicles & Road Trains for Texas?;** TxDOT research Project 0-6095, August 18, 2010a, Workshop Presentation. available at the following website 9/19/2016 http://ctr.utexas.edu/wp-content/uploads/pubs/0_6095_2_Presentations.pdf

20) Walton, C.M., Prozzi, Jolanda, Crus-Ross, Alejandra, Kockleman, Kara, Conway, Alison, Evans, Daniel, Harrison, Robert, **Potential Use of Longer Combination Vehicles in Texas: First Year Report;** FHWA/TXX-10/0-6095-1, May, 2010b. available at the following website 9/19/2016 http://ctr.utexas.edu/wp-content/uploads/pubs/0_6095_1.pdf