

Introduction to Load Zoning

Overview for Load Zoning	2
Changing Load Zones for Roads on the State System	3
Emergency Load Zones for Roads on the State System.....	5
Changing Load Zones on County Roads and Bridges.....	6

Overview

Background

There are more than 16,600 miles of load-restricted highways in Texas. These facilities were generally constructed prior to the late 1950s, and were designed for lighter wheel loads and axle configurations than are currently allowed by law.

Department of Transportation Approval

In an effort to protect facilities that were originally designed for lighter wheel loads from accelerated deterioration, a provision exists in the state law (HB3309, Texas Transportation Code, §621.102). The law authorizes the Department of Transportation to set load limits. The Department must accomplish all actions to revise, post, or remove postings from restricted facilities. The Materials and Pavements Section (CST/M&P) is responsible for preparing and submitting to the Chief Engineer, proposed changes involving on-system road load zoning, while Bridge Division has the same responsibility for on-system bridge load zoning.

What is Included in This Introduction?

This introduction discusses the following:

Changing Load Zones for Roads on the State System

Emergency Load Zones for Roads on the State System

Changing Load Zones on County Roads and Bridges.

Changing Load Zones for Roads on the State System

Adding

New restrictions may be required for a number of reasons. Highways undergo periodic evaluations and, during the course of these evaluations, highways may be discovered to be structurally deficient. If the deficiency is severe enough to cause potential for accident or injury, then an emergency posting of restrictions under Minute Order 51070 or 84587 may be required. These Minute Orders authorize temporary load posting up to 60 or 120 days, respectively. In addition, if repairs or upgrades are not anticipated for more than 120 days, restrictions must be authorized and promulgated by a subsequent "permanent" load zoning procedure. See 'Emergency Load Zones on Roads' for more information on emergency postings.

Refer to the step-by-step instructions in the 'Changing Load Zones for Roads on the State System' table for adding a load zone.

Removing

Removing a load zone may be requested if rehabilitation or reconstruction has been performed or the load-zoned roadway can carry the traffic until the next scheduled rehabilitation without premature failure. If the highway was upgraded by using an approved design process that accounts for future projected traffic, then no further analysis is necessary and recommendation for removal of restrictions should be made, for the Chief Engineer's approval. However, if an upgrade was accomplished by means of a maintenance effort (or 2R program), then the district must perform a deflection survey of the upgraded highway using the *load zone* setup on the Falling Weight Deflectometer (FWD).

Refer to the step-by-step instructions in the 'Changing Load Zones for Roads on the State System' table for removing a load zone.

Changing Load Zones

The following table lists the steps, responsible party, and required action for changing load zones on roads.

Changing Load Zones for Roads on the State System		
Step	Responsible Party	Required Action
1	District	<ul style="list-style-type: none"> ◆ Complete the "<u>Recommended Change in Road Load Zoning</u>" form 1084R. ◆ Attach available photos of existing pavement, pavement deflection and design data, subgrade soil lab test reports, or other pertinent information such as a copy of the pavement design report. ◆ Collect pavement structural data using the <i>load zone</i> setup in the Falling Weight Deflectometer (FWD) if pavement design report does not exist. ◆ Submit to Construction Division, Materials and Pavements Section (CST/M&P).
2	CST/M&P	Analyze data, determine allowable wheel load capacity, and make recommendation to district.
3	District	Make decision on load requirements based on recommendation from CST/M&P.
4	CST/M&P	<ul style="list-style-type: none"> ◆ Prepare memorandum for Chief Engineer approval. ◆ Notify, by memorandum, affected district upon approval of load zone revision.
5	Department of Motor Vehicle (DMV)	<ul style="list-style-type: none"> ◆ Update Permit Maps. ◆ Notify District Permit Coordinator upon completion of changes. ◆ Distributes the change in the load zone status to DMV Permit Officers and to Remote Permit System (RPS) customers
	District	Erect or remove signs consistent with the proper load limits once approval has been received.

Emergency Load Zones for Roads on the State System

Setting Emergency Load Zones for Roads on the State System

The district shall notify the Construction Division, Materials and Pavements Section (CST/M&P), by telephone, e-mail, or fax, that an emergency load restriction is required. The following table lists the steps, responsible party, and required action for establishing emergency load zones on roads.

Emergency Load Zones for Roads on the State System		
Step	Responsible Party	Required Action
1	District	<ul style="list-style-type: none"> ◆ Provide a map showing location of road and alternate routes for legally loaded vehicles to use. ◆ Recommend gross load or axle load limits. ◆ Document deficiencies justifying the placement of emergency load limits. ◆ Submit a request for a 60-day extension of the emergency load restriction if <i>the load restriction is needed for more than 60 days</i>. ◆ Request a permanent load restriction by memorandum and submittal of the "<u>Recommended Change in Road Load Zoning</u>" form prior to the expiration of the emergency load restriction, if necessary.
2	CST/M&P	<ul style="list-style-type: none"> ◆ Evaluate information received from district. ◆ Prepare letter for the director of the Construction Division authorizing the emergency load restriction for 60 days (director can also authorize 60-day extension of emergency load zone restriction, if necessary). ◆ Notify district and DMV of approval.
3	Department of Motor Vehicle (DMV)	<ul style="list-style-type: none"> ◆ Update Permit Maps. ◆ Notify District Permit Coordinator upon completion of changes. ◆ Distributes the change in the load zone status to DMV Permit Officers and to Remote Permit System (RPS) customers.
	District	<ul style="list-style-type: none"> ◆ Erect signs indicating the emergency load limits once approval from the director of the Construction Division has been received.

Changing Load Zones on County Roads and Bridges

Law Ruling

In 2001, Texas Senate Bill 220 amended the Texas Transportation Code (§621.301) requiring counties to obtain TxDOT concurrence for proposed county road and bridge load limits. Counties will petition TxDOT for concurrence with a load limit by submitting a request to the district engineer. The county’s request must include an engineer’s evaluation of the proposed change along with supporting documentation.

The procedure outlined in this section will help expedite review of county requests that involve emergency or other temporary situations that pose a risk to the public or potential damage to a road or bridge. The department is not responsible for monitoring county compliance with this amendment of the Transportation Code.

Coordination Between County and District

Each district will be responsible for communicating the requirements of the statute and providing information to the counties. The following table lists the steps that the district should take when a county submits a proposed change in load limits to the district engineer.

Changing Load Zones on County Roads and Bridges

Step	Required Action
1	Determine if TxDOT concurrence is necessary. <ul style="list-style-type: none"> ◆ A county must always obtain TxDOT concurrence for a proposed change in: <ul style="list-style-type: none"> • road load limits, or for a proposed road load limit on a county road built on a new location, if the proposed load limit is less than the legal load limit permissible under the Texas Transportation Code. • bridge load limits not supported by TxDOT inspections.
2	Check the completeness of the request. <ul style="list-style-type: none"> ◆ If TxDOT concurrence is required for the proposed change, the request must include the information and supporting documentation listed in 'Required Information and Supporting Documentation.'
3	Evaluate the request. <ul style="list-style-type: none"> ◆ If the district does not have the resources or expertise to perform the review, contact the Construction Division for roads and Bridge Division for bridges to assist in evaluating the proposed change.
4	Provide written concurrence to the county. <ul style="list-style-type: none"> ◆ If the submitted documentation and calculations accord with accepted engineering principles and practice, the district engineer should provide written concurrence to the county within 30 calendar days of receiving the complete request, including all supporting documentation. ◆ If the district engineer does not respond within 30 calendar days, the county may consider the proposed limit to have TxDOT concurrence.
5	Provide appropriate district office as indicated below with copies of concurrence correspondence. <ul style="list-style-type: none"> ◆ If concurrence is given for changes in: <ul style="list-style-type: none"> • road load limits, provide the district pavement engineer with a copy of the county request, supporting documentation, and district concurrence letter for record purposes. • bridge load limits, provide the district bridge inspection office with the new load ratings and a copy of the documentation for updating the database.

6	Provide written notification withdrawing concurrence. <ul style="list-style-type: none"> ◆ The district engineer may review a changed load limit and withdraw concurrence at any time by providing written notification to the county.
7	Review request for appeal. <ul style="list-style-type: none"> ◆ The county may appeal a decision of the district engineer by submitting a written request along with the required documentation to the executive director of TxDOT. ◆ The executive director will review the request to determine if department concurrence will be granted. ◆ The executive director's decision is final.

Required Information and Supporting Documentation

The following table lists the required information and documentation that must be included in the request for changing load limits on county roads and bridges.

Required Information and Supporting Documentation

Roads	Bridges
<ul style="list-style-type: none"> ◆ Name, phone number, email address for a county contact person. ◆ Route name/number, location, and length (in feet) of the section to be load zoned. ◆ Reason for the proposed change. ◆ The current and proposed limits. The Gross Vehicle Weight (GVW) and allowable axle weights should be specified. ◆ Evaluation of traffic loads based on a recommended 10-year analysis period. ◆ Description of pavement typical sections and section limits, including layer thickness, material types, lane and shoulder widths, and curb and gutter locations, if applicable. ◆ Pavement visual distress condition evaluation, including an engineering description of the pavement distress type and extent. ◆ Date of the last rehabilitation or reconstruction performed on the road. ◆ <i>Engineering Analysis</i> - Supporting documentation that has been sealed by a professional engineer and includes a visual evaluation of the pavement, a full-depth structural analysis, and calculations supporting the proposed load limit. ◆ For a surfaced county road comparable to a state FM road or higher type pavement: an assessment of the pavement and subgrade layers is required within the project limits based on one of the following methods: <ul style="list-style-type: none"> • Manual field tests using the Dynamic Cone Penetrometer or similar device; • Laboratory test results; • Deflection analysis based on the Falling Weight Deflectometer or similar device; • Other test methods based on accepted engineering practice. ◆ For an unsurfaced county road or a county road constructed to a lower standard than is typical for the state maintained system: an assessment of the pavement and subgrade layers is required based on engineering judgment including a visual inspection. 	<ul style="list-style-type: none"> ◆ Name, phone number, email address for a county contact person. ◆ Route name/number, location, feature crossed, and structure number (if known). ◆ Reason for the proposed change. ◆ Supporting documentation that has been sealed by a professional engineer and includes a structural evaluation report documenting the condition of the bridge and calculations supporting the proposed limits. Calculations should include the inventory and operating ratings for the bridge as defined by the AASHTO <i>Manual for Condition Evaluation of Bridges</i>, Chapter 6.