RAILROAD BRIDGE MANAGEMENT PROGRAM

Connecticut Department Of Transportation Office of Rail

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CONNECTICUT DEPARTMENT
OF TRANSPORTATION

BUREAU OF PUBLIC TRANSPORTATION
OFFICE OF RAIL

CONNECTICUT RAILROAD BRIDGE MANAGEMENT PROGRAM

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REVISIONS TO RAILROAD BRIDGE MANAGEMENT PROGRAM MANUAL

(as of February 6, 2014)

The following are revisions that have been made to the Connecticut Department of Transportation's Office of Rail *Railroad Bridge management program Manual Version 1.0* since issued in February 2012.

CHAPTER	PAGES REVISED	PAGES ADDED	REVISION DATE	COMMENTS
1	1-1		02/06/14	RBIM has been developed
4	4-9		02/06/14	Bridge Strike (Section 4.3 added)
APPENDIX 3		A3A	02/06/14	MNR Bridge Strike procedure. (section added)
APPENDIX 5	A5-1, A5-2, A5-3		02/06/14	Organizational charts for Inspection of railroad bridges (personnel update)
	A5-4		02/06/14	Organizational chart for Parson Brinckerhoff (removed)
APPENDIX 6	A6-1, A6-2		02/06/14	Organizational charts for Field Verification and Design of Repairs for Railroad bridges (personnel update)
APPENDIX 7		7A	02/06/14	Bridge Inspection Damage Report Form
APPENDIX 10	A10-1		02/06/14	Off-System Contact Numbers
APPENDIX 10		A10-2	02/06/14	MNR Contact Numbers
APPENDIX 10		A10-3	02/06/14	Office of Rail Contact Numbers

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CHAPTER 1: OVERVIEW

1.1. PURPOSE

The Federal Railroad Administration (FRA) established Railroad Bridge Safety Standards, 49 CFR Parts 213 and 237, that became effective September 13, 2010. These regulations require track owners to adopt and implement a Railroad Bridge Management Program (RBMP). A copy of the Railroad Bridge Safety Standards are attached in Appendix 1.

The purpose of this document is to define the procedures and practices of the Connecticut Department of Transportation (ConnDOT) to:

- Establish and maintain an accurate inventory of railroad bridges owned by ConnDOT including a record of the safe load capacity of each bridge.
- Provide railroad bridge inspection, evaluation, load capacity, and reporting procedures.
- Establish policy for the ConnDOT railroad bridge inspection, evaluation and load rating program.
- Establish standards for the documentation of inspection reports, repairs and modifications of each railroad bridge.
- Define qualifications for persons responsible for executing the RBMP and designate such individuals.
- List the types of railroad bridge inspections and identify the required inspection details.
- Serve as a standard and provide uniformity in the execution of the program by establishing the methods for documenting inspections including a standardization of forms.
- Define program responsibilities for ConnDOT and for liaison with railroads and outside agencies.
- Set guidelines for interpretation and implementation of AREMA and FRA codes and standards.
- Establish formal quality control and quality assurance procedures.

This RBMP is intended to be specific to structures supporting railroad track and is complemented by the ConnDOT *"Railroad Bridge Inspection Manual"* (RBIM). The AREMA *"Bridge Inspection Handbook (2008)"* shall be used as a supplemental reference, providing guidelines for inspectors specific to railroad structures.

The general requirements for the management of bridges carrying highways or pedestrians, or for certain bridges over State routes are defined in the National Bridge Inspection Standards (NBIS) in the Code of Federal Regulations, 23 CFR 650C. The ConnDOT BIM addresses the policy for these bridges that includes a group of railroad bridges that pass over State roadways.

ConnDOT's ownership of railroad structures is not limited to bridges as the rail infrastructure includes numerous retaining walls, culverts not meeting the minimum criteria to be classified as a railroad bridge, and a select group of tunnels. ConnDOT recognizes the critical functions these other types of structures serve in providing a safe railroad network. These other structures are not specifically addressed by the FRA's Bridge Safety Regulations or this RBMP, however, ConnDOT does include the inspection and repair of these structures as part of its overall railroad infrastructure management program.

1.2. RAILROAD BRIDGE MANAGEMENT PROGRAM OBJECTIVES

The objectives of ConnDOT's Railroad Bridge Management Program are:

- To fulfill the requirements of 49 CFR Parts 213 and 237, Bridge Safety Standards.
- To prevent the deterioration of railroad bridges by preserving their capability to safely carry the traffic to be operated over them, and reduce the risk of human casualties, environmental damage, and disruption to the Nation's railroad transportation system that would result from a catastrophic bridge failure.
- To maintain an accurate, up-to-date inventory that records the condition and load capacity of all qualifying railroad structures owned by the State of Connecticut, and to meet the requirements for content of the inventory as defined in §237.33 including but not limited to: bridge identifier; location; configuration; type of construction; number of spans; span length(s); and safe load capacity.
- To establish policy for a railroad bridge inspection program that addresses the requirements for a bridge inspection program as defined in §237.33 including but not limited to: inspection personnel safety considerations; types of inspections; definitions of defect levels and condition codes; method of documenting inspections; and structure type and component nomenclature.
- To define the method of documentation by inspectors; including documentation through the use of standard forms.
- To establish policy for obtaining and maintaining documents pertinent to the management of railroad bridges as defined in §237.33 including but not limited to: record plans; design calculations; and inspection reports.
- To determine the extent of deterioration and initiate routine maintenance and repair work.
- To determine the extent of major deterioration and prioritize the repairs and the capital investment in the rehabilitation or replacement of railroad bridges.

1.3. BACKGROUND

The general requirements for the inspection, evaluation, and load rating of the nation's railroad bridges are defined in the Code of Federal Regulations, 49 CFR Parts 213 and 237. These regulations became effective on September 13, 2010 and each railroad track owner with qualifying structures is required to adopt and implement a Railroad Bridge Management Program (RBMP). The Connecticut rail system consists of over 600 miles of active rail segments that are owned by a combination of the Department of Transportation (ConnDOT), the Department of Energy and Environmental Protection (DEEP), the National Railroad Passenger Corporation (Amtrak) and private carriers. See Connecticut Rail Transportation Ownership and Service Map (Appendix 2). ConnDOT is the railroad track owner as defined in §237.5 for the commuter operations and freight on the New Haven Line and numerous lines or segments of lines supporting freight and tourist operations throughout the state. This RBMP establishes policy for the management of these ConnDOT owned railroad structures. Figure 1 contains a summary of ConnDOT's track ownership.

Rail Line and Location	Owner	Railroad Operator
NEW HAVEN LINE		
Main Line Greenwich to New Haven	**ConnDOT**	**Metro-North Railroad, Providence and Worcester Railroad Company, CSX Transportation**
New Canaan Branch Stamford to New Canaan	**ConnDOT**	**Metro-North Railroad, CSX Transportation**
Danbury Branch Norwalk to Danbury	**ConnDOT**	**Metro-North Railroad, Providence and Worcester Railroad Company**
Waterbury Branch Milford to Waterbury	**ConnDOT**	**Metro-North Railroad, Providence and Worcester Railroad Company, Springfield Terminal Railway**
OFF-SYSTEM LINES		
Berkshire Line - North Section New Milford to North Canaan	**ConnDOT**	**Housatonic Railroad Company**
Torrington Branch Line Waterbury to Torrington	**ConnDOT**	**Naugatuck Railroad Company**
Middletown Secondary Line Durham to Middletown	**ConnDOT**	**Providence and Worcester Railroad Company**
Cromwell Industrial Track Middletown	**ConnDOT**	**Providence and Worcester Railroad Company**
Laurel Industrial Track	**ConnDOT**	**Providence and Worcester Railroad Company**
Wethersfield Secondary Line Hartford to Middletown	**ConnDOT**	**Providence and Worcester Railroad Company**
Willimantic Secondary Line Windham to Sprague	**ConnDOT**	**Providence and Worcester Railroad Company**
Plainfield Secondary Line Plainfield to Plainfield	**ConnDOT**	**Providence and Worcester Railroad Company**
Armory Branch Line South Windsor to Enfield	**ConnDOT**	**Central New England Railroad**
Griffin Line Hartford to Windsor	**ConnDOT**	**Central New England Railroad**
Torrington Secondary Waterbury	**ConnDOT**	**Springfield Terminal Railway**

Figure 1. Inventory of ConnDOT owned Railroad Lines (Office of Rail Compilation - July, 2011)

Airline East Hampton	**ConnDOT**	**Abandoned**
Moosup Valuation Map Plainfield	**ConnDOT**	**Abandoned**
Vernon	**ConnDOT**	**Abandoned** **(Rails to Trails)**
New Britain Secondary Line New Britain	**ConnDOT**	**Inactive**
Avon Secondary Line Avon	**ConnDOT**	**Inactive** **(Rails to Trails)**
Kendall's Industrial Track Windham	**ConnDOT**	**Inactive** **(Rails to Trails)**
Farmington Valley Greenway Farmington	**ConnDOT**	**Inactive** **(Rails to Trails)**
Valuation Map 56-60/5, 6, 7, 8 Farmington to Canton	**ConnDOT**	**Inactive** **(Rails to Trails)**
Valuation Map 57-72/54, 56 Winchester	**ConnDOT**	**Inactive**

Figure 1 (cont.). Inventory of ConnDOT owned Railroad Lines (Office of Rail Compilation - July, 2011)

There are eight (8) freight railroad companies operating over tracks owned by ConnDOT. Some control and operate on lines leased by ConnDOT while other railroad companies have trackage rights by agreement to operate over tracks controlled by a competitor. The list of these operating railroads follows:

CSX Transportation (CSX)
Providence and Worcester Railroad Company (PWRR)
New England Central Railroad (NECR) [1]
Connecticut Southern Railroad (CSOR) [1]
Housatonic Railroad Company (HRRC)
Central New England Railroad (CNZR)
Naugatuck Railroad Company (NRR)
Springfield Terminal Railway (STRR)

[1] RailAmerica Incorporated is a holding company that owns and operates freight railroads. They have two (2) subsidiaries that operate in Connecticut: CSOR and NECR.

[2] Springfield Terminal Railway is a subsidiary of Pan Am Railways.

The Federal Regulations stipulate that each railroad track owner perform inspections, prepare reports, and determine the safe load capacity for railroad bridges in accordance with their adopted RBMP. The Regulations establish certain minimum criteria that must be included in the RBMP but allow track owners some flexibility to develop a program that is customized to the individual needs of the owner. The regulations encourage owners to inspect, evaluate and load rate bridges using the general provisions of the AREMA *"Manual for Railway Engineering"* but allows owners the option to establish or adopt other appropriate criteria. In addition, the AREMA *"Bridge Inspection Handbook"* and AASHTO Manuals, Technical Advisories and AASHTO Specifications, Codes, and Guidelines serve as source material for track owners to conduct operations in compliance with the regulations.

ConnDOT has established this RBMP to meet the requirements of the Federal Regulations. Certain policies and procedures were previously addressed in the BIM, and other practices have been established by ConnDOT Office of Rail policy, written and unwritten, or by historic practices. This Program has been developed to set down the formal ConnDOT policy for complying with FRA Bridge Safety Regulations, and to define the organizational structure and assign responsibilities for implementation of the stated policy.

Prior to the establishment of the Federal Bridge Safety Regulations, ConnDOT's railroad inspection program included routine type inspections on a biennial basis. These routine inspections were often supplemented by annual inspections performed by the operating railroads. CFR §237.101 mandates annual inspection of railroad bridges and ConnDOT has amended their policy to supplement the biennial routine inspections that have been performed historically with an additional biennial program of "verification inspections". The intent of a verification inspection is to visually confirm and/or update the condition of the bridge components identified in the previous Routine or In-Depth Inspection Report. Verification inspections are scheduled on alternating years with the routine inspections.

ConnDOT has entered into agreements with the various railroads that operate on all active lines. These Operating Agreements assign partial responsibility to the Operating Railroad for the maintenance of the rail facilities, including bridges and culverts that are subject to the FRA Bridge Safety Regulations. ConnDOT and the Operating Railroads share information related to the condition of all railroad structures on the given line including but not limited to inspection reports, maintenance memorandums, load ratings and any operating restrictions that may be in place. Where the Operating Agreement assigns responsibility to the railroad for bridge maintenance or related work that is addressed by the FRA Bridge Safety Regulations, it is expected that the work performed by the railroad or by contractor be done in a manner that conforms to the applicable sections of the regulations. It is critical that a policy of open communication and cooperation be maintained between ConnDOT and the Operating Railroads to ensure the resources of both parties are managed in a manner that limits duplication of effort in regards to the management of railroad bridges.

1.4. DEFINITIONS

RBMP (Railroad Bridge Management Program). A program designed to optimize the use of available resources for the inspection, evaluation, load rating, maintenance, rehabilitation, and replacement of railroad bridges.

BIM. ConnDOT Bridge Inspection Manual (September 2001, version 2.1, with interims).

RBIM. ConnDOT Railroad Bridge Inspection Manual (2012).

AASHTO. American Association of State Highway and Transportation Officials, 444 North Capitol Street, N.W., Suite 225, Washington, DC 20001.

AREMA. American Railway Engineering and Maintenance-of-Way Association, 10003 Derekwood Lane, Suite 210, Lanham, MD 20706.

AREMA HANDBOOK. AREMA Bridge Inspection Handbook (2008)

RAILROAD BRIDGE (§237.5). Any structure with a deck, regardless of length, which supports one or more railroad tracks, or any other undergrade structure with an individual span length of 10 feet or more located at such a depth that it is affected by live loads.

QUALIFYING RAILROAD STRUCTURES. All railroad bridges, as defined by FRA §237.5, and all other undergrade railroad structures (other than pipes) with an individual span length of 5 ft or more, located at such depth that it is affected by live loads, owned by ConnDOT. This term and definition is specific to ConnDOT owned railroad structures and reflects the Department policy of inspecting railroad culverts with individual span lengths in the range of 5 to 10 feet but recognizing these structures are not specifically addressed by the federal bridge regulations.

ACTIVE RAILROAD LINE. A railroad line or segment of a line that is connected to the general railroad system of transportation and over which trains may operate.

INACTIVE or ABANDONED RAILROAD LINE. A former railroad line or segment of a line that is or was connected to the general railroad system of transportation and over which trains do not operate but may in the future.

NBIS (National Bridge Inspection Standards). Federal regulations establishing requirements for inspection procedures, frequency of inspections, qualifications of personnel, inspection reports, and preparation and maintenance of bridge inventory records. The NBIS apply to all structures defined as bridges located on or over all public roads.

ConnDOT. Connecticut Department of Transportation.

DEPARTMENT. Connecticut Department of Transportation.

FRA. Federal Railroad Administration, U.S. Department of Transportation.

MUTCD. The Manual of Uniform Traffic Control Devices.

CHAPTER 2: CONNDOT RAILROAD BRIDGE INVENTORY

2.1. BRIDGE INVENTORY

ConnDOT shall maintain an inventory of all qualifying railroad structures. The content of such inventory will include at a minimum, the information to satisfy the requirements of §237.33. This required content includes bridge identifier; location; configuration; type of construction; number of spans; and span lengths. Additional information may be included in the inventory as deemed appropriate by ConnDOT to aid in the management of these structures. This inventory shall be updated as necessary when bridge replacement, rehabilitation or other activities result in changes to the information maintained in the inventory.

See Appendix 3 for the Inventory of Railroad Bridges -Metro-North Railroad Bridges.

See Appendix 4 for the Inventory of Railroad Bridges - Off-System Railroad Bridges.

CHAPTER 3: STAFF QUALIFICATIONS

3.1. QUALIFICATIONS

ConnDOT shall designate and maintain a list of individuals who perform activities critical to the effective management of the railroad bridge infrastructure as required by §237.57. Such lists shall be maintained for the following critical positions: Railroad Bridge Engineer; Railroad Bridge Inspector; and Railroad Bridge Supervisor. ConnDOT shall also maintain a record of each individual's educational or work experience that supports the required competencies for the position. The list shall include both employees of ConnDOT and consulting engineering firms.

Railroad Bridge Engineer (§237.51, §237.111) - A person competent to perform engineering work including: determination of forces and stresses in railroad structures; determination of structural capacity of railroad structures; prescribe inspection procedures for railroad structures; review bridge inspection reports and design repairs or modifications for railroad structures. Railroad Bridge Engineers shall satisfy either of the following educational requirements: possess a degree in engineering from a program accredited by ABET, Inc. or by a foreign organization recognized by ABET, Inc.; or be currently registered as a professional engineer in the State of Connecticut.

Railroad Bridge Inspector (§237.53) - A person technically competent to view, measure, report, and record the condition of a railroad bridge and its individual components. Such competence shall be established based on a combination of education, formal training and work experience.

Railroad Bridge Supervisor (§237.55, §237.111) - A person technically competent to supervise the construction, modification or repair of a railroad bridge in conformance with plans, specifications or instructions applicable to the work to be performed; and to review bridge inspection reports. Such competence shall be established based on a combination of education, formal training and work experience.

ConnDOT has established the following additional criteria for their employees to serve in the roles established and defined by the FRA:

FRA Designation	ConnDOT Classification
Railroad Bridge Engineer	Transportation Supervising Engineer
Railroad Bridge Inspector	Transportation Engineer III
Railroad Bridge Supervisor	Supervisor Rail Officer or Transportation Engineer III

See Appendix 5 for the Organization Charts for Inspection of Railroad Bridges.

See Appendix 6 for the Organization Charts for Field Verification and Design of Repairs for Railroad Bridges.

CHAPTER 4: SAFE LOAD CAPACITY FOR RAILROAD BRIDGES

4.1. LOAD CAPACITY

ConnDOT shall determine the safe load capacity of all railroad bridges on active railroad lines to satisfy the requirements of §237.71. Load rating is the determination of live load carrying capacity of a bridge using existing bridge plans supplemented by information gathered during in-depth field inspections. Engineering judgment is required to incorporate the effect of defects and deterioration in the load rating analysis. For those bridges that do not have calculated capacities on file, ConnDOT shall complete the load rating assessments by no later than March 14, 2016, satisfying the §237.71.e requirement that all capacities be determined within five years of the required date of adoption for the RBMP. ConnDOT has historically performed load rating calculations for the steel, timber and concrete railroad bridges within their railroad system and has updated these ratings regularly to reflect the current condition of the bridges. The federal bridge regulations requires that two types of bridges that have not historically had load ratings performed by ConnDOT now be evaluated: masonry arches and short span deck structures. While both of these structure types are not uncommon in the CT rail infrastructure, ConnDOT has not had a history of any safety issues with these types of structures due to structural capacity, and it is expected that the safe load capacities will exceed the demand by a conservative margin. ConnDOT is in the process of scheduling the evaluation work required for determining the safe load capacity for these outstanding bridges and expects to complete all work prior to the federal deadline.

Load ratings for ConnDOT owned railroad bridges shall be performed in accordance with the provisions set forth is the AREMA "Manual for Railway Engineering" and using the Cooper E80 loading to represent the operating equipment. The Manual recognizes load ratings at two levels, Normal and Maximum. The Normal Rating generally corresponds to the design level of stress, and results in a calculated live load that can safely use the bridge for an indefinite period of time. The Maximum Rating sets the limiting live load which the structure can support at an infrequent interval. The Safe Load Capacity of a bridge shall generally be considered the Normal Rating calculated for the bridge except in special cases where the Railroad Bridge Engineer determines it is appropriate to consider the Maximum Rating as the Safe Load. An example of a condition that might warrant the use of Maximum Rating levels for determining allowable operating loads includes a short to medium duration operational period while a known bridge deficiency is in the process of being repaired, rehabilitated or replaced. In no case shall an operating load producing structural demand exceeding the Maximum Rating of a bridge be allowed to operate over the structure.

The load capacity for each railroad bridge on an active line shall be maintained in the Bridge Files and also be compiled as part of the Summary of Safe Load Capacity of Metro-North Railroad Bridges and the Summary of Safe Load Capacity of Off-System Railroad Bridges maintained in accordance with §237.33. (Appendices 7 and 8) The determination of load capacity shall be made by a Railroad Bridge Engineer using appropriate engineering methods and standards.

Load rating calculations shall be updated whenever a routine, verification or special inspection reveals the condition of the bridge or a bridge component might adversely affect the ability of the bridge to carry the traffic being operated. Bridge conditions that warrant an updated rating include but are not limited to: a reduction in a member's load-carrying strength due to deterioration; a track modification that increases dead load; changes in track geometry; damage to members from collision; and structural modifications.

The load rating calculation for each qualifying railroad structure shall be updated at a maximum interval of ten (10) years and shall be performed in conjunction with the structure's In-Depth Inspection. Updated ratings shall reflect the condition of the bridge as determined by the In-Depth Inspection.

Normal and Maximum ratings shall be determined for the Cooper E 80 load defined by AREMA. The Normal rating level corresponds to the usual design load level, but reflects the existing bridge conditions with regard to age, deterioration and loss of section. This analysis is comparable to that used for design and, therefore, results in an allowable live load that can be carried by the existing structure for its expected service life. The rating is dependent on a specified speed, as impact reductions are allowed for reduced speeds. The Maximum rating is the load level which the structure can support at infrequent intervals, with any applicable speed restrictions. Unlimited usage of the bridge by rail vehicles at the Maximum level will shorten the useful life of the structure.

Generally, the rating factor for a structure is obtained by subtracting the dead load effect on the member from the overall capacity of the member and dividing the results by the effect of the live load and impact induced by rail equipment with known weight and configuration. Allowable stress levels for the Normal and Maximum ratings shall be in accordance with AREMA guidelines. The capacity of a member in relationship to the Cooper E series live load configuration can be obtained by multiplying the rating factor by the 80 kip maximum axle load associated with the Cooper E 80 load used in determining the live load effect. The resulting ratings are considered to represent the "Equivalent Cooper" rating for the member under consideration.

Load Rating calculations shall typically be performed for both the "as-inspected" and "as-built" conditions. The "as-inspected" ratings reflect the current status of the structure and are used for decisions regarding operations, while the "as-built" ratings provide a baseline for assessment of a structure's condition and to assist decision making on bridge repairs, rehabilitation or replacement.

Railroad structures supporting multiple tracks require load ratings to be determined for each track considering the effect of concurrent track loading in accordance with AREMA guidelines.

ConnDOT shall compare the calculated "Equivalent Cooper" Normal Ratings with the live load demand placed on structures of similar configuration by equipment known to operate on the line without restriction. A listing of equipment known to operate on the CT railroad infrastructure and the relative load effects has been compiled to facilitate such comparisons. (Appendix 9) For structures where this demand appears to exceed or is in the range of the Normal Cooper Rating, bridge specific load ratings shall be performed using actual equipment in lieu of the notional Cooper loading. For structures that have calculated Normal Capacity less than the demand from actual equipment operating without restriction, the ConnDOT Railroad Bridge Engineer shall evaluate the structure and determine appropriate actions that may include: scheduling of bridge component repair, modification or replacement; issuing instructions to the railroads placing operating restrictions necessary to ensure the bridge can safely accommodate traffic until such time when the capacity of the structure is increased to meet the demand; implementing a program of increased monitoring; or in cases where operating loads would exceed Maximum Ratings, restricting operations over the bridge until adequate capacity can be restored.

For railroad bridges on active railroad lines that have not been analyzed for load capacity, ConnDOT shall prioritize the rating of these structures to ensure that all structures have calculated ratings on file by March 14, 2016 to satisfy the requirements of §237.71.e.

See Appendix 7 for the Draft Summary of Safe Load Capacity of Metro-North Railroad Bridges.

See Appendix 8 for the Draft Summary of Safe Load Capacity of Off-System Railroad Bridges.

4.2. PROTECTION OF BRIDGES FROM OVER-WEIGHT AND OVER-DIMENSION LOADS

Railroad equipment operating on ConnDOT owned track is controlled by the written instructions established by the individual railroad assigned responsibility for operation on a given line or segment of a line. Such instructions, typically in the form of a timetable, are developed by the railroad and reviewed by ConnDOT to ensure the equipment allowed to operate does not exceed the safe load or dimensional restrictions associated with all structures on the line. When changes in structural condition affect the capacity of a given line, ConnDOT provides written direction to the operating railroad with any recommended restrictions that may be appropriate to ensure safe operations. The operating railroad is responsible for issuing special instructions that address any restrictions imposed. In general, written instructions shall be sufficient in detail to meet the criteria of §237.73.

Load capacity for structures shall be expressed in terms of the maximum gross weight of rail cars with the minimum car length and axle configuration as established by the Association of American Railroads (AAR) Standards for Freight Cars. The load effects for all equipment not meeting the above standard including all locomotives shall be analyzed on an individual basis. Figure 2 summarizes the gross weight of freight cars allowed to operate on ConnDOT owned rail lines and the allowable clearance envelope for all equipment.

ConnDOT has compiled a listing of all equipment known to operate on the ConnDOT owned rail lines with the equipment configuration provided by the operating railroads. This equipment has been evaluated and compared to the notional Cooper E80 loading to aid decision making related to the safe capacity of bridges. (Appendix 9) For structures that have calculated capacities that are similar in magnitude to the demand from the equipment known to operate on the line, more detailed calculations have been performed using the actual equipment configuration to calculate stress levels in the bridge components. If an individual structure is identified that does not have a Normal Rating that exceeds the demand from normal operations, ConnDOT shall evaluate the condition and make a determination that may include: a decision to allow continued normal operations for a period of time while bridge repair, rehabilitation or replacement work is scheduled and implemented; provide written instructions to the operating railroad restricting certain equipment from operating over the structure; provide written instructions to the operating railroad restricting the authorized speed for certain equipment; or restricting all operations over the given bridge. In no case shall ConnDOT allow operations over a structure that has a calculated Maximum Rating that is less than the demand from equipment allowed to operate over a structure.

OWNER	RAIL LINE	CLEARANCE RESTRICTION	WEIGHT LIMIT (POUNDS)	FREIGHT OPERATOR
ConnDOT	NEW HAVEN LINE	PLATE “C”	263,000	CSX, PWRR
ConnDOT	NEW CANAAN BRANCH		263,000	CSX
ConnDOT	DANBURY BRANCH		263,000	PWRR
ConnDOT	WATERBURY BRANCH - LOWER		263,000	PWRR
ConnDOT	WATERBURY BRANCH - UPPER		263,000	STRR
ConnDOT	BERKSHIRE LINE - NORTH SECTION	PLATE “F” WITH MAXIMUM HEIGHT OF 17’-8”	286,000	HRRC
ConnDOT	TORRINGTON BRANCH	PLATE “F”	263,000	NRR
ConnDOT	TERRYVILLE SECONDARY - SOUTH SECTION	PLATE “F”	263,000	STRR, NRR
ConnDOT	BRADLEY SPUR	N.A.	286,000	CSOR
ConnDOT	MIDDLETOWN SECONDARY - UPPER	PLATE “F” WITH MAXIMUM HEIGHT OF 17’-2”	263,000	PWRR
ConnDOT	WILLIMANTIC SECONDARY - WEST SECTION	PLATE “F” WITH MAXIMUM HEIGHT OF 19’-2”	263,000	PWRR
ConnDOT	ARMORY (EAST WINDSOR SECONDARY) - NORTH SECTION	N.A.	263,000	CNZR
ConnDOT	GRIFFINS INDUSTRIAL TRACK	PLATE “F”	263,000	CNZR

Figure 2. Allowable Freight Car Gross Weight and Clearance for ConnDOT owned Railroad Lines (September, 2011)

CSX = CSX Transportation
PWRR = Providence and Worcester Railroad Company
CSOR[1] = Connecticut Southern Railroad
HRRC = Housatonic Railroad Company
CNZR = Central New England Railroad
NRR = Naugatuck Railroad Company
STRR[2] = Springfield Terminal Railway

[1] Subsidiary of RailAmerica Incorporated.

[2] Subsidiary of Pan Am Railways.

All railroad structures with structural components extending above a plane established at the top of rail elevation shall have clearance measurements recorded and maintained in the Bridge

Files. For existing structures that have any members within the AREMA clearance envelope for fixed obstructions of railway bridges (Figure 3), detailed measurements of all obstructions within the clearance envelope shall be recorded. For structures that have such obstructions, a detailed geometric assessment shall be made to compare the actual clearance with the AAR Equipment Diagram for Limited Interchange Service - Plate C (Figure 4) or Limited Interchange Service - Plate F (Figure 5) as applicable for the given line, to ensure sufficient clearance is available for operation without restriction. Special instructions shall be issued by ConnDOT to the operating railroads for structures that have insufficient clearance.

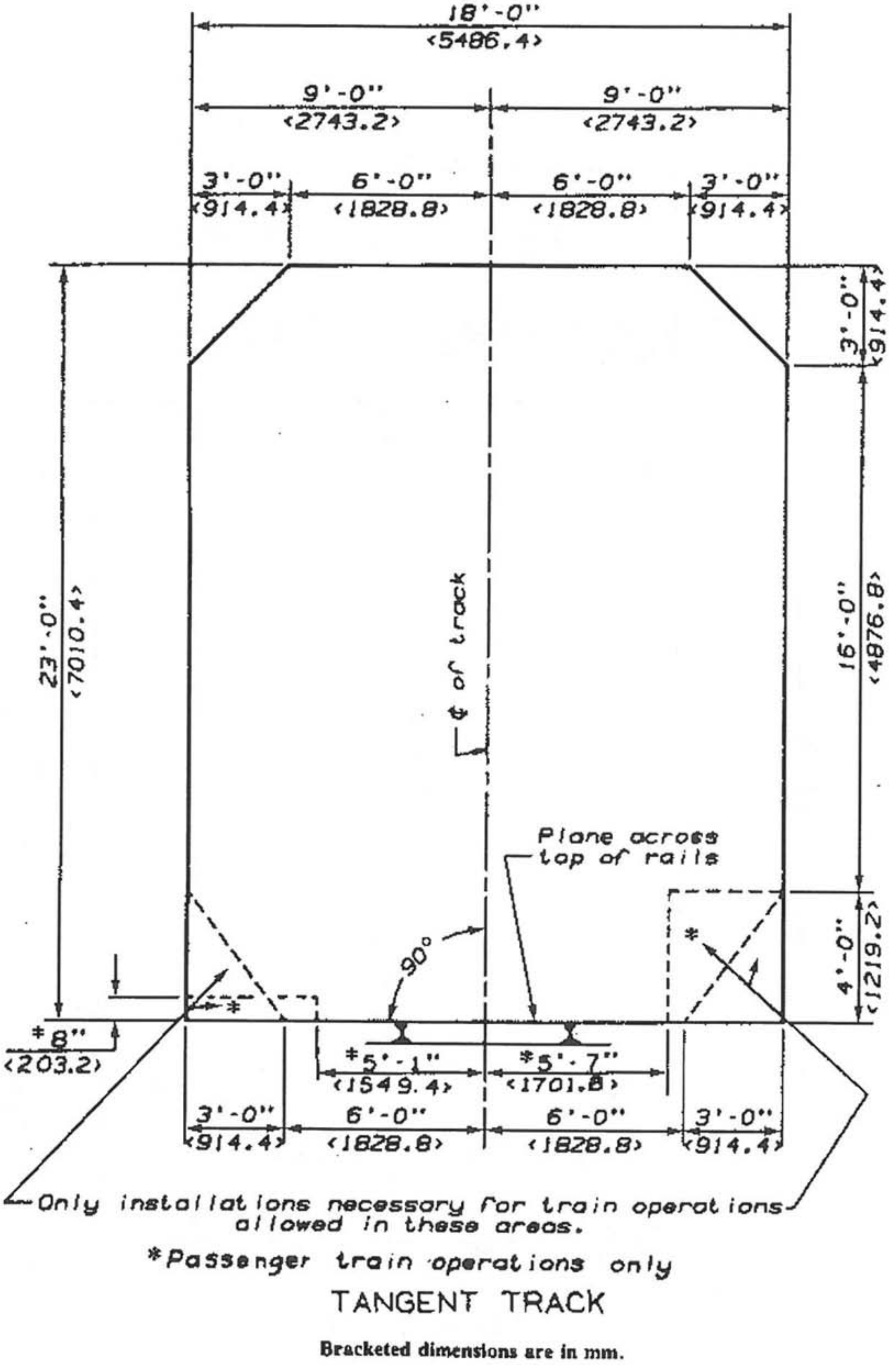
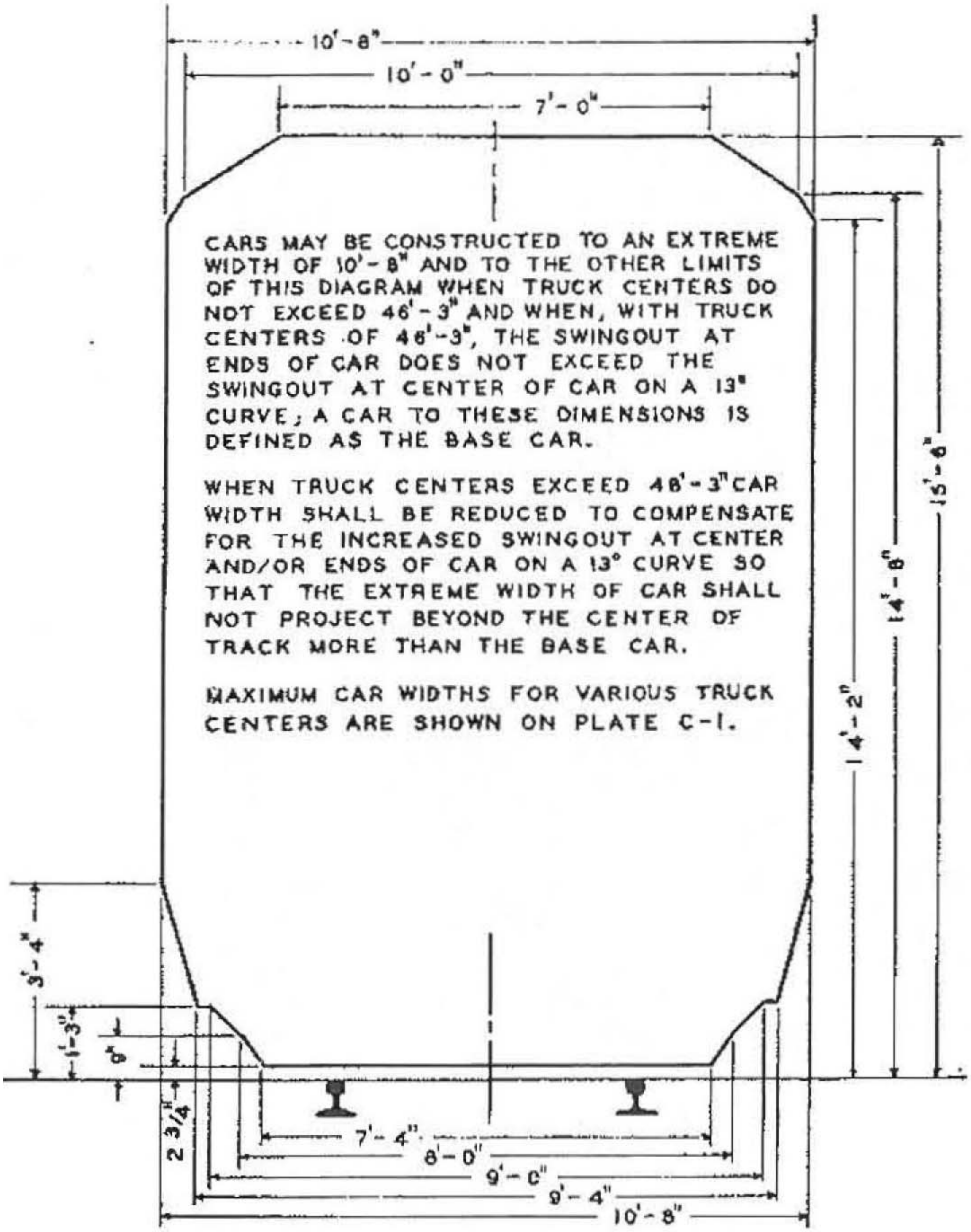


Figure 3. AREMA Figure 28-1-1 General Outline (September, 2011)



CARS MAY BE CONSTRUCTED TO AN EXTREME WIDTH OF 10'-8" AND TO THE OTHER LIMITS OF THIS DIAGRAM WHEN TRUCK CENTERS DO NOT EXCEED 46'-3" AND WHEN, WITH TRUCK CENTERS OF 46'-3", THE SWINGOUT AT ENDS OF CAR DOES NOT EXCEED THE SWINGOUT AT CENTER OF CAR ON A 13° CURVE; A CAR TO THESE DIMENSIONS IS DEFINED AS THE BASE CAR.

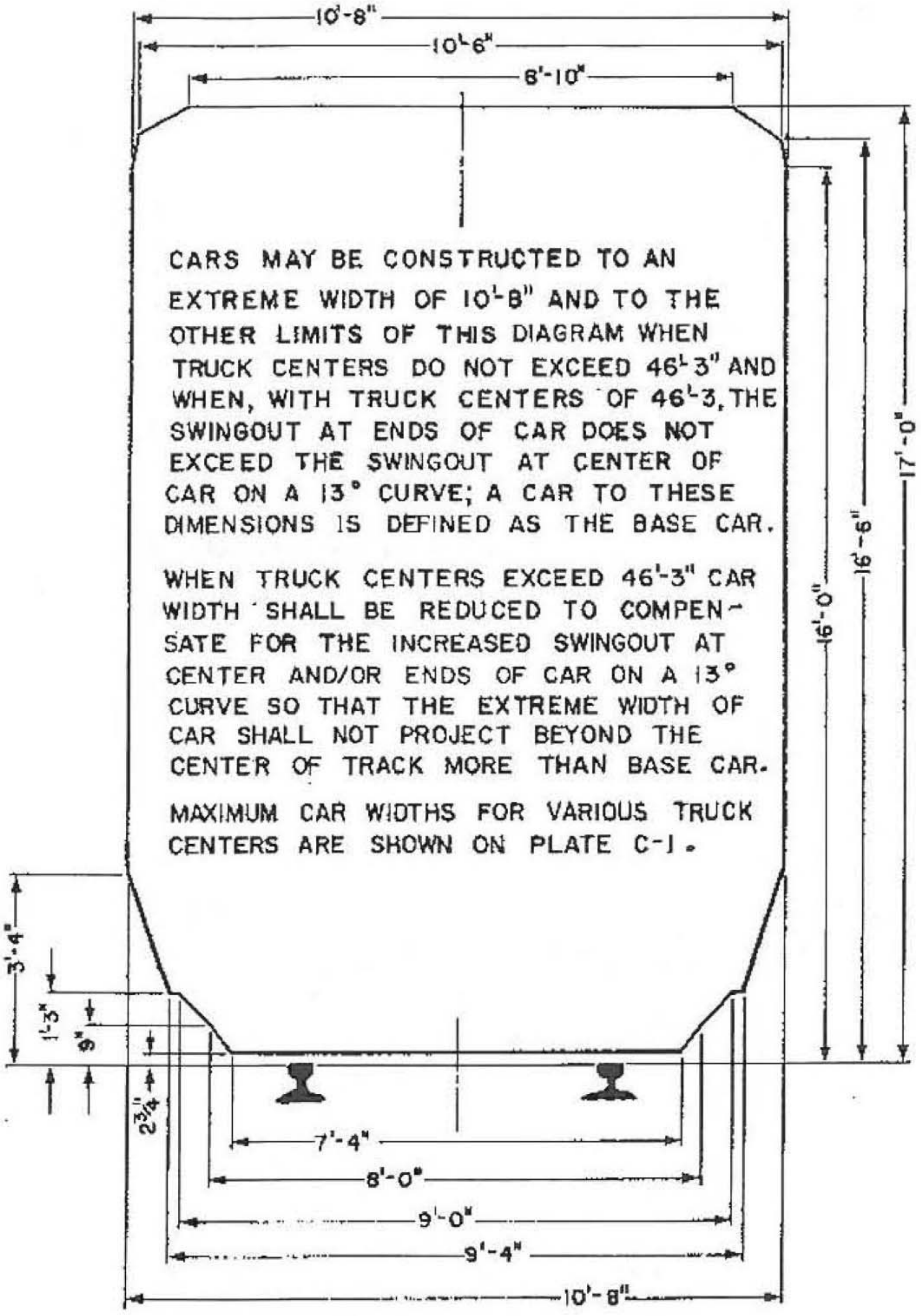
WHEN TRUCK CENTERS EXCEED 48'-3" CAR WIDTH SHALL BE REDUCED TO COMPENSATE FOR THE INCREASED SWINGOUT AT CENTER AND/OR ENDS OF CAR ON A 13° CURVE SO THAT THE EXTREME WIDTH OF CAR SHALL NOT PROJECT BEYOND THE CENTER OF TRACK MORE THAN THE BASE CAR.

MAXIMUM CAR WIDTHS FOR VARIOUS TRUCK CENTERS ARE SHOWN ON PLATE C-1.

THE 2¾" ABOVE TOP OF RAIL IS ABSOLUTE MINIMUM UNDER ANY AND ALL CONDITIONS OF LADING, OPERATION, AND MAINTENANCE.

*THIS DIAGRAM IS THE SAME AS PLATE C OF THE MECHANICAL DIVISION, AAR, AND IS INCLUDED IN THE AREMA MANUAL FOR CONVENIENT REFERENCE. FOR RESTRICTIONS APPLICABLE TO THIS DIAGRAM SEE "RAILWAY LINE" CLEARANCES.

Figure 4. AREMA Figure 28-2-3 Equipment Diagram for Limited Interchange Service - PLATE C (September, 2011)



CARS MAY BE CONSTRUCTED TO AN EXTREME WIDTH OF 10'-8" AND TO THE OTHER LIMITS OF THIS DIAGRAM WHEN TRUCK CENTERS DO NOT EXCEED 46'-3" AND WHEN, WITH TRUCK CENTERS OF 46'-3, THE SWINGOUT AT ENDS OF CAR DOES NOT EXCEED THE SWINGOUT AT CENTER OF CAR ON A 13° CURVE; A CAR TO THESE DIMENSIONS IS DEFINED AS THE BASE CAR.

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MAXIMUM CAR WIDTHS FOR VARIOUS TRUCK CENTERS ARE SHOWN ON PLATE C-1.

THE 2¾" ABOVE TOP OF RAIL IS ABSOLUTE MINIMUM UNDER ANY AND ALL CONDITIONS OF LADING, OPERATION, AND MAINTENANCE.

*THIS DIAGRAM IS THE SAME AS PLATE F OF THE MECHANICAL DIVISION, AAR. AND IS INCLUDED IN A.R.E.A. MANUAL FOR CONVENIENT REFERENCE. FOR RESTRICTIONS APPLICABLE TO THIS DIAGRAM SEE "RAILWAY LINE CLEARANCES."

Figure 5. AREMA Figure 28-2-7 Equipment Diagram for Limited Interchange Service - PLATE F (September, 2011)

Railroad Bridge Inspectors and Railroad Bridge Supervisors are authorized by ConnDOT to authorize or restrict the operation of rail traffic over a bridge based on its immediate condition or state of repair in accordance with §237.53 and §237.55. When the Railroad Bridge Inspector or Railroad Bridge Supervisor is not an employee of the operating railroad, the instruction to restrict operation shall be made through the railroad employee present at the site. The Inspector shall also make immediate notification of such restriction to the supervising ConnDOT Project Manager for action.

See Appendix 10 for a List of Railroad Contact Persons.

4.3 BRIDGE STRIKE - DAMAGE INSPECTIONS

Damage inspections are conducted immediately following any incident that may have an effect on the railroad tracks and/or the structural integrity of a bridge. The inspection is conducted by various Metro North personnel and depending on the seriousness of the incident by ConnDOT on-call Consultant.

The following process shall be followed after a bridge strike (See Appendix - 3):

1. The Railroad Traffic Control (RTC) will apply an immediate Speed Restriction and notify the Track and Structures Department to assess the collision damage. Metro North Personnel will perform the following steps:

  - Inspect the damage members to determine the extent and seriousness of the damage. Determine if the railroad track and bridge is safe to carry the railroad traffic, if emergency repairs are needed or if track closure is required.
  - Notify ConnDOT (Office of Rail Design - Supervising Engineer) if there is a structural damage requiring the assessment of the On-call Consultant, who will prepare repair plans for the bridge.

2. Prepare a Bridge Inspection Damage Report (Use form in Appendix 7A)

  - Describe and document the damage with verbal description and photographs.

    Record the name of the owner and the type of vehicle that damaged the bridge. Note the height of the vehicle. Check and record the direction the vehicle was traveling at the time of the accident. Request a copy of the police report or accident report.
  - Document any actions, such as speed restrictions or track closures which were taken.
  - Record any additional remarks concerning the damage.
  - If possible, include a copy of the accident report with the Bridge Inspection Damage report.
  - Submit the Bridge Inspection Damage report immediately after the initial inspection.

3. The Bridge Inspection Damaged Reports, field notes, photographs and other pertinent documents will be filed in the Railroad Bridge file, located in the Office of Rail.

CHAPTER 5: RAILROAD BRIDGE INSPECTION

5.1. BRIDGE INSPECTION

Railroad bridge inspection shall be performed in conformance with the procedures established in ConnDOT's Bridge Inspection Manual (BIM) until such time the Railroad Bridge Inspection Manual (RBIM) is available. AREMA's "Bridge Inspection Handbook" shall be used as a supplement to ConnDOT's inspection manual.

All railroad bridges, as defined by §237.5, on active railroad lines shall be inspected in conformance with the requirements of §237 Subpart E - Bridge Inspection. In addition, those railroad structures that meet ConnDOT's definition for a "Qualifying Railroad Structure" but are not specifically included in the federal definition of a railroad bridge shall be inspected following the same procedures used for federally defined railroad bridges with the following exception: the requirements related to scheduling are considered "suggested" but not "mandatory".

All railroad bridges on active railroad lines shall be inspected at least once each calendar year, with no more than 540 days between successive inspections as required by §237.101.a.

Railroad bridges on inactive or abandoned lines shall not be placed in active service unless an inspection has been performed within the previous 540 days and a Railroad Bridge Engineer has reviewed the inspection report and load rating and determined it is safe to resume service as required by §237.101.d.

Railroad bridges on inactive or abandoned railroad lines shall be inspected in conformance with the requirements of §237 Subpart E - Bridge Inspection with the following exception to §237.101 - Scheduling of Bridge Inspections: Bridge inspections for structures on inactive or abandoned railroad lines shall be inspected at least once every two years or as directed by ConnDOT policy.

For Railroad bridges that cross over public roads and are subject to the requirements of the National Bridge Inspection Standards (NBIS), bridges shall be inspected in conformance with both 23 CFR 650C and 49 CFR Parts 213 and 237.

The general bridge inspection procedures are addressed in detail in Chapter 5 of the BIM and includes detailed discussion on:

- Planning, Scheduling and Safety Considerations
- Types of Inspection
- Record Keeping and Documentation
- Each inspection must be conducted systematically so that all items are inspected with a minimum of duplication or lost motion.

Each inspection must be conducted systematically so that all items are inspected with a minimum of duplication or lost motion.

Some bridges have areas to be inspected that are extremely difficult to reach and may be inaccessible by snooper or bucket truck. These areas may be viewed with binoculars on inspections that are not in-depth. Note on the report that normal access was not possible and record the distance from which the area was viewed. On inspections, or if any defects are found or suspected, closer access should be gained by using rigging, scaffolding, specialized equipment or free-climbing. (See Chapter 6 of the BIM for detailed procedure for inspection of Decks, Superstructure, Substructures, Moveable Bridges, Arches and Culverts.)

5.2. TYPES OF INSPECTION

Routine bridge safety inspections are regularly scheduled bridge safety inspections that are conducted every two years on all railroad bridges. The primary purpose of routine inspections is to identify any critical problems or deficiencies.

Verification inspections are regularly scheduled bridge safety inspections that are conducted every two years on all railroad bridges. These verification inspections are performed on alternating calendar years from the Routine Inspections to satisfy the 49 CFR §237 Subpart E requirement for annual inspection of railroad bridges in service. The primary purpose of Verification Inspection is to confirm the condition of the bridge components as identified in the previous Routine or In-depth Inspection Report. For components where a change in condition is noted, a revision shall be made to the previous Inspection Report. Changes may include further deterioration of a bridge component or may reflect an improved condition based on the performance of maintenance or repair work since the previous inspection. Verification Inspections are not intended to confirm the accuracy of inventory type data including clearance measurements, however if an obvious change has occurred in such data then the change shall be noted and included in the report.

In-Depth inspections, in compliance with current ConnDOT practice, should be conducted on all railroad bridges every 10 years. The biennial routine inspection is not normally conducted in the year that the in-depth inspection is made. An in-depth inspection consists of a “hands-on” examination of all exposed parts of a bridge to assess and record the physical condition of the bridge, to ascertain that the bridge is functioning as shown on the original plans and to ensure that the bridge is adequate to safely carry the intended loads.

Special inspections shall be performed for any railroad structure involved in an event which had the potential to compromise the integrity of the bridge, including but not limited to Damage, flood, fire, earthquake, derailment or vehicular or vessel impact as required by §237.105. ConnDOT shall direct such inspections at the time notification is made by the operating railroad or other that such an event has occurred.

Qualifying Railroad Structures subject to the flow of water shall be inspected for scour at least every 2 years in general conformance with Underwater Inspections as addressed in the BIM or RBIM, as applicable.

All Railroad Structure inspections shall be conducted under the direct supervision of a designated Railroad Bridge Inspector, with support from consulting engineering firms, as required by §237.107.

The Inspection Report for a Railroad Structure shall be submitted to ConnDOT within 30 calendar days of the completion of the inspection and shall be reviewed, revised when appropriate, distributed to the Railroad and filed as complete within 120 calendar days of the completion of the inspection as required by §237.109. An exception to the above schedule is allowed for complex structures including movable bridges where the amount of information and level of detail requires a greater period of time. In all cases, the goal is to issue final inspection reports in an expedient manner.

See Appendix 11 for the Bridge Inspection Schedule for Metro-North Railroad Bridges.

See Appendix 12 for the Bridge Inspection Schedule for Off-System Railroad Bridges.

5.3. BRIDGE INSPECTION RECORDS

ConnDOT shall for each qualifying railroad structure, prepare a “Bridge inspection Report” that includes all information required by §237.109.

See Appendix 13 for Office of Rail Inspection Forms.

See Appendix 14 for an example of a Typical Bridge Inspection Report.

5.4. REVIEW OF BRIDGE INSPECTION REPORTS

After the completion of the Bridge inspection report, the Railroad Bridge Engineer and the Railroad Bridge Supervisor shall review the report as required by §237.111.

From the review of the bridge inspection report the reviewers shall perform the following:

1. Determine if the inspection was performed according to schedule for the particular structure.
2. Determine if all of the specified procedures for the structure were followed.
3. Prescribe any modifications to the specified procedures of inspection schedule for the structure.
4. Evaluate whether any items on the report represent a present or potential safety hazard.
5. Determine the need for higher-level review.
6. Determine if the structure needs to be evaluated for potential repairs or modifications.

CHAPTER 6: RAILROAD BRIDGE REPAIR AND MODIFICATION

6.1. BRIDGE DESIGN REPAIRS OR MODIFICATIONS

Repairs or modifications of Qualifying Railroad Structures on active railroad lines shall be designed by a Consultant Engineer, under supervision of a Railroad Bridge Engineer and a Railroad Bridge inspector as required by §237.131.

See Appendix 6 for the Organization Chart for Field Verification and Design of Repairs for Railroad Bridges.

Prior to design of repairs, a Consulting Engineering firm shall perform a field verification of prescheduled bridges for potential design of repairs.

Consulting Engineering Firms shall perform field verifications and visual assessments for the structures identified by the Railroad Bridge Engineer. Field work shall concentrate on elements with previously reported condition rating of 5 (fair) or less and suspected to be in need of repair. The result of the field verification will be the collection and documentation of site specific data, including quantities and dimensions that can be used in the development of repair plans as needed.

Repair plans and design calculations shall be prepared by the Consulting Engineering Firm. The repair plans and design calculations shall be reviewed by ConnDOT's Railroad Bridge Engineer. The repair plans shall then be provided to Metro-North Railroad (Track and Structural Department) or of the Operating Railroad for Off-System bridges for use in repairing the specific structure.

Repairs or modifications include the replacement of structural members; strengthening of deteriorated or otherwise deficient members; heat straightening of misaligned members; addition of dead load to structures; attachment of sign supports or other miscellaneous material to structures; and the temporary or permanent modification of the structure configuration resulting in a modified load path. In general, repairs or modifications result in a change in the capacity of individual members or alters the stress in a primary load-carrying component either temporarily or permanently.

The design of structural repairs or modifications shall specify whether any restrictions to the rail traffic operating over such structure are required during the actual repair or modification work. Any restrictions shall be clearly indicated on the repair or modification plans.

6.2. SUPERVISION OF REPAIRS AND MODIFICATIONS

The work to repair or modify a railroad structure as designed in accordance with this section shall only be performed under the immediate supervision of a Railroad Bridge Supervisor as required by §237.133. The Railroad Bridge Supervisor may be supported by qualified staff from Consulting Engineering Firms for the performance of the work. The Railroad Bridge Supervisor shall ensure that any required operating restrictions are in effect while the work is performed.

Welding of any material to bridge structures shall only be done when such work has been designed by a Railroad Bridge Engineer and under the supervision of a Railroad Bridge Supervisor.

The Railroad Bridge Supervisor shall prepare or supervise the preparation of as-built plans representing actual repairs or modifications performed in accordance with this section. The as-built plans shall be transmitted to the Office of Rail upon their completion to be filed in the bridge file.

The S-Program is the capital improvement program established by ConnDOT that prioritizes and develops repair plans for bridges on the Metro-North System. This is an annual program that is funded by ConnDOT with the repair work performed by Metro-North Railroad. A similar program for off-system railroad bridges is planned, subject to the availability of funds.

See Appendix 15 for the S-Program Summary.

CHAPTER 7: DOCUMENT MANAGEMENT

7.1. DOCUMENT MANAGEMENT

ConnDOT shall collect, store and maintain documentation pertinent to the management of all qualifying railroad structures on active, inactive and abandoned lines as required by §237.33.c. Documentation shall be filed in either digital or hard copy format but in either case shall be filed by railroad line, milepost and state bridge number to facilitate retrieval.

Documentation to be maintained in the Railroad Bridge Files shall include:

- Original Bridge Plans, Design Calculations, Shop Drawings and Working Drawings
- Repair and Rehabilitation Plans, Design Calculations and as-built plans
- Related correspondences
- Routine, Verification, Special, In-Depth, and Underwater Inspection Reports
- Load Rating Calculations or alternate rating documentation

Given the age of the railroad infrastructure in Connecticut and the history of owners, it is recognized that original plans and design calculations are not available for many of the structures in the inventory. For such structures, all available information will be maintained in the Railroad Bridge Files.

Bridge Inspection Reports shall be maintained in the Railroad Bridge Files for a minimum period of 2 years from the completion of the inspection as required by §237.109.f.

- In-Depth Inspection Reports shall be maintained until the completion and review of the next In-Depth Inspection Report
- Underwater Inspection Reports shall be maintained until the completion and review of the next Underwater Inspection Report

A key practice is the comparison between previous bridge inspection reports and the actual condition of a bridge. A comparison of successive reports can reveal any accelerating rates of deterioration or degradation of bridge components.

ConnDOT continually makes improvements in the area of secure digital file storage and retrieval systems and recognizes the critical importance of data management as a key element of its overall Railroad Bridge Management Program.

See Appendix 16 for List of Railroad Bridges and Microfilm Availability.
See Appendix 17 for Plans and Microfilm availability for Metro-North Bridges.
See Appendix 18 for Map file Legend.
See Appendix 19 for Basement Stored Files by Project and other.
See Appendix 20 for Location of Bridge Plans (From Bridge Safety and Evaluation) in Basement Storage.

CHAPTER 8: QUALITY CONTROL/QUALITY ASSURANCE

8.1. GENERAL

The effective and efficient management of ConnDOT owned railroad bridges requires dedication on the part of all the individuals who perform the many functions associated with the RBMP. It is critical to maintain the accuracy and consistency of all data used in the program including but not limited to inspection and load rating data.

The Connecticut Department of Transportation Office of Rail has instituted a Railroad Bridge Management Program (RBMP) to meet FRA 49 CFR Parts 213 and 237 requirements. Railroad Bridge inspectors collect inventory and condition information on each bridge for inclusion in the Department's Railroad Bridge Files. The accuracy and consistency of the inspection and documentation are vital to public safety, and also impact programming and funding appropriations. In recognition of the importance of this information, ConnDOT has established quality control and quality assurance procedures for all bridge inspection and load rating work performed for ConnDOT owned structures.

Quality Control and Quality Assurance measures for the inspection and rating of railroad structures are similar to the requirements for highway bridges and the general requirements for Quality Control and Assurance contained in Chapter 4 of the BIM are applicable for railroad structures. These general measures will be complemented with railroad specific quality control and quality assurance measures in the RBIM.

Quality Assurance measures are instituted to monitor the effectiveness and compliance of the overall RBMP program. Periodic audits of the RBMP shall be performed by ConnDOT staff to ensure compliance with the provisions of the program as required by §237.151 and §237.153.

To be effective, quality control/quality assurance procedures must be followed by all personnel and the procedures should be evaluated and updated regularly. The program shall be flexible and shall be updated routinely by memos and directives from the Transportation Principal Engineer of the Office of Rail.

APPENDIX 1
FEDERAL RAILROAD ADMINISTRATION BRIDGE SAFETY STANDARDS,
49 CFR PARTS 213 AND 237
JULY 15, 2010

Federal Register

Thursday,
July 15, 2010

Part II

Department of Transportation

Federal Railroad Administration

49 CFR Parts 213 and 237
Bridge Safety Standards; Final Rule

DEPARTMENT OF TRANSPORTATION

Federal Railroad Administration

49 CFR Parts 213 and 237

[Docket No. FRA 2009–0014, Notice No. 2]

RIN 2130–AC04

Bridge Safety Standards

AGENCY: Federal Railroad Administration (FRA), Department of Transportation (DOT).

ACTION: Final rule.

SUMMARY: FRA is establishing Federal safety requirements for railroad bridges. This final rule requires track owners to implement bridge management programs, which include annual inspections of railroad bridges, and to audit the programs. This final rule also requires track owners to know the safe load capacity of bridges and to conduct special inspections if the weather or other conditions warrant such inspections.

DATES: This final rule is effective September 13, 2010.

FOR FURTHER INFORMATION CONTACT: Gordon A. Davids, P.E., Chief Engineer—Structures, Office of Railroad Safety, FRA, 1200 New Jersey Avenue, SE., Washington, DC 20590 (telephone: (202) 493–6320); or Sarah Grimmer Yurasko, Trial Attorney, Office of Chief Counsel, FRA, 1200 New Jersey Avenue, SE., Washington, DC 20950 (telephone: (202) 493–6390).

SUPPLEMENTARY INFORMATION:

Table of Contents for SUPPLEMENTARY INFORMATION

Background

I. The Safety of Railroad Bridges

A. General

There are nearly 100,000 railroad bridges in the United States. These bridges are owned by over 600 different entities. The bridges vary in length, load capacity, design, and construction material. Everything that is shipped or transported via rail likely travels across one or more railroad bridges. Thus, everything from intermodal goods, automobiles, grain, coal, hazardous materials, and passengers is transported on the nation's rail system and therefore across railroad bridges.

The structural integrity of bridges that carry railroad tracks is important to the safety of railroad employees and to the public. The responsibility for the safety of railroad bridges rests with the owner of the track carried by the bridge, together with any other party to whom that responsibility has been assigned by the track owner. The severity of a train accident is usually compounded when a bridge is involved, regardless of the cause of the accident.

Beginning in 1991, FRA conducted a review of the safety of railroad bridges. The review was prompted by the agency's perception that the bridge population was aging, traffic density and loads were increasing on many routes, and the consequences of a bridge failure could be catastrophic. During the past five decades, not one fatality has been caused by the structural failure of a railroad bridge. Train accidents caused by the structural failure of railroad bridges have been extremely rare.

Although the average construction date of railroad bridges predates most highway bridges by several decades, the older railroad bridges were designed to carry heavy steam locomotives. Design factors were generally conservative, and the bridges' functional designs permit repairs and reinforcements when necessary to maintain their viability. Railroad bridges are most often privately, rather than publicly, owned. Their owners seem to recognize the economic consequences of neglecting important maintenance. Private ownership enables the railroads to control the loads that operate over their bridges. Cars and locomotives exceeding the nominal capacity of a bridge are allowed on a bridge only with permission from the responsible bridge engineers, and then only under restrictions and conditions that protect the integrity of the bridge.

Many railroad bridges display superficial signs of deterioration but still retain the capacity to safely carry their loads. Corrosion on a bridge is not a safety issue unless a critical area sees significant loss of material. Routine inspections are prescribed to detect this condition, but determination of its effect requires a detailed inspection and analysis of the bridge. In general, timber bridges continue to function safely, and masonry structures built as early as the 1830s remain functional and safe for their traffic. Of the few train accidents that involved bridges, most have not been caused by structural failure. FRA accident records for the 27 years 1982 through 2008 show 58 train accidents that were caused by the structural failure of railroad bridges. These accidents resulted in nine reportable injuries and a reported $26,555,878 in damages to railroad facilities, cars and locomotives.

B. Guidelines

On April 27, 1995, FRA issued an Interim Statement of Policy on the Safety of Railroad Bridges. Published in the **Federal Register** at 60 FR 20654, the interim statement included a request for comments to be submitted to FRA during a 60-day period following publication. On August 30, 2000, FRA published a Final Statement of Agency Policy on the Safety of Railroad Bridges ("policy statement"). See 65 FR 52667. With the policy, FRA established criteria for railroads to use to ensure the structural integrity of bridges that carry railroad tracks, which reflected minor changes following public comment on the interim statement. Unlike regulations under which FRA ordinarily issues violations and assesses civil penalties, the policy statement contained guidelines for the proper maintenance of bridge structures and is advisory in nature.

On October 16, 2008, President Bush signed into law, the Railroad Safety Improvement Act of 2008, Public Law 110–432, Division A ("RSIA"). Section 417 of the RSIA directs FRA to issue regulations requiring railroad track owners to adopt and follow specific procedures to protect the safety of their bridges. Prior to the passage of the RSIA, FRA had already begun work on revising the policy statement. On January 13, 2009, FRA published an amendment to the policy statement by incorporating changes proposed by the Railroad Safety Advisory Committee ("RSAC") on September 10, 2008. RSAC developed a list of essential elements of railroad bridge management programs ("essential elements") which make up the bulk of the amendment. See 74 FR 157. All aspects of the policy statement that are not incorporated into the regulatory text of part 237 are now found in its appendix A.

C. Regulatory History

On August 17, 2009, FRA issued a Notice of Proposed Rulemaking (NPRM) as a first step in the agency's promulgation of bridge safety regulations as mandated by the RSIA. See 74 FR 41558. FRA received comments from eight parties, including two professional engineers, the Alaska Railroad Corporation, Maryland Department of Transportation (“Maryland DOT”), Iowa Department of Transportation (“Iowa DOT”), RailAmerica, the American Short Line and Regional Railroad Association (ASLRRA), and the Association of American Railroads (AAR). FRA will address the concerns raised by the comments in the text below.

This final rule is the culmination of FRA’s efforts to develop and promulgate bridge safety standards. In the Section-by-Section Analysis, below, FRA will discuss how the regulatory text addresses each portion of the RSIA.

II. Railroad Safety Advisory Committee (RSAC) Overview

In March 1996, FRA established RSAC, which provides a forum for developing consensus recommendations to FRA’s Administrator on rulemakings and other safety program issues. The RSAC includes representation from all of the industry’s major stakeholders, including railroads, labor organizations, suppliers and manufacturers, and other interested parties. A list of RSAC members follows:

American Association of Private Railroad Car Owners (AARPCO);
American Association of State Highway & Transportation Officials (AASHTO);
American Chemistry Council;
American Petrochemical Institute;
American Public Transportation Association (APTA);
American Short Line and Regional Railroad Association (ASLRRA);
American Train Dispatchers Association (ATDA);
Association of American Railroads (AAR);
Association of Railway Museums (ARM);
Association of State Rail Safety Managers (ASRSM);
Brotherhood of Locomotive Engineers and Trainmen (BLET);
Brotherhood of Maintenance of Way Employees Division (BMWED);
Brotherhood of Railroad Signalmen (BRS);
Chlorine Institute;
Federal Transit Administration (FTA)*;
Fertilizer Institute;
High Speed Ground Transportation Association (HSGTA);
Institute of Makers of Explosives;
International Association of Machinists and Aerospace Workers;
International Brotherhood of Electrical Workers (IBEW);
Labor Council for Latin American Advancement (LCLAA)*;
League of Railway Industry Women*;
National Association of Railroad Passengers (NARP);
National Association of Railway Business Women*;
National Conference of Firemen & Oilers;
National Railroad Construction and Maintenance Association;
National Railroad Passenger Corporation (Amtrak);
National Transportation Safety Board (NTSB)*;
Railway Supply Institute (RSI);
Safe Travel America (STA);
Secretaria de Comunicaciones y Transporte*;
Sheet Metal Workers International Association (SMWIA);
Tourist Railway Association Inc.;
Transport Canada*;
Transport Workers Union of America (TWU);
Transportation Communications International Union/BRC (TCIU/BRC);
Transportation Security Administration (TSA); and
United Transportation Union (UTU).
*Indicates associate, non-voting membership.

When appropriate, FRA assigns a task to RSAC, and after consideration and debate, RSAC may accept or reject the task. If the task is accepted, RSAC establishes a working group that possesses the appropriate expertise and representation of interests to develop recommendations to FRA for action on the task. These recommendations are developed by consensus. A working group may establish one or more task forces to develop facts and options on a particular aspect of a given task. The task force then provides that information to the working group for consideration. If a working group comes to unanimous consensus on recommendations for action, the package is presented to the full RSAC for a vote. If the proposal is accepted by a simple majority of RSAC, the proposal is formally recommended to FRA. FRA then determines what action to take on the recommendation. Because FRA staff plays an active role at the working group level in discussing the issues and options and in drafting the language of the consensus proposal, FRA is often favorably inclined toward the RSAC recommendation.

However, FRA is in no way bound to follow the recommendation, and the agency exercises its independent judgment on whether the recommended rule achieves the agency’s regulatory goal, is soundly supported, and is in accordance with policy and legal requirements. Often, FRA varies in some respects from the RSAC recommendation in developing the actual regulatory proposal or final rule. Any such variations would be noted and explained in the rulemaking document issued by FRA. If the working group or RSAC is unable to reach consensus on recommendations for action, FRA moves ahead to resolve the issue through traditional rulemaking proceedings.

III. RSAC Railroad Bridge Working Group

RSAC on February 20, 2008, agreed to accept the task of reviewing FRA’s railroad bridge safety policies and activities, and to make appropriate recommendations to FRA to improve the bridge safety program. RSAC accordingly established a Railroad Bridge Working Group (Working Group), composed of representatives of the various organizations on the RSAC and including persons with particular expertise in railroad bridge safety and management. The Working Group met on April 24–25, 2008, June 12, 2008, and August 7, 2008. On September 10, 2008, the full RSAC voted on the Working Group’s report, Essential Elements of Railroad Bridge Management Programs, and recommended that FRA incorporate it into FRA’s Statement of Agency Policy on the Safety of Railroad Bridges. The Working Group met again on January 28–29, 2009, and February 23–24, 2009, to recommend rule text to address the RSIA’s mandate to FRA in Section 417 to promulgate bridge safety regulations. The Working Group reached consensus on proposed regulatory text which made up most of the provisions of the NPRM.

After the NPRM comment period closed, the Working Group reconvened on December 15, 2009, to review the comments and offer additional advice on how FRA should proceed with the final rule. Due to time constraints, FRA elected to seek advice from the Working Group regarding the public comments and possible revisions to the NPRM rather than asking the group and the full RSAC to formally provide recommendations regarding the final rule.

IV. Response to Public Comment

As mentioned above, FRA received eight comments to the NPRM. Comments were submitted by a variety of affected parties, including individual professional engineers, the Alaska Railroad Corporation, RailAmerica, two state DOTs, the AAR and the ASLRRA. FRA reviewed the comments with the Working Group and FRA staff also extensively reviewed and evaluated the comments. In this section, FRA will respond to comments regarding the application of the bridge rule, the responsibility for compliance, definitions, adoption of bridge management programs, the definition of a railroad bridge engineer, the determination of bridge load capacities, bridge inspection records, and other general comments. FRA is also responding to some of the smaller concerns within the section-by-section analysis.

Application

Mr. Wayne Duffet, P.E., commented that FRA proposed that this part apply to tourist railroads because the passengers on those railroads are entitled to the protection afforded by this rule. He observed that, as written, the rule applies to every bridge with a gauge of two feet or more, that handles trains, regardless of whether part of the general railroad system. The comment requests clarification on two points: whether the rule applies to a tourist railroad that is not part of the general railroad system, and whether the rule applies to a two-foot gage bridge within an amusement park.

FRA notes that a "tourist railroad" comes under the uniform FRA definition of the term "railroad" as found at 49 CFR 209.3 and within the meaning of the Federal railroad safety statutes as found at 49 U.S.C. 20102(1)(A). Tourist railroads move passengers by the use of track and equipment that, taken together, would commonly be described as a "railroad," and their operations pose a distinct risk to the safety of the public. "An installation which is not part of the general railroad system of transportation and over which trains are not run by a railroad" refers to tracks located within an industrial operation where rolling equipment is moved only by and for the account of that particular industry. If a railroad as defined in 49 CFR 209.3 operates over a bridge inside such an installation, then this regulation applies to that bridge and to the owner of track on that bridge.

Specifically as to tourist railroad operations, FRA exercises jurisdiction over tourist operations whether or not they are conducted on the "general railroad system of transportation" ("general system"), which is defined as "the network of standard gage track over which goods may be transported throughout the nation." Appendix A to 49 CFR part 209. The only exceptions where FRA typically does not exercise jurisdiction are for tourist operations on track gage that is less than 24 inches and tourist operations that are off of the general system and are "insular." A tourist operation is considered "insular" if its operations are limited to a separate enclave in such a way that there is no reasonable expectation that the safety of any member of the public—except a business guest, a licensee of the tourist operation or an affiliated entity, or a trespasser—would be affected by the operation. Appendix A to 49 CFR part 209. FRA does, however, exercise limited jurisdiction over tourist railroads that do not operate on the general system, but that are non-insular. Specifically, FRA will consider a railroad to be non-insular if one or more of the following exist on its line: A public highway-rail crossing that is in use; an at-grade rail crossing that is in use; a bridge over a public road or waters used for commercial navigation; or a common corridor with another railroad. Appendix A to 49 CFR part 209. With respect to this rule, FRA is exercising jurisdiction over all tourist and excursion operations regardless of whether they are insular or not.

Maryland DOT requested an explanation of the definition of the "general railroad system of transportation" as it applies to urban rapid transit operations as set forth in the rule. FRA replies that § 237.1(b) is consistent with 49 U.S.C. 20102(1)(B) and 49 CFR 213.3(b)(2), which exempt "track used exclusively for rapid transit operations in urban areas that are not connected with the general system of transportation" from the application of that regulation. If an urban rapid transit system operates over the general system, FRA will exercise jurisdiction over the urban rapid transit operation to the extent that it is connected to the general system. In situations in which an urban rapid transit operation has a minor connection to the general system, i.e., at a highway-rail grade crossing, FRA will exercise limited jurisdiction over the urban rapid transit system and only to the extent necessary to ensure safety at the points of connection for that system, the general system, and the public.

Responsibility for compliance

AAR noted that there are numerous tracks on railroad bridges that have been leased by their owners to other companies. The proposed bridge rule attempted to account for these historical leases by providing that where an owner of the track over the bridge has assigned responsibility for the track to another company and FRA has been notified pursuant to 49 CFR 213.5(c), additional notification under part 237 for the bridge is not needed. This is because part 237 places responsibility for the bridge with the person to whom responsibility for the track has been assigned and recognized pursuant to part 213. AAR is concerned that there will be situations where notification pursuant to § 213.5(c) has not taken place, and argues that notification might not have taken place because the lease was entered into before § 213.5 was adopted. AAR explains that there might be other reasons notification did not take place or a railroad might simply be unable to determine whether notification occurred. If it cannot be established that notification did occur, AAR argues that the rule, literally interpreted, might not permit FRA to hold the lessee responsible for compliance even though, as a practical matter, the lessee controls the track and bridge and is performing all functions related to track and bridge safety. AAR suggests FRA address the issue of historical leases by adding regulatory text which states that FRA may hold a lessee of track to which this part applies responsible for compliance with this part where the lessee exercises control over the track.

This provision follows the use of the term "owner of track" in the Track Safety Standards at 49 CFR part 213. FRA believes that it would be confusing and inconsistent for FRA to define an "owner of track" differently in two different parts of the Rail Safety Standards. FRA advises an owner of track to resubmit a notification of assignment if the owner is uncertain whether an assignment has been made. However, assignment does not relieve a track owner of compliance with part 237, as § 237.3(c) states that FRA can always hold the track owner responsible for compliance with the bridge safety standards.

Maryland DOT noted that its state highway administration, and several counties in the state, own and inspect several railroad-carrying bridges. Unstated, but implicit in the comment, is that while the state highway administration owns the bridge, the track is owned by a third party. Maryland DOT states that in accordance with this section, however, the state highway administration would not be responsible for compliance with this rule, since the "track owner" is responsible. In addition, several counties own railroad-carrying bridges as well.

FRA replies that the rule does not alter the financial responsibility of a highway agency that owns, inspects and maintains railroad bridges. The rule does, however, hold the track owner responsible to assure that the inspections and maintenance are performed correctly by qualified and designated persons. The track owner would be permitted to accept work performed by a highway agency provided that it conforms to the requirements of this part. FRA also notes that instances have arisen in which state agencies have performed inspections and evaluations in which a state-owned railroad bridge was found to be seriously deficient, and where the operating railroad was never notified or advised of the problem. FRA accident records include at least one such instance in which the bridge failed under a train, resulting in a catastrophic train accident, an accident which occurred on the Southern Railroad of New Jersey on August 12, 1999. This provision is intended, partly, to prevent such a loss of vital communication among the concerned parties

Maryland DOT also questions whether the track owner could assign responsibility to someone else. If one of these railroads requests the state agency to be the responsible party for the FRA inspection, they would consider refusing the request because they would have to be in compliance with the whole program, which would require a railroad bridge engineer, railroad bridge inspectors and a railroad bridge management program.

FRA responds that, in any case of assignment of responsibility, the assignee must first accept the assignment before it can become effective. See § 237.3(b)(6). The final rule states that the track owner must send a written notification of assignment to FRA at least 30 days in advance of the assignment, and that the notification must include a statement signed by the assignee acknowledging the assignment. A notification that did not include an acknowledging statement would not comply with § 237.3(b)(6), and FRA would disregard the assignment.

Definitions

FRA received three comments regarding the definition of a railroad bridge. The comments suggested that the definition of a railroad bridge is either not broad enough or too broad and that there is an inconsistency between the definition of a railroad bridge and the Federal Highway Administration's (FHWA) definition of a bridge. FRA intends the explanations in this response to clarify that the definition of a railroad bridge is consistent with long-held industry practice and is neither too broad nor too narrow.

One commenter suggested that the definition of a bridge be changed to "any structure with an open deck." FRA replies that the regulatory definition of a bridge includes open decks, ballast decks, and solid decks. Essentially, a bridge deck is the component of the bridge upon which the track is supported, and which is subject to bending stresses from trains moving over it.

Another comment requests an explanation of an apparent inconsistency between the definition of a railroad bridge in this rule, and the definition of a bridge used by the FHWA, which defines a bridge as a structure with a span length of 20 feet or more. FRA responds that railroad bridges differ greatly from highway bridges in many respects, particularly in regard to the nature of the heavy live load which they support. This definition represents the consensus of all parties in the Working Group and is consistent with long-held railroad industry practice.

A third commenter suggests that the railroad bridge definition is broad and potentially includes types of structures that are affected by track live loads that have not previously been managed as bridges. These structures may include waterfront structures such as piers and wharves, mechanical shop structures including drop tables and inspection pits, as well as scales, large culverts and potentially even various types of retaining walls that have under-grade structural layout features that could be interpreted to be span lengths of 10 feet or more.

FRA replies that piers and wharves, scales, and other structures that carry railroad track and meet the span definition of a bridge are included under this regulation. Retaining walls and other roadbed structures are not included, because they do not carry track on a span over a gap. Additionally, culverts with a span of 10 feet or greater are also subject to this regulation and must be included in track owner's bridge management program.

Adoption of Bridge Management Programs

Three comments addressed concerns with the adoption of bridge management programs. Maryland DOT asked if the regulations "distinguish between Transit Railroads or short-lines, or rail traffic volume," and requested that FRA define Class I and II carriers and the general railroad system. ASLRRA remarks that some design documents for each bridge might be difficult, if not impossible, to obtain. ASLRRA proposes that all documentation required by the rule be completed no later than five years following the program's adoption. This would allow for the search and retrieval, or replication, of required documentation over more realistic time frames, as well as the allocation of necessary expense over a longer, and possibly less impacting, period of time. The Alaska Railroad Corporation requests that the bridge management program adoption time be extended to the effective date of the final rule plus one year. The additional time is necessary for inventory and database development of all structures covered by the regulation, as seasonal climatic conditions will potentially make some of these structures on the Alaska Railroad inaccessible until early summer 2010.

With regard to the first concern, FRA replies that the Surface Transportation Board defines the class of railroad at 49 CFR part 1201, based on the carrier's annual operating revenue. This section specifies time periods for program adoption according to the type of railroad, not according to railroad traffic volume or load intensity. By "general railroad system of transportation," FRA refers to the network of standard gage track over which goods may be transported throughout the nation and passengers may travel between cities and within metropolitan and suburban areas. See appendix A to 49 CFR part 209.

Regarding the second comment, ASLRRA's proposal is consistent with the proposed rule. Pursuant to § 237.33(c), the program, when adopted by a track owner, need only incorporate a provision to obtain and maintain the design documents of each bridge if available, and to document all repairs, modifications, and inspections of each bridge. There is no deadline for acquisition of these documents. FRA anticipates that the priorities for acquisition of archived bridge design documents would closely follow their usefulness in determining bridge capacities.

To address the Alaska Railroad Corporation's concerns, FRA replies that the bridge inventory need not be complete in all of its details at the time of adoption of a railroad's bridge management program. It is reasonable to expect that an adopted program would specify the format for recording the inventory information, or "bridge list," and that information readily available from existing records, such as valuation maps, could be used to initially populate the data base. After that, additions and refinements to that information would be generated by normal inspection work.

Railroad Bridge Engineer

AAR noted in its comment that the NPRM reference to the "Accreditation Board for Engineering and Technology (ABET)" is obsolete in that the organization has changed its name to ABET, Inc. AAR further notes that ABET Inc. only accredits engineering education programs in the United States, but mutually recognizes programs accredited by corresponding organizations in other nations. The same commenter notes an ambiguity in the term "licensed scope of practice" as it applies to the professional practice of engineering.

FRA acknowledges the concern regarding ABET, Inc., and has changed the reference in the regulatory text to ABET, Inc., or its successor. FRA did not intend to exclude engineers who received their education in other nations from being recognized as railroad bridge engineers, and has amended the text to specify that, in order to fulfill the educational requirements of this section, a railroad bridge engineer can also have received a degree from a program accredited as a professional engineering curriculum by a foreign organization recognized by ABET, Inc. or its successor. FRA has clarified the ambiguity commented on in the language of the NPRM by stating that a railroad bridge engineer can also be considered to have fulfilled the educational requirements of this section if he or she is currently registered as a professional engineer. FRA notes that state law governing the professional practice of engineering requires that professional engineers limit the subject of their practice to areas in which they are competent.

RailAmerica commented that nothing in this section speaks to the competence of an engineer as a railroad bridge engineer. FRA replies that the determination of the competence of a railroad bridge engineer is left to the track owner. FRA does not intend to engage in qualifying individuals to perform those functions. That determination will have to be made by the track owner after review of the engineer's qualifications and experience in the light of the qualification requirements of this part. The employer or the client of an engineer has always had the prerogative and responsibility to determine the qualifications of that individual, and FRA does not propose to alter that relationship.

Determination of Bridge Load Capacities

One commenter remarked on the difficulty of assigning a precise capacity rating to a timber bridge owing to the wide variations in the properties of timber material and the changes that occur to timber components over time. FRA recognizes that the evaluation of timber trestles is not an exact science. Although theoretical values of safe forces and stresses can be placed on individual timber components, the actual nature of wood varies widely, even within the same species. In addition, timber deteriorates over time and under repeated loads. Some timber bridge components are not easily inspected, especially where faces of the members are hidden by other adjacent or supported members. A load rating on a timber bridge must also account for time and for expected costs to maintain the bridge under its rated traffic. An engineer can raise the capacity of a timber trestle from 263,000- to 286,000-pound cars, for instance, but the owner must be advised that increased maintenance costs will probably result, and that a more intensive inspection program must be instituted for that bridge, owing to the more rapid deterioration that will occur.

The same commenter also suggested that a revised rating not be required where an existing, valid rating provides a large margin of capacity above the loads that are actually operated. The rule text has been slightly modified to address that issue with a realistic solution. FRA has revised § 237.71(f) to state that a new bridge load capacity shall be determined, if, in the opinion of the railroad bridge engineer, a bridge inspection reveals that the condition of a bridge or a bridge component might adversely affect the ability of the bridge to carry the traffic being operated. This issue is also addressed further in the section-by-section analysis, below.

The same commenter also noted the difficulty of assigning a precise rating to many older concrete and masonry structures that are not well documented, and of which the internal configuration cannot be easily determined. FRA recognizes that many older concrete and masonry structures are not documented. Especially in the case of reinforced concrete, the configuration of reinforcing steel greatly affects the calculated capacity of the bridge. The analysis of brick and stone arches is possible, but the unknown variables can produce widely differing results. The practice to date in the railroad bridge engineering profession has been to observe these structures for any obvious signs of distress, and to rate them based on their condition at the time of inspection. FRA will accept the reasonable application of present methods for evaluating and managing these structures, because there is not a history of sudden catastrophic failure, absent sudden damage from severe weather conditions or heavy water flows.

ASLRRA commented that "an individual trained as a bridge supervisor and inspector with many years of experience inspecting a bridge that itself has been in place for many years, is fully qualified to determine whether that bridge has the capacity to carry the loads for which it is rated. Under normal bridge inspection procedures, if the bridge shows signs of problems, a bridge inspector usually 'rates' a bridge each time he inspects it. If problems are encountered, additional steps will be taken to address the problem in accordance with these regulations. Rating an old masonry arch or bridge span may be difficult to do even for a railroad bridge engineer. While a number of bridges have been upgraded on many short lines and capacity rating calculations are available for those bridges, many more have not been upgraded and are performing well." FRA responds that there is a clear distinction between what some consider a "condition rating" ascribed to a bridge by an inspector, and a "capacity rating" which is determined by a qualified engineer. The term "rating" in the context of this rule refers only to a "capacity rating." This rule does not address a "condition rating" to be applied to a bridge.

A bridge inspector or supervisor who is not an engineer can certainly determine by observation and measurement whether the condition and configuration of a bridge corresponds with its state when it was rated by an engineer for capacity. However, if the bridge displays a condition or deterioration that materially affects its capacity, as by increasing the stress intensity in one or more components of the bridge, accurate determination of the revised capacity requires the experience, education and training of a competent railroad bridge engineer. In the same manner, the determination of the capacity of an existing bridge requires that the engineer should consider all available information related to the configuration and condition of the bridge, including all available design and modification documents and current reports of inspections. These determinations of bridge capacity ratings are usually performed in an office environment, and only seldom in the field.

RailAmerica commented that the rule would require bridge ratings to be completed within 5 years of the adoption of a Bridge Management System. This provision would penalize those railroads which have adopted a bridge management program before the final date required in the rule. FRA agrees with this comment. The rule has been modified so that the determinations of load capacity are required within five years of the required date for adoption of the bridge management program, rather than the actual date of adoption if earlier than required.

Bridge Inspection Records

Several commenters suggested that the interim bridge inspection report be deleted from the rule, or that the time period for its submission be extended. Several also suggested that the time period for submission of the complete inspection report be extended. FRA understands that the regulated community is reluctant to see the imposition of record-keeping requirements that might not correspond with their current practices. However, bridge inspections performed by or for the track owner are a critical function which must be monitored in the enforcement process. Since FRA cannot be present on-site at each bridge inspection, the agency must see a record that shows that the inspection was performed, when and by whom it was performed, and the conditions found in the inspection. If there were no time requirements for recording inspections, it would be impossible for FRA to effectively monitor this vital function.

FRA views the interim report as a management tool in the bridge program audit to show whether bridge inspections are being performed at or near their scheduled frequency, with ample time to permit adjustments as necessary in the inspection program. Most railroad bridge inspection programs at present do not incorporate an interim inspection report. The time between an inspection and the filing of the inspection report is found to vary. An effective bridge management program requires that the person in charge of the program have reasonably current information on the progress of the vital function of bridge inspection. The proposed time frame of 14 days has been extended to 30 days in the final rule because FRA now believes that the 30-day time period is sufficient for effective management by the railroad and effective compliance monitoring by FRA.

Two commenters requested that the time period for submission of the complete inspection report be extended from 45 to 90 days, and one commenter requested 120 days. FRA understands the circumstances in which a consultant is engaged to conduct detailed bridge inspections and evaluations. Some of those evaluations include a considerable amount of engineering work that is performed in an office rather than in the field, and several months are often used in preparing the complete report. The extension of the time period for filing the report is intended to allow the most efficient use of inspection and engineering resources, while still providing effective input for management by the bridge owner and monitoring by FRA.

In light of the reasons given, and discussion at the RSAC Railroad Bridge Working Group, FRA finds that a 120-day period for submission of the complete report would be reasonable and effective.

Two commenters noted that the proposed requirement to retain inspection reports until the completion of the next two following inspections of the same type would be burdensome and ineffective in the case of certain special inspections. For instance, if a highway vehicle strike occasions a special inspection, it would have been necessary to retain the records of the special inspection until the bridge had twice again been struck by a highway vehicle and inspected. This is not realistic, so the final rule simply requires that records of inspections be retained for two years following completion of the inspection, and that records of underwater inspections be retained until the completion and review of the next underwater inspection of the same components of the bridge.

Additionally, the final rule also accommodates instances in which a bridge inspection does not encompass the entire bridge. It also includes a clarification that when a complete report is filed before an interim report is due, the interim report is not required.

Other Comments

FRA received a number of comments that did not pertain to specific sections of the rule text. FRA will address these concerns below.

Maryland DOT suggested that FRA consider whether it would be beneficial to have the same inspection frequency criteria for all rail and transit lines or whether it is relevant to distinguish between Class I railroads, short lines, and transit lines, or to factor in rail traffic volume in general. Maryland DOT also states that it already has a detailed structural inspection program and database. It recommends that the new regulations not require replacement of existing agency programs, reporting forms, etc., to be in accordance with a national standard. Additionally, Maryland DOT asks whether FRA will compensate state agencies for the cost of overhauling their structural inspection program and database, and for the additional expense of conducting annual rather than biennial inspections. Finally, Maryland DOT asked if any regulations are proposed for tunnel, station or other miscellaneous structural inspections.

With respect to the first question, FRA has not distinguished among railroads of different sizes because the size of the railroad is in no way related to the physical attributes of a bridge and the loads that it carries. As noted above, this rule does not affect transit lines. The only criterion related to inspection frequency in this rule is a minimum of one inspection per year. As this provision is found in the RSIA, FRA has no option in this regard. *See* Section 417(b)(5), Public Law 110–432, 122 Stat. 4890 (49 U.S.C. 20103, note). With regard to the second concern, the rule does not require replacement of existing programs as long as they comply with the requirements of the rule. In response to the third concern, FRA is not aware of any Congressional appropriation of funds to provide assistance in order for regulated entities to comply with bridge safety regulations and thus FRA will not be providing any funding for that purpose. Finally, tunnels, stations, and other structures were not addressed in the proposed rule and thus are not addressed in this final rule.

Iowa DOT commented on the various types of ownership and maintenance agreements in place between highway agencies and railroads that cross those highways on bridges. Iowa DOT stated that "it would be more logical and provide a more consistent bridge safety program if the responsibility for inspection, load capacity ratings, and other aspects of the bridge safety program were fully retained by the track owner and not by the party that is financially responsible for maintenance. Where no agreement exists there can be a conflict over the responsibilities, therefore having the track owner fully responsible for the bridge safety program aspects would prevent any bridge from 'falling through the cracks' due to that conflict." Iowa DOT would like to see the final rule assign track owners the full responsibility for the bridge safety program, regardless of who is financially responsible for the structure's maintenance. Finally, the comment also states that, although the agency's bridge inspectors are fully qualified to inspect railroad bridges, determine load capacities, etc., they would not have the experience or knowledge to translate the load capacities into railroad operational terms as required by the rule.

FRA notes that the final rule holds the track owner responsible for compliance, which is consistent with the commenter's request. The regulation does not address the question of financial responsibility or apportionment of expenses for bridge management or maintenance. That issue would continue to be governed by the terms of any agreements between the track owner and bridge owner. The rule does not assign or apportion financial or functional responsibility for inspection or maintenance of railroad bridges. The rule simply holds the track owner responsible for the adequate and safe support of its track on bridges. FRA does not specify who will perform those functions, so long as they are performed correctly by qualified individuals designated by the track owner. That designated individual may accept work performed by others, such as a state agency, if it is acceptable to them and can be adequately verified.

Regarding the last concern, bridge inspectors do not normally calculate the load capacities of a railroad bridge, unless they also happen to be competent railroad bridge engineers. Moreover, an engineer who cannot translate load capacities into railroad operational terms is not qualified to prescribe the loadings for a railroad bridge. The rule places the responsibility upon the track owner to have this done by a designated, competent railroad bridge engineer.

V. Section-by-Section Analysis

Amendment to 49 CFR Part 213, Track Safety Standards

Appendix C to Part 213—Statement of Agency Policy on the Safety of Railroad Bridges

FRA is removing appendix C to part 213, which is FRA's Statement of Agency Policy on the Safety of Railroad Bridges ("policy statement"). As many portions of the text in the policy statement are covered in part 237, it would be redundant and confusing to leave them in the policy statement as currently published in part 213. With regard to the portions of the policy statement that are advisory in nature, FRA is publishing them in a new appendix to part 237, which will be discussed further below.

Addition of 49 CFR Part 237, Bridge Safety Standards

Subpart A—General

This part prescribes minimum safety requirements for the management of railroad bridges that support one or more tracks. Track owners may adopt more stringent standards as long as they are in accordance with this part. FRA notes that it expressed these statements in proposed § 237.1, Scope of part, in the NPRM. See 74 FR 41560, 41573. FRA does not believe it necessary to include these explanatory statements directly in a section of the rule text, however, and is retaining them here instead.

Separately, FRA has removed proposed § 237.3, Preemptive effect. See 74 FR 41573. One commenter questioned whether the provisions in the proposed section were necessary, and whether they were inconsistent with other regulations. This section has been removed; discussion of the federalism implications of the rulemaking is found under Regulatory Impact and Notices, below. The sections in subpart A have been renumbered, accordingly.

Section 237.1 Application

This rule applies to all owners of track carried on railroad bridges with certain exceptions as outlined or explained in following subsections. As delineated in FRA's Statement of Agency Policy Concerning Enforcement of the Federal Railroad Safety Laws at appendix A of 49 CFR part 209, FRA exercises jurisdiction over tourist, scenic, and excursion railroad operations whether or not they are conducted on the general railroad system. This part applies to both insular and non-insular tourist railroads because the passengers on those railroads are entitled to the protection afforded by this rule. As a matter of policy, FRA does not consider devices that run on rails in amusement parks to be railroads.

Paragraph (b). This part does not apply to bridges on track used exclusively for rapid transit operations in urban areas that are not connected with the general system of transportation. This is in accordance with 49 U.S.C. 20103 and appendix A of 49 CFR part 209.

Paragraph (c). This part does not apply to bridges located in an installation which is not a part of the general railroad system of transportation and over which trains are not operated by a railroad.

Section 237.3 Responsibility for Compliance

The responsibility for the safety of trains on any track lies with the owner of that track. Therefore, the track owner is responsible for complying with the bridge safety standards promulgated in this part. If a bridge carries tracks owned by two or more owners, then the track owners can choose to make an assignment of responsibility for compliance with this part. The assignment process, delineated in paragraphs (b) through (d) of this section, is similar to the assignment process detailed in 49 CFR 213.5. However, FRA will hold the track owner or the assignee, or both, responsible for compliance with this part and subject to penalties under § 237.7. FRA intends that the responsibility for compliance with this part will follow, as closely as practicable, the responsibility for compliance with the Federal Track Safety Standards, and that where such responsibility is already established, it would not be necessary for the track owner to file an additional assignment of responsibility. As in part 213, FRA intends that "person" means an entity of any type covered under 1 U.S.C. 1, including but not limited to the following: A railroad; a manager, supervisor, official, or other employee or agent of a railroad; any owner, manufacturer, lessor, or lessee of railroad equipment, track or facilities; any independent contractor providing goods or services to a railroad; any employee of such owner, manufacturer, lessor, lessee, or independent contractor; and anyone held by FRA to be responsible for compliance with this part.

Paragraph (d). As described in 49 CFR part 213, a common carrier by railroad which is directed by the Surface Transportation Board to provide service over the track of another railroad under 49 U.S.C. 11123 is considered the owner of that track for the purposes of the application of this part during the period the directed service order remains in effect. On rare occasions, such as a cessation of service by a railroad, the Surface Transportation Board has directed a railroad other than the track owner to provide service. In such cases, the designated operator shall be considered the owner for purposes of compliance with the bridge safety regulations.

Paragraph (e). This paragraph requires any person, including a state agency, who performs a function on a railroad bridge that is required by this part to perform that function in accordance with this part. Instances have occurred in which state agencies have performed bridge inspections and evaluations in which the bridge was found to be seriously deficient, and where the operating railroad was never notified or advised of the problem. FRA accident records include at least one such instance in which the bridge failed under a train, resulting in a catastrophic train accident. Section 237.109 requires that the track owner keep the bridge inspection reports, and must therefore obtain them from a state agency or any other party that performs bridge inspections in conformance with the requirements of these regulations. This provision will prevent a loss of vital communication among concerned parties.

Paragraph (f). Where an owner of track to which this part applies has previously assigned responsibility for a segment of track to another person as prescribed in 49 CFR 213.5(c), additional notification to FRA is not required.

Paragraph (g). This paragraph provides that FRA reserves the right to reject an assignment of responsibility under § 237.3(b) for cause shown. As stated in paragraph (c) of this section, FRA may hold the track owner or the assignee, or both, responsible for compliance with this part and subject to penalties under § 237.7. Consequently, if FRA rejects an assignment of responsibility, FRA will not consider the rejected assignee responsible for compliance with part 237 pursuant to paragraph (c) of this section.

Section 237.5 Definitions

The definitions in this section are only intended to apply to this part, and not to alter the same terminology wherever used outside this part for other purposes.

Bridge modification and bridge repair. "Bridge modification" means a change to the configuration of a railroad bridge that affects the load capacity of the bridge, while "bridge repair" means remediation of damage or deterioration which has affected the structural integrity of a railroad bridge. This part requires that modifications and repairs to bridges be designed by railroad bridge engineers, and the work supervised by designated railroad bridge supervisors. This definition clarifies that minor modifications and repairs, such as replacing a wire rope handrail with one made of pipe, or painting a bridge, do not need to be designed and supervised pursuant to this part. However, this does not exempt the track owner from properly supervising the personal safety of the individuals performing the work because that issue is addressed in other rules.

Railroad bridge. A "railroad bridge" is any structure which spans an opening under the track except for a small culvert, pipe, or other such structure that is located so far below the track that it only carries dead load from soil pressure and is not subjected to measurable bending, tension or compression stresses from passing trains. Unloading pits, track scales, and waterfront structures such as piers and wharves that fall within the definition of a "railroad bridge" are considered bridges for purposes of this part.

FRA does not intend to relieve a railroad from taking any action necessary to protect the safety of trains in the case of any structure, including small culverts, retaining walls, tunnels or overhead structures by providing for their inspection and maintenance, but it exempts them from the specific requirements of this regulation. A structure in a locomotive or car maintenance facility which is used to support cars or locomotives for maintenance is not included in the specific requirements of this regulation.

Section 237.7 Penalties

This provision conforms to provisions of the enabling legislation and stated agency policy. Consistent with FRA's Statement of Agency Policy Concerning Enforcement of the Federal Railroad Safety Laws, a penalty may be assessed against an individual only for a willful violation. The Administrator reserves the right to assess a penalty of up to $100,000 for any violation where circumstances warrant. See 49 CFR part 209, appendix A.

Section 237.9 Waivers

This section provides that each petition for a waiver under this part shall be filed in the manner and contain the information required by 49 CFR part 211, which prescribes rules of practice that apply to waiver proceedings. The processing of petitions for waiver of safety rules is found at subpart C to part 211.

Subpart B—Railroad Bridge Safety Assurance

This subpart prescribes minimum requirements for persons responsible for railroad bridges to implement programs to assure the structural integrity of those bridges and to protect the safe operation of trains over those bridges. The responsibility for the safety of a railroad bridge rests with the owner of the track supported by that bridge, who relies upon the work of the engineer who makes the critical decisions regarding the management and use of that bridge.

Section 237.31 Adoption of Bridge Management Programs

Congress mandated that FRA "promulgate a regulation requiring owners of track carried on one or more railroad bridges to adopt a bridge safety management program to prevent the deterioration of railroad bridges and reduce the risk of human casualties, environmental damage, and disruption to the Nation's railroad transportation system that would result from a catastrophic bridge failure." Section 417(a), Public Law 110–432, 122 Stat. 4890 (49 U.S.C. 20103, note). This section requires track owners to adopt a bridge safety management program that prevents the deterioration of railroad bridges by preserving their capability to safely carry the traffic to be operated over them. Class I carriers and owners of track segments which are part of the general railroad system of transportation and which carry more than ten scheduled passengers trains per week shall implement their bridge safety programs no later than March 14, 2011. Class II carriers which carry ten or fewer scheduled passenger trains per week shall implement their bridge safety programs no later than September 13, 2011. All other track owners subject to this part shall implement their bridge safety programs no later than September 13, 2012.

FRA considers this implementation schedule to be realistic and effective, with priorities given to railroads with the highest levels of freight or passenger traffic. The implementation dates apply to the track owner, not to specific track segments. However, it is reasonable to consider that the specific provisions of each program will be implemented in a manner that accords higher priority to individual track segments with high volumes of freight or passenger traffic.

Section 237.33 Content of Bridge Management Programs

Certain elements of a bridge management program are essential to its effectiveness. Those elements are enumerated in this section. Track owners and individuals responsible for the safety of railroad bridges are encouraged to adapt these elements to the needs of their areas of responsibility, and to adopt additional elements not inconsistent with the requirements of this part.

Paragraph (a). Congress mandated that the new regulations require each track owner to "develop and maintain an accurate inventory of its railroad bridges, which shall identify the location of each bridge, its configuration, type of construction, number of spans, span lengths, and all other information necessary to provide for the safe management of the bridges.” Section 417(b)(1), Public Law 110–432, 122 Stat. 4890 (49 U.S.C. 20103, note). This paragraph requires that such an inventory be maintained. An accurate inventory of any property to be managed is essential so that the responsible individuals may schedule and track inspection, maintenance, and repair of the property units.

Paragraph (b). Congress mandated that the new regulations require that the track owner “maintain, and update as appropriate, a record of the safe capacity of each bridge which carries its track and, if available, maintain the original design documents of each bridge and a documentation of all repairs, modifications, and inspections of the bridge.” Section 417(b)(3), Public Law 110–432, 122 Stat. 4890 (49 U.S.C. 20103, note). This paragraph requires that a record of the safe load capacity of each bridge be established. The operation of excessively heavy loads over a bridge will seriously shorten a bridge’s useful life and will reduce or even eliminate the margin of safety between structural integrity and catastrophic failure. It is essential that the track owner should know that the loads permitted to be operated on a bridge are within the safe limits of the bridge.

Paragraph (c). The track owner must obtain and maintain the design documents of each bridge, if available, and document all repairs, modifications, and inspections of each bridge. The determination of safe load capacity requires knowledge of the configuration of the bridge and the materials of which it is constructed. Although the configuration may be determined by actual measurements of all of the components, that procedure can be tedious and expensive. Good documentation of the design and history of a bridge will facilitate more rapid and accurate determination of bridge capacity when such calculations are needed, as well as determination of the maintenance and service history of a bridge to detect and correct possible deterioration of its components. If the design documents for a bridge cannot be located, the track owner must measure and document the configuration of the bridge in sufficient detail to enable an accurate determination of the safe capacity of the bridge.

Paragraph (d). Bridge inspection is absolutely essential to an effective bridge management program. In this paragraph, FRA requires that the track owner’s bridge management program contain a bridge inspection program. Items (1) through (6) should be addressed in the program to a degree that promotes effective and efficient conduct of the inspection program. With regard to item (1), bridge inspection can present certain risks that are inherent in working at heights and around moving vehicles. A bridge inspection program should at least address the unique hazards associated with the process. With regard to item (2), a bridge inspection program should incorporate standards for the procedures and required details of any different types of inspection that are referenced in the program, such as annual inspections, post-event inspections, rating inspections, and intermediate periodic inspections. A large railroad might find it convenient to describe the standard procedures for various types of inspections in some detail, while a small railroad that normally conducts only annual inspections might describe only that procedure as well as post-event special inspections, and then issue instructions of particular applicability for other types of inspections that occur only infrequently. With regard to items (3) through (6), use of a standard method of describing the condition of components promotes effective and efficient communication between the inspector and those persons who review and evaluate a bridge using information from the inspection.

Subpart C—Qualifications and Designations of Responsible Persons

In subpart C, FRA establishes minimum standards for incorporation in railroad bridge management programs for qualification and designations of persons who perform safety critical functions that affect the integrity and safety of railroad bridges. Many aspects of railroad bridge work differ from other fields of engineering, inspection and maintenance. It is essential that the individuals who are responsible for these safety-critical functions be qualified by education, training and experience to perform them correctly.

Section 237.51 Railroad Bridge Engineers

This section sets forth the minimum standards that a railroad bridge engineer must meet. Congress directed FRA to “ensure that an engineer who is competent in the field of railroad bridge engineering” is responsible for the development of all inspection procedures, reviews all inspection reports, and determines whether bridges are being inspected according to the applicable procedures and frequency, and reviews any items noted by an inspector as exceptions. See Section 417(b)(7) of the RSIA. Railroad bridge engineering is based on the same principles of engineering as all other structural engineering work, but the application of many of those principles is unique to this particular field. The live loads carried on railroad bridges are generally much higher than the loads on highway bridges or other transportation structures. Overall configuration and details of construction of railroad bridges differ greatly from other classes of structures, to the extent that dealing with these features requires some experience with them as well as an understanding of the fundamentals of engineering.

FRA understands that not all railroad bridge engineers will be faced with all aspects of railroad bridge engineering. For example, an engineer engaged to prescribe safe loads for short steel spans and timber trestles on a particular railroad might never have to perform a detailed analysis of a large truss bridge. The basic premise is that the engineer be competent to perform the functions that are encompassed by that individual’s employment. The determination of qualifications by the track owner includes employment of the engineer by the track owner, and designation of the engineer to exercise the authority called for in this part. By employment, FRA includes both engineers who are employees of the track owner as well as those engaged under a consulting contract.

A railroad bridge engineer must also have either: (1) A degree in engineering granted by a school of engineering with at least one program accredited by ABET, Inc. or its successor organization, as a professional engineering curriculum, or a degree from a program accredited as a professional engineering curriculum by a foreign organization recognized by ABET, Inc. or its successor; or (2) current registration as a professional engineer.

FRA believes that the critical nature of railroad bridge engineering work called for in this rule requires persons to meet a minimal educational or experience standard which is common to the engineering profession and which is necessary for an individual who will perform the functions of an engineer as called for in this rule.

In paragraph (c), FRA states that nothing in this part affects the States’ authority to regulate the professional practice of engineering. This section represents a minimum standard to be attained by engineers who perform the functions called for in this regulation.

Recognition by FRA as a railroad bridge engineer would not enable a person to provide professional engineering services in violation of a state law or regulation. FRA does not intend to preempt or interfere with any state laws regarding the professional practice of engineering. For example, a person registered as a professional engineer in Maryland could not work as a professional engineer in Virginia under this regulation in violation of Virginia law if such work violated Virginia law regarding the practice of engineering.

Section 237.53 Railroad Bridge Inspectors

In this section, FRA establishes the minimum standards that a railroad bridge inspector must meet. Effective inspection of bridges is essential to preserving their integrity and serviceability. Inspectors must be able to understand and carry out the inspection procedures, including accessing inspection points on a bridge, measuring components and any changes, describing conditions found in a standard, unambiguous manner, and detecting the development of conditions that are critical to the safety of the bridge. It is essential that an inspector who detects a potential hazard to the safe operation of trains be authorized by the track owner to place appropriate restrictions on the operation of railroad traffic, pending review as necessary by a railroad bridge engineer. An individual who is not competent in railroad bridge work cannot overrule a determination made by a designated bridge inspector, supervisor, or engineer.

Section 237.55 Railroad Bridge Supervisors

In this section, FRA establishes minimum standards that a railroad bridge supervisor must meet. Individuals who supervise and take responsibility for construction, repair and modification of railroad bridges must be competent to ensure that the work is performed in accordance with valid standards and any specific specifications, plans and instructions applicable to the work to be performed. This provision applies to any such individual, regardless of job title, who directly oversees such work and approves or restricts the movement of railroad traffic during the progress of the work.

Section 237.57 Designations of Individuals

In the RSIA, Congress mandated that the bridge regulations designate qualified bridge inspectors or maintenance personnel to authorize the operation of trains on bridges following repairs, damage, or indications of potential structural problems. See Section 417(b)(8), Public Law 110–432, 122 Stat 4890 (49 U.S.C. 20103, note). In this section, FRA requires that each track owner designate certain individuals as qualified railroad bridge engineers, inspectors, and supervisors, and provide a recorded basis for each designation in effect. The track owner must record designations of individuals, whether employees, consultants or contractors. If a consultant or contractor has several individuals performing the described functions then one or more individuals should be designated as being responsible to the track owner for the work performed under that engagement, with the others working under the responsible charge of that individual.

Subpart D—Capacity of Bridges

In subpart D, FRA prescribes minimum standards to be incorporated in railroad bridge management programs to prevent the operation of equipment that could damage a bridge by exceeding safe stress levels in bridge components or by extending beyond the horizontal or vertical clearance limits of the bridge. Protection of bridges and bridge components from overstress is essential to the continued integrity and serviceability of the bridge. It is also essential that equipment or loads that exceed the clearance limits of a bridge not be operated owing to the potential for severe damage to the bridge.

Section 237.71 Determination of Bridge Load Capacities

Paragraph (a). Each track owner must determine the load capacity of each of its railroad bridges. It is essential that the track owner know that loads operated over a bridge do not exceed the safe capacity of that bridge. However, once it is determined that a bridge has adequate capacity to carry the loads being operated, the regulation does not require that the track owner precisely calculate the additional capacity of that bridge, although that could be useful from a planning or economic standpoint.

Paragraph (b). This paragraph requires that the load capacity of each bridge be documented in the track owner's bridge management program, together with the method by which the capacity was determined. Once the load capacity is determined, the value must be recorded in order for it to be useful. Examples of methods of determination could be the original design documents, recalculation, or rating inspection.

Paragraph (c). In the RSIA, Congress mandated that a professional engineer competent in the field of railroad bridge engineering, or a qualified person under the supervision of the track owner, determine bridge capacity. See Section 417(b)(2), Public Law 110–432, 122 Stat. 4890 (49 U.S.C. 20103, note). Load capacity determination in most instances requires the education, experience and training of an engineer who is familiar with railroad bridges and the standard practices that are unique to that class of structure.

The present standard references for railroad bridge design and analysis are found in the "Manual for Railway Engineering" of the American Railway Engineering and Maintenance-of-Way Association (AREMA). The chapters in this Manual dealing with Timber, Concrete and Steel structures, and Seismic Design, are under continuous review by committees consisting of leading engineers in the railroad bridge profession, including representatives of FRA. Although bridges exist that were designed using different or earlier references, they can still be evaluated by use of the AREMA Manual.

Paragraph (d). This paragraph permits bridge load capacity to be determined from existing design and modification records of a bridge, provided that the bridge substantially conforms to its records configuration. Determination of bridge load capacity requires information on the configuration of the bridge and the dimensions and material of its component parts. If the bridge is found to conform to the drawings of its original design and modifications, those drawings may serve as the basis for any rating calculation that might be performed, thus simplifying the process. Lacking that prior information, it is necessary that the configuration, dimensions, condition and properties of the bridge and its components be determined by on-site measurement of the bridge as it currently exists.

FRA recognizes that a rigorous, exact method of rating is not practicable with several types of bridges, including some massive concrete or masonry bridges and many timber trestles. The railroad bridge engineer will necessarily use judgment in determining the loads which should be permitted to operate over these bridges, and assuring that adequate inspections are performed so that any developing deterioration or signs of overload are detected before they progress to become a serious problem.

Paragraph (e). In this paragraph, FRA requires a track owner to schedule the evaluation of bridges for which the load capacity has not already been determined. This section provides for a phase-in period for determination of bridge capacities. There is probably not sufficient engineering expertise available in the United States for immediate rating of all unrated railroad bridges. This will provide a reasonable time period for track owners to accomplish this work. It is intended that the unrated bridges be given relative priority for rating, based on the judgment of a railroad bridge engineer. This prioritization can be accomplished either by observation or by evaluation of certain critical members of a bridge, as determined by the engineer using professional judgment.

Paragraph (f). A new capacity must be determined by a railroad bridge engineer when a bridge inspection record reveals that the condition of a bridge or a bridge component might affect the load capacity of the bridge. Accurate determination of current bridge capacity depends on accurate information about the current configuration and condition of the bridge. The railroad bridge engineer might determine that a change in condition or configuration calls for a revised rating calculation.

Paragraph (g). In this paragraph, FRA states that bridge load capacity may be expressed in terms of numerical values related to a standard system of bridge loads, but shall in any case be stated in terms of weight and length of individual or combined cars and locomotives, for the use of transportation personnel. Engineers use standard definitions of loading combinations for design and rating of bridges. Common among these standard definitions is a series of proportional loads known as the Cooper System. The capacity of a bridge and its components can be described in terms of a Cooper Rating, and the effect of rail equipment on a bridge can also be related to a Cooper System value.

Proper application of this system requires a full understanding of its use and limitations. However, the results of its application can be translated into terms of equipment weights and configurations that can be effectively applied by persons who manage regular transportation operations of the railroad. This enables them to determine if a given locomotive, car, or combination can be operated on a bridge with no further consideration, or if the equipment must be evaluated as an exceptional movement.

Paragraph (h). FRA states that bridge load capacity may be expressed in terms of both normal and maximum load conditions. Normal bridge ratings generally define the loads that can be operated on a bridge for an indefinite period without damaging the bridge. In some cases, mostly involving steel or iron bridges, a higher rating, up to a maximum rating, can be given to the bridge to permit the operation of heavier loads on an infrequent basis. These heavier loads should not, in themselves, damage the bridge, but the cumulative effect of the higher resulting stresses in bridge members could cause their eventual deterioration.

Paragraph (h) also states that operation of equipment that produces forces greater than the normal capacity shall be subject to any restrictions or conditions that may be prescribed by a railroad bridge engineer. A railroad bridge engineer can often prescribe compensating conditions that will permit the movement of equipment that is heavier than normal. Examples include speed restrictions to reduce the impact factor of the rolling load, the insertion of lighter-weight spacer cars between the heavier cars in a train, or the installation of temporary bents or other supports under specific points on the bridge.

Section 237.73 Protection of Bridges From Over-Weight and Over-Dimension Loads

Bridges can be seriously damaged by the operation of loads that exceed their capacity. Movement of equipment that exceeds the clear space on a bridge is an obvious safety hazard. In this section, FRA addresses Congress' mandate in the RSIA that the track owner "develop, maintain, and enforce a written procedure that will ensure that its bridges are not loaded beyond their capacities." See Section 417(b)(4), Public Law 110–432, 122 Stat. 4890 (49 U.S.C. 20103, note).

Paragraph (a). In this paragraph, FRA requires that each track owner issue instructions to its personnel who are responsible for the configuration and operation of trains over its bridges to prevent the operation of cars, locomotives and other equipment that would exceed the capacity or dimensions of its bridges. Transportation personnel of a railroad are ultimately responsible for the movement of trains, cars and locomotives. It is essential that they should know and follow any restrictions that are placed on those movements.

Paragraph (b). In this paragraph, FRA states that the instructions regarding weight shall be expressed in terms of maximum equipment weights, and either minimum equipment lengths or axle spacing. Transportation personnel have information on the weights and configuration of cars and locomotives, and they must be able to relate that information to any restrictions placed on the movement of that equipment.

Paragraph (c). In this paragraph, FRA states that the instructions regarding dimensions shall be expressed in terms of feet and inches of cross section and equipment length, in conformance with common railroad industry practice for reporting dimensions of exceptional equipment in interchange in which height above top-of-rail is shown for each cross section measurement, followed by the width of the car or the shipment at that height. In the industry, a standard format exists for the exchange of information on dimensions of railroad equipment. This standard practice is practical, even if it is not intuitive. Use of the industry practice is necessary to avoid error and confusion.

Paragraph (d). In this paragraph, FRA states that the instructions may apply to individual structures or to a defined line segment or groups of line segments where the published capacities and dimensions are within the limits of all structures on the subject line segments. Railroads commonly issue instructions related to equipment weights and dimensions to be effective on line segments of various lengths. It is not necessary that transportation personnel be advised of the capacity of every bridge as long as each bridge in the line segment has the capacity to safely carry the loads permitted on that line.

Subpart E—Bridge Inspection

In subpart E, FRA establishes minimum standards to be incorporated into railroad bridge management programs to provide for an effective program of bridge inspections.

Bridge inspection is a vital component in any bridge management program. A bridge with undetected or unreported damage or deterioration can present a serious hazard to the safe operation of trains. Bridge inspection and evaluation is a multi-tiered process, unlike many other types of inspection on a railroad. While track, equipment and signal inspectors usually can compare measurements against common standards to determine whether the inspected feature complies with the standards, such is not the case with most bridges. The evaluation of a bridge requires the application of engineering principles by a competent person, who is usually not present during the inspection. It is therefore necessary that an inspection report should show any conditions on the bridge that might lead to a reduction in capacity, initiation of repair work, or a more detailed inspection to further characterize the condition.

Section 237.101 Scheduling of Bridge Inspections

Paragraph (a). In this paragraph, FRA establishes regulations to address Congress' mandate that the track owner "conduct regular comprehensive inspections of each bridge, at least once every year, and maintain records of those inspections that include the date on which the inspection was performed, the precise identification of the bridge inspected, the items inspected, and accurate description of the condition of those items, and a narrative of any inspection item that is found by the inspector to be a potential problem." Section 417(b)(5), Public Law 110–432, 122 Stat. 4890 (49 U.S.C. 20103, note). Annual inspection of bridges has been an industry practice for over a century, and has proven to be an effective tool of bridge management. Even where a bridge sees very low levels of railroad traffic, the potential still exists for damage from external sources or natural deterioration. This paragraph calls for one inspection per calendar year, with not more than 540 days between successive inspections. Both criteria apply. For example, if a bridge is inspected on January 3, 2011, it becomes overdue for inspection on June 27, 2012, 541 days later. If it is inspected on December 18, 2011, it becomes overdue on January 1, 2013, since it was not inspected in calendar year 2012.

One commenter requested that FRA clarify what constitutes a yearly inspection. The commenter asked if this means a "hands-on" type of inspection, or a routine cursory type of inspection. FRA responds that the rule does not prescribe an inspection procedure; that decision is left to the railroad bridge engineer. It is quite likely that the engineer might prescribe varying levels of detail for inspections performed at different periods, depending on the configuration and condition of the bridge.

Paragraph (b). In this paragraph, FRA states that a bridge shall be inspected more frequently than the period referenced in paragraph (a), above, when a railroad bridge engineer determines that such inspection frequency is necessary. The responsibility for adequate inspection remains with the track owner, with the conditions prescribed by a railroad bridge engineer. The inspection regimen for every bridge should be determined from its condition, configuration, environment, and traffic levels.

Paragraph (c). FRA requires that each bridge management program define requirements for the special inspection of a bridge to be performed whenever the bridge is involved in an event which might have compromised the integrity of the bridge, including flood, fire, earthquake, derailment, or other vehicular or vessel impact. It is essential that railroad traffic be protected from possible bridge failure resulting from damage from an event caused by natural or non-railroad agents. The track owner should have in place a means to receive notice of such an event, including weather and earthquakes, and a procedure to conduct an inspection following such an event.

Paragraph (d). In this paragraph, FRA states that any railroad bridge that has not been in railroad service and has not been inspected in accordance with this section within the previous 540 days must be inspected and the inspection report reviewed by a railroad bridge engineer prior to the resumption of railroad service. The inspection frequency requirements of this section do not apply to bridges that are not in railroad service. FRA notes that although inspections are not required on out-of-service railroad bridges, state law regarding responsibility for damage to outside parties that might be caused by the condition of the bridge is not affected. If a bridge not in service has been inspected within the 540 day period, the track owner may accept that inspection and begin railroad service, subject to any determination in that regard by a railroad bridge engineer. The inspection period would date from the last inspection, with no credit for out-of-service time.

Section 237.103 Bridge Inspection Procedures

In this section, FRA requires that each bridge management program specify the procedure to be used for inspection of individual bridges or classes and types of bridges. As mandated by the RSIA, FRA states that the bridge inspection procedures must be as specified by a railroad bridge engineer who is designated as responsible for the conduct and review of the inspections. See Section 417(b)(7)(A), Public Law 110–432, 122 Stat 4890 (49 U.S.C. 20103, note). In the RSIA, Congress also mandated that the bridge safety regulations must "ensure that the level of detail and the inspection procedures are appropriate to the configuration of the bridge, conditions found during the previous inspections, and the nature of the railroad traffic moved over the bridge, including car weights, train frequency and lengths, levels of passenger and hazardous materials traffic, and vulnerability of the bridge to damage." Accordingly, FRA requires that the bridge inspection procedures must ensure that the level of detail and the inspection procedures are appropriate to the configuration of the bridge. Additionally, the bridge inspection procedures must be designed to detect, report and protect deterioration and deficiencies before they present a hazard to safe train operation. The responsibility for adequate inspection remains with the track owner, with the conditions prescribed by a railroad bridge engineer. The inspection regimen for every bridge should be determined from its condition, configuration, environment, and traffic levels. The instructions for bridge inspection may be both general, as by bridge type or line segment; and specific, as needed by particular considerations for an individual bridge.

ASLRRA commented that the rule provides that a railroad bridge engineer must direct programs, review inspections, record procedures, and undertake other similar steps. ASLRRA suggests that this seems to imply the railroad must have a railroad bridge engineer capable of designing a bridge on staff or employed as a consultant each time an inspection is made. ASLRRA contends that a railroad supervisor can implement a program, review the inspection, audit a program, and assess whether a bridge inspection exception needs to go to a railroad bridge engineer for review.

FRA responds that a bridge inspection program can be established by a railroad bridge engineer, either as an employee of or as a consultant to the track owner. The engineer is not required to be on site, or even on the property, during an inspection. A primary purpose of the audit procedure called out below is to permit the railroad bridge engineer to review and monitor the effectiveness of the bridge inspection program that has been conducted under his overall charge.

Section 237.105 Special Inspections

Paragraph (a). In this paragraph, FRA requires that each bridge management program prescribe a procedure for protection of train operations and for inspection of any bridge that might have been damaged by a natural or accidental event, including flood, fire, earthquake, derailment or vehicular or vessel impact. It is essential that railroad traffic be protected from possible bridge failure caused by damage from an event caused by natural or non-railroad agents. The track owner should have in place a means to receive notice of such an event, including weather conditions and earthquakes, and a procedure to conduct an inspection following such an event.

Paragraph (b). In this paragraph, FRA requires that each bridge management program provide for the detection of scour or deterioration of bridge components that are submerged or subject to water flow. The condition of bridge components located underwater is usually not evident from above. Means to determine their condition might be as simple as using measuring rods from the surface, or might call for periodic or special diving inspection. Advanced technology might also provide devices that can be used to determine underwater conditions.

Maryland DOT requested that FRA provide advice on a required inspection frequency for the underwater inspection, noting that FHWA requires underwater inspections at least once in every five years. FRA responds that the rule does not prescribe a particular frequency for underwater inspections; that decision is left to the railroad bridge engineer, to be based on the particular conditions at each bridge.

Section 237.107 Conduct of Bridge Inspections

In this section, FRA requires that bridge inspections be conducted under the direct supervision of a designated railroad bridge inspector, who shall be responsible for the accuracy of the results and the conformity of the inspection to the bridge management program. Bridge inspections can often require more than one person for safety and efficiency. This provision permits others to assist the designated inspector, who remains responsible for the results of the inspection.

Section 237.109 Bridge Inspection Records

In this section, FRA requires that each track owner to which this part applies keep a record of each inspection required to be performed under this part. A bridge inspection has little value unless it is recorded and reported to the individuals who are responsible for the ultimate determination of the safety of the bridge. Bridge inspectors may use a variety of methods to record their findings as they move about the bridge. These include notebooks, voice recordings, having another individual transcribe notes, and photographs. These notes and other items are usually compiled into a prescribed report format at the end of the day or at the conclusion of the inspection. In paragraph (c), FRA delineates the essential elements that must be addressed and reported in any bridge inspection.

Paragraph (d). In this paragraph, FRA requires that an initial report of each bridge inspection be placed in the location designated by the bridge management program within 30 calendar days of the completion of the field portion of the inspection. The initial report must include the information delineated in paragraph (c)(1) through (c)(5). The actual conduct of the inspection should be reported and recorded, showing the fact that the bridge was actually inspected on a certain date, the type of inspection performed, by whom it was performed, and whether or not any critical conditions were detected. Inspection and reporting procedures vary widely among different railroads and circumstances. In many cases, especially on larger railroads, an inspector would prepare the report before leaving the bridge. The reports might be forwarded by mail, by electronic means, or by hand delivery. They might be forwarded daily, weekly, or even less frequently. In other circumstances, a consulting engineer might be engaged by a small railroad to inspect all of the bridges on all or part of the line, and the final report might be prepared by the engineering firm after all of the inspections are completed. Similarly, a large railroad might begin a comprehensive inspection and evaluation of a large structure that will take several months to complete.

FRA recognizes the wide range of time periods required for these various inspections and reporting procedures, so this provision was developed as a means for the track owner to track inspection progress, bridge by bridge, with a simple line item showing:

(1) identification of the bridge inspected;

(2) date of completion of the inspection;

(3) identification of the inspector;

(4) type of inspection performed; and

(5) indication on the report as to whether any item noted thereon requires expedited or critical review by a railroad bridge engineer, and any restrictions placed at the time of the inspection.

These five items can usually be listed on a single line of a report. The initial report might include all of the bridges inspected by one individual in a week or two. FRA does not anticipate that the initial or summary report include all of the data called for in the bridge management program, together with any narrative descriptions necessary for the correct interpretation of the report. This information would be included in the complete inspection report.

Paragraph (e). In this paragraph, FRA requires that a complete report of each bridge inspection shall be placed in the location designated in the bridge management program within 120 days of the completion of the field portion of the inspection. A bridge inspection is not complete until the report of the inspection is filed and available to the persons who are responsible for the management of the bridges inspected. This time period does not include the time used by a consultant or in-house engineering group to complete an analysis of the results of the inspection, and it is not expected that the analysis need be completed within that time period. In cases where a detailed analysis is required, FRA intends that the inspection report on which the analysis is based would be separated from the analysis and filed within the required time frame.

Paragraph (f). This paragraph requires that each bridge inspection program specify the retention period and location for bridge inspection records. The retention period must be at least two years from the completion of the inspection. A comparison of successive reports can reveal any accelerating rates of deterioration or degradation of bridge components. Additionally, an audit or review of the effectiveness of a bridge inspection program requires comparison of previous inspection reports with the actual condition of a bridge included in the audit. The practice of comparing previous inspection reports with actual bridge conditions has been followed by FRA for more than a decade when evaluating railroad bridge management programs. It is a valuable factor in determining the effectiveness of a railroad's program.

Section 237.111 Review of Bridge Inspection Reports

The RSIA requires that an engineer who is competent in the field of railroad bridge engineering reviews all inspection reports and determines whether bridges are being inspected according to the applicable procedures and frequencies, and reviews any items noted by an inspector as exceptions. See Section 417(b)(7), Public Law 110–432, 122 Stat. 4890 (49 U.S.C. 20103, note). In this section, FRA requires responsible railroad bridge supervisors and railroad bridge engineers to review bridge inspection reports. Bridge inspection is usually a multi-tiered procedure. The inspector reports on the conditions noted in the inspection, but an engineer will necessarily evaluate those noted conditions and determine what, if any, further action is required.

The regulation does not require that a railroad bridge engineer review every inspection report, so long as the responsible management personnel keep track of the conduct of inspections to see that they are performed in accordance with the schedule and other requirements of this rule and the railroad's program. It should be a simple matter for the inspector to indicate on a report whether or not the report would require higher-level or engineering review. The engineering staff would review the reports that indicate problems or issues for them to resolve. Section 237.153, "Audits of inspections," includes a provision for sampling of routine inspection reports to assure that the inspectors are properly identifying reports that require review.

Subpart F—Repair and Modification of Bridges

In subpart F, FRA establishes minimum standards to be incorporated in railroad bridge management programs to provide for adequate design and effective supervision of those bridge modifications and repairs which will materially modify the capacity of the bridge or the stresses in any primary load-carrying component of the bridge. This section provides for correct design and adequate supervision of repair and modification of bridges where the work could materially affect the capacity of the bridge, or its continued integrity. FRA does not intend that minor repairs that do not affect the capacity of the bridge must be designed by an engineer, but the supervision of that work should be performed by a person who is competent to assure that the work does not inadvertently compromise the integrity of the bridge. For instance, arc welding handrails to the members of a through truss might appear to some to be a minor repair, but it could seriously compromise the structural integrity of the bridge.

Section 237.131 Design

Design of entire railroad bridges, modifications and repairs which materially modify the capacity of the bridge or the stresses in any primary load-carrying component of the bridge require the intelligent application of the principles of engineering and can be performed only by an engineer with training and experience in the field of railroad bridges. Railroads have typically issued standard instructions for the performance of common maintenance repairs, such as replacement or upgrading of components of timber trestles. This section specifically permits such a practice. For purposes of this part, a primary load-carrying component is a railroad bridge component, the failure of which would immediately compromise the structural integrity of the bridge.

One commenter notes that the proposed rule requires that while all bridge work that eliminates a deteriorated condition requires design by a bridge engineer, for many situations ranging from cracked flange angles to failed timber caps, a simple component change-out is the most effective repair. These types of repairs have historically been performed by bridge forces without the benefit of formal design oversight. The commenter suggested that each track owner should determine what repairs require the oversight of an engineer.

FRA understands this concern, and has modified § 237.131 to read, in part, that "[e]ach repair or modification which materially modifies the capacity of a bridge or the stresses in any primary load-carrying component of a bridge shall be designed by a railroad bridge engineer."

The comment regarding simple component replacement is addressed in the last sentence of the paragraph, which states that designs and procedures for repair or modification of bridges of a common configuration, such as timber trestles, or instructions for in-kind replacement of bridge components, may be issued as a common standard. Although it may be a standard procedure, the standard should be designed and issued by a qualified railroad bridge engineer.

Section 237.133 Supervision of Repairs and Modifications

This section requires that each repair or modification pursuant to this part shall be performed under the immediate supervision of a railroad bridge supervisor as defined in § 237.55 of this part who is designated and authorized by the track owner to supervise the particular work to be performed. Modifications and repairs which materially modify the capacity of the bridge or the stresses in any primary load-carrying component of the bridge must be performed according to the specific or general specifications and instructions issued by a railroad bridge engineer. Particularly when trains are permitted to pass over a bridge which is being repaired or modified, the supervisor at the bridge must be able to make the necessary determination to either permit, restrict or halt train operation depending on the state of the bridge. As this part does not specify the employment relationship between the track owner and the bridge supervisor, the track owner may designate a contractor or a consultant as the bridge supervisor.

One commenter asked if FRA would object to a track owner designating a contractor's foreman as the bridge supervisor qualified to return a bridge to service at the end of each work window. The commenter also stated that small railroads that do not have a bridge engineer may have to designate their engineering consultant as the bridge supervisor whose full-time presence on a job will be expensive and will take money away from repairs. FRA responds that the proposed regulation does not specify the employment relationship between the track owner and a bridge supervisor. A contractor employee or a consultant may be so designated. It is necessary, however, that a qualified individual be responsible for the proper and safe performance of work on a bridge, and that the individual be authorized to perform the actions necessary to fulfill that responsibility.

Subpart G—Documentation, Records, and Audits of Bridge Management Programs

Documentation is essential to any effective management program. In subpart G, FRA establishes minimum standards to be incorporated in railroad bridge management programs to provide for verification of the effectiveness of the program and the accuracy of the information developed thereby, by the track owner and by FRA to evaluate compliance with this regulation.

Section 237.151 Audits; General

In this section, FRA requires that each program adopted to comply with this part include provisions for auditing the effectiveness of the several provisions of that program, including the validity of bridge inspection reports and bridge inventory data, and the correct application of movement restrictions to railroad equipment of exceptional weight or configuration. Effective management of a safety-critical program such as this requires an adequate level of checks to assure that the requisite work is being performed correctly.

Section 237.153 Audits of Inspections

FRA has found over the years during which it has conducted evaluations of railroad bridge programs that one of the most important indicators of the effectiveness of a program is a comparison of recent bridge inspection reports against actual conditions found at the subject bridges. This is fundamental to an effective audit of a bridge management program. Therefore, in this section, FRA states that each bridge management program incorporate provisions for an internal audit. Each bridge management program shall incorporate provisions for an internal audit to determine whether the inspection provisions of the program are being followed, and whether the program itself is effectively providing for the continued safety of the subject bridges. Additionally, the inspection audit shall include an evaluation of a representative sampling of bridge inspection reports at the bridges noted on the reports to determine whether the reports accurately describe the condition of the bridge.

Section 237.155 Documents and Records

In this section, FRA requires each track owner required to implement a bridge management program and keep records under this part to make those program documents and records available for inspection and reproduction by FRA. This section addresses Congress' mandate in the RSIA to establish a program to periodically review bridge inspection and maintenance data from railroad carrier bridge inspectors and FRA bridge experts. See Section 417(d), Public Law 110–432, 122 Stat. 4890 (49 U.S.C. 20103, note). As in the case of all railroad safety regulations, FRA has an enforcement responsibility. FRA will require access to the vital documents and records of the various bridge management programs to enable it to carry out that responsibility.

Paragraphs (a) and (b). In these paragraphs, FRA establishes minimum standards for electronic record-keeping provisions that a track owner may elect to utilize to comply with the record-keeping provisions of this part. FRA recognizes the growing prevalence of electronic records, and acknowledges the unique challenges that electronic transmission, storage, and retrieval of records can present. To allow for future advances in technology, FRA is establishing electronic record storage provisions in these paragraphs that are technology-neutral.

For purposes of complying with the record-keeping requirements of this part, a track owner may create and maintain any of the required records through electronic transmission, storage, and retrieval, provided that certain conditions are met. Not only must the system used to generate the electronic records meet all of the requirements of this subpart and the records contain all of the information required by this subpart, but the track owner must also: monitor the electronic database through a sufficient number of monitoring indicators to ensure a high degree of the accuracy of the records; train the employees who use the system on the proper use of the system; and maintain an information technology security program adequate to ensure the integrity of the system, including the prevention of unauthorized access to the program logic or individual records.

Additionally, the integrity of the bridge inspection records must be protected by a security system that incorporates user identity and password, or a comparable method, to establish appropriate levels of program and record data access meeting all of the following standards: no two individuals can have the same electronic identity; a record cannot be deleted or altered by any individual after the record is certified by the employee who created the record; any amendment to the record must either be electronically stored apart from the record it amends, or electronically attached to the record as information without changing the original record; each amendment to a record must uniquely identify the person making the amendment; and the electronic system must provide for the maintenance of inspection records as originally submitted without corruption or loss of data.

Two commenters expressed a general concern that the security provisions of the proposed rule would preclude the modification of permanent bridge records, such as the inventory itself. As FRA responds that was not the intent, the final rule has been modified so that the data security provisions apply only to bridge inspection records.

Appendix A to Part 237—Supplemental Statement of Agency Policy on the Safety of Railroad Bridges

A Statement of Agency Policy on the Safety of Railroad Bridges was originally published by FRA in 2000 as Appendix C of the Federal Track Safety Standards, 49 CFR part 213. With the issuance of 49 CFR part 237, Bridge Safety Standards, certain non-regulatory provisions in that Policy Statement have been incorporated in that regulation. However, FRA has determined that other non-regulatory items are still useful as information and guidance. Those provisions of the Policy Statement are therefore retained and placed in this Appendix in lieu of their former location in the Track Safety Standards.

Appendix B to Part 237—Schedule of Civil Penalties

Consistent with FRA's Statement of Agency Policy Concerning Enforcement of the Federal Railroad Safety Laws, a penalty may be assessed against an individual only for a willful violation. The Administrator reserves the right to assess a penalty of up to $100,000 for any violation where circumstances warrant. See 49 CFR part 209, appendix A.

VI. Regulatory Impact and Notices

A. Executive Order 12866 and DOT Regulatory Policies and Procedures

This final rule has been evaluated in accordance with existing policies and procedures and determined to be non-significant under both Executive Order 12866 and DOT policies and procedures. See 44 FR 11034; February 26, 1979. FRA has prepared and placed in the docket a regulatory impact analysis addressing the economic impacts from this final rule.

As part of the regulatory impact analysis FRA has assessed quantitative measurements of the cost and benefit streams expected from the adoption of this final rule. For the 20-year period the estimated quantified costs total $164.2 million, and have a present value (PV, 7%) of $84.4 million. For the same period of time the estimated quantified benefits total $19.4 million and have a PV(7%) of $9.8 million. These benefits are exclusive of long-term efficiencies to the railroads with respect to conservation of the capital value of the structures in question. Very often targeted repairs or restoration at an early stage in the deterioration of a bridge may significantly extend the useful life of a bridge. The benefits also do not consider the potential for a catastrophic event resulting in a bridge failure and consequent fatalities to railroad personnel, rail passengers, or persons underneath the bridge. Although FRA has verified through its bridge program that most railroads properly manage their bridges most of the time, in the recent past FRA has also determined circumstances—even on Class I railroads—where proper inspections or repairs have been inappropriately deferred. Accordingly, this final rule offers the opportunity to capture and extend the current heightened attention to bridge management achieved through industry and FRA efforts over the past several years.

B. Regulatory Flexibility Act and Executive Order 13272; Final Regulatory Flexibility Assessment

The Regulatory Flexibility Act (5 U.S.C. 601 *et seq.*) and Executive Order 13272 require a review of proposed and final rules to assess their impacts on small entities. An agency must prepare an initial regulatory flexibility analysis (IRFA) unless it determines and certifies that a rule, if promulgated, would not have a significant impact on a substantial number of small entities. During the NPRM stage, FRA had not determined whether the proposed rule would have a significant economic impact on a substantial number of small entities. Therefore, FRA published an IRFA to aid the public in commenting on the potential small business impacts of the proposals in the NPRM. All interested parties were invited to submit data and information regarding the potential economic impact that would result from adoption of the proposals in the NPRM.

The Regulatory Flexibility Act also requires an agency to conduct a final regulatory flexibility assessment (FRFA) unless it determines and certifies that a rule is not expected to have a significant impact on a substantial number of small entities. FRA is not able to certify that the final rule will not have a significant economic impact on a substantial number of small entities due to insufficient information. FRA did not receive many comments, or data from commenters, on the IRFA, and the information that was received was not sufficient to make a determination. Thus, FRA is publishing this FRFA and will issue a small entity guidance document soon.

FRA estimates, primarily based on two facts, that approximately 70 percent of the total cost of this rulemaking (see regulatory impact analysis (RIA)) will be borne by small entities. First, larger railroads generally have more comprehensive bridge management programs and more frequent bridge inspections. Second, since FRA's RIA is an overall industry analysis, it is not immediately obvious that the incremental cost burden on small railroads is proportionally larger than for larger entities. This is because more small railroads will have to increase inspection frequency and enhance their management programs. It should be noted that the bridge populations of typical small railroads are less complex than those of larger railroads.

Below, FRA provides the rationale it used for assessing what impacts would be borne by small entities. FRA considered all comments received in the public comment process when making a determination in the FRFA.

This FRFA was developed in accordance with the Regulatory Flexibility Act.

(1) A Succinct Statement of the Need for and Objectives of the Rule

As discussed in Section I of the preamble to this rule, the structural integrity of bridges that carry railroad tracks is important because the severity of a train accident is usually compounded when a bridge is involved, regardless of the cause of the accident. In 2000, FRA published a final statement of agency policy for the safety of railroad bridges, establishing criteria to ensure the structural integrity of bridges that carry railroad tracks. The Rail Safety Improvement Act of 2008 (RSIA) directs FRA to issue, by October 16, 2009, regulations requiring railroad track owners to adopt and follow specific procedures to protect the safety of their bridges.

There are more than 100,000 railroad bridges in the United States. Federal regulations offer the benefit of uniformity that would allow railroads that operate in more than one State to develop and implement a single management program that would apply to all of its railroad bridges, supporting one or more tracks, rather than several programs tailored to meet the different requirements of each different State or local jurisdiction.

FRA is issuing this rule to promulgate minimum bridge safety standards as mandated by RSIA, Section 417, Public Law 110–432, 122 Stat. 4890 (49 U.S.C. 20103, note).

(2) A Summary of the Significant Issues Raised by the Public Comments in Response to the IRFA, a Summary of the Assessment of the Agency of Such Issues, and a Statement of Any Changes Made to the Proposed Rule as a Result of Such Comments

No comments were received that directly addressed the IRFA. However, a few comments did address items of cost used in the RIA, which are related to the IRFA for the NPRM.

(a) Security of Records

In 49 CFR 237.155, FRA proposed numerous recordkeeping requirements primarily dealing with security. The recordkeeping requirements in the proposed rule assumed that the documents would be kept electronically. One commenter noted that not all documents for small railroads would be maintained that way. Thus, the final rule has a minor revision that accommodates bridge inspection records that are not electronic. The impact of this minor change will not cause any cost calculation changes.

(b) Bridge Inspection Cost

One commenter did not agree with the average bridge inspection cost that the FRA used in its RIA. More specifically, this commenter mentioned that $750 for the average cost of a bridge inspection is not realistic. This commenter also opined that the actual cost is more excessive (in the range of $4,000 to $5,000 per bridge) for a bridge that was inspected on a 2-year cycle.

FRA disagrees with this commenter and believes that the cost used in the RIA for the NPRM is appropriate, given its understanding and interpretation of the regulatory requirements. In response, FRA emphasizes that its cost estimate is an average that includes lower cost inspections, such as that of a wood trestle bridge over a small stream, which would be less than the average cost. In addition, this commenter was basing the higher cost estimate on a more expensive, hands-on detailed bridge inspection process required on a 2-year frequency for highway bridges by FHWA. Finally, this commenter was providing comments related to experiences with inspecting a population of large highway bridges. For these reasons, FRA has not modified its cost estimate for bridge inspections.

(3) A Description and an Estimate of the Number of Small Entities to Which the Rule Will Apply or an Explanation of Why No Such Estimate Is Available

The "universe" of the entities to be considered generally includes only those small entities that are reasonably expected to be directly regulated by this action. Two types of small entities are potentially affected by this rulemaking: (1) railroads that own track supported by a bridge, and (2) governmental jurisdictions of small communities that own railroad bridges.

"Small entity" is defined in 5 U.S.C. 601 as having the same meaning as "small business concern" under Section 3 of the Small Business Act. This includes any small business concern that is independently owned and operated, and is not dominant in its field of operation. Section 601(4) includes nonprofit enterprises that are independently owned and operated, and are not dominant in their field of operations within the definition of "small entities." Additionally, 5 U.S.C. 601(5) defines "small entities" as governments of cities, counties, towns, townships, villages, school districts, or special districts with populations less than 50,000.

The U.S. Small Business Administration (SBA) stipulates "size standards" for small entities. It provides that the largest a for-profit railroad business firm may be (and still classify as a "small entity") is 1,500 employees for "line-haul operating" railroads, and

500 employees for "shortline operating" railroads.[1]

SBA size standards may be altered by Federal agencies in consultation with SBA and in conjunction with public comment. Pursuant to the authority provided to it by SBA, FRA has published a final policy, which formally establishes small entities as railroads that meet the line haulage revenue requirements of a Class III railroad.[2] Currently, the revenue requirements are $20 million or less in annual operating revenue, adjusted annually for inflation. The $20 million limit (adjusted annually for inflation) is based on the Surface Transportation Board's threshold of a Class III railroad carrier, which is adjusted by applying the railroad revenue deflator adjustment.[3] The same dollar limit on revenues is established to determine whether a railroad shipper or contractor is a small entity. FRA proposed to use this definition for the rulemaking in the NPRM and received no comments on that proposal. FRA is using this definition for the final rule.

(a) Governmental Jurisdictions of Small Communities

Small entities that are classified as governmental jurisdictions of small communities may also be affected by this rulemaking. As stated above, and defined by SBA, this term refers to the governments of cities, counties, towns, townships, villages, school districts, or special districts with populations of less than 50,000. The potential impact of this rulemaking to these entities is related to their ownership of a bridge, and possibly the track supported by the bridge as well. Such bridges are usually built by communities, with railroad collaboration, to achieve highway-rail grade separation. FRA does not have information regarding the number of small communities that own such bridges and received no additional information during the comment process of the NPRM.

In some cases, however, the government entity and the railroad apportion ownership, expenses, and maintenance responsibility according to the provisions of an order from the State regulatory agency that governs highway and railroad crossing improvements. It is most common for the railroad to retain the responsibility for the actual inspection and management of the bridge. To the extent that agreements which require cost-sharing and existing bridge management programs would have to be enhanced to meet the final regulation, there may be some burden passed on to small government jurisdictions; however, such burden is not expected to be substantial. To the extent that any burden does result, it is possible that insurance premiums could be adjusted to reflect the risk reduction, resulting in some level of savings in addition to the cost of the program enhancement. This would, of course, be in addition to safety benefits related to fewer accidents.

Accordingly, FRA cannot accurately assess the number of governmental jurisdictions of small communities that would be directly impacted by this regulation and what the impact would be to them. FRA requested comment from affected governmental jurisdictions as to the impact the proposed rule would have on them during the NPRM comment process. The comments received during the public comment period of the NPRM did not provide any additional data or information on this issue.

(b) Railroads

There are approximately 687 small railroads meeting the definition of "small entity" as described above. FRA estimates that approximately 95 percent of these small entities, or approximately 653, own track supported by a bridge. Because the final rule would apply to all of these small railroads, FRA has concluded that a substantial number of such entities would be impacted. Note, however, that approximately 125 of these railroads are subsidiaries of large shortline holding companies with the expertise and resources comparable to larger railroads. In the IRFA for the NPRM, FRA estimated a smaller number of subsidiaries, but since then has gained more accurate information as to the best estimate of how many small railroads are subsidiaries of larger corporations. In addition, absent this rulemaking, most railroads that own track supported by bridges, including many of the railroads identified as small entities, would to some extent voluntarily incur the expense associated with implementation of the bridge management programs in accordance with the requirements imposed by FRA to address the risk associated with structural failure of a bridge. In fact, the ASLRRA, which represents most of the small railroads impacted by this rulemaking, has developed a model bridge management program intended to keep bridge and culvert infrastructure safe and structurally sound. Member railroads are expected to take the generic plan and customize it to meet their specific circumstances and the requirements in this rule. Such initiative would minimize the program development cost. Nevertheless, program implementation costs may be substantial for those small railroads that do not currently have bridge management programs, and do not inspect railroad bridges regularly.

While FRA does recognize that some small railroads do not currently have bridge management programs, FRA believes that many railroads have already made (or are making) the transition to track structures and bridges capable of handling 286,000-pound cars in line with the general movement in the industry toward these heavier freight cars. To protect such investments, which are usually quite significant, railroads are already implementing bridge management programs.

For example, in 2005, the Texas Transportation Institute reported that 42 percent of the shortline railroad miles that were operated in Texas that year had already been upgraded, 9 percent would not need an upgrade, and 47 percent needed upgrading if they wanted to transport any type of 286,000-pound shipments.[4] In addition, the results of a 1998–1999 survey conducted by ASLRRA indicated that 41 percent of respondent shortline railroads could handle 286,000-pound rail cars and 87 percent of the respondent shortline railroads indicated that they would need to accommodate 286,000-pound railcars in the future.[5]

In addition, at least one Class I railroad has arranged for shortline and regional railroads that connect with it to send participants to several multiday bridge inspection classes this year.

In general, implementation of the final rule will likely significantly burden only a small portion of the small railroads potentially affected. FRA invited commenters to submit information that might assist us in assessing the cost impacts on small railroads of the proposals during the comment process of the NPRM; however, very little comment was received on this matter, and comments received were not sufficient to allow us to make a determination.

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[1] "Table of Size Standards," U.S. Small Business Administration, January 31, 1996, 13 CFR Part 121. *See also* NAICS Codes 482111 and 482112.

[2] *See* 68 FR 24891 (May 9, 2003).

[3] For further information on the calculation of the specific dollar limit, please see 49 CFR Part 1201.

[4] Jeffrey E. Warner and Manuel Solari Terra, "Assessment of Texas Short Line Railroads," Texas Transportation Institute (November 15, 2005).

[5] The 10-Year Needs of Short Line and Regional Railroads, Standing Committee on Rail Transportation, American Association of State Highway and Transportation Officials, Washington, DC (December 1999). This report was based on a survey conducted by the ASLRRA in 1998 and 1999, with data from 1997.

(4) A Description of the Projected Reporting, Recordkeeping, and Other Compliance Requirements of the Rule, Including an Estimate of the Classes of Small Entities That Will Be Subject to the Requirement and the Type of Professional Skills Necessary for Preparation of the Report or Record

The impacts from this rulemaking will primarily result from complying with the requirements for the adoption of bridge management programs. The final rule provides affected entities 6- to 24-month periods of time in which to adopt such programs. Class III railroads will have the full 24-month period from the effective date of the final rule, unless they have more than 10 scheduled passenger trains per week operating anywhere on their system, in which case they would have only 6 months.

(a) Recordkeeping Requirements of § 237.33

The requirements in § 237.33 stipulate that each bridge management program includes an accurate inventory of railroad bridges; a record of the safe load capacity of each bridge; a provision to obtain and maintain the design documents of each bridge if available, and to document all repairs, modifications, and inspections of each bridge; and a bridge inspection program covering the method of documenting inspections, including standard forms and formats.

FRA believes that most railroads, regardless of size, already maintain an accurate inventory of their railroad bridges, records of the safe load capacity of their bridges, and design documents to the extent they are available. Likewise, because it is good business practice to do so, most railroads maintain documents related to all repairs, modifications, and inspections of bridges. The States of Ohio, Michigan, and New York have existing bridge regulations requiring railroads to maintain bridge inventories and inspect bridges annually. There are approximately 100 small railroads that operate in those States. However, some railroads may not include in their documentation some of the particular data items specified in this rule. Thus these requirements will impose a nominal additional recordkeeping burden on some small railroads.

As noted above, not all small railroads have inspection programs. ASLRRA, however, has developed a model program for its members, thus minimizing the burden associated with the development of such plans. FRA estimates that the burden for individual railroad customization of the program would range from $570, for the smaller Class III railroads, to $3,000 for the larger Class III railroads. Costs associated with maintenance, modifications, and updates to bridge management plans will average approximately 15 percent of the initial development cost, or between $85 and $450, annually. Therefore, this reporting requirement will have minimal impact on small entities.

Determination of bridge load capacity will be made by a bridge engineer. The engineer is determined by the track owner to be competent to perform the functions necessary for the determination of load capacity. Bridge inspection procedures would be specified by a railroad bridge engineer who is designated as responsible for the conduct and review of the inspections.

(b) Bridge Inspections

Bridge management programs will be required to contain bridge inspection programs. Subpart E requires calendar year inspections of bridges according to specified procedures, as well as special inspection of bridges that might be damaged by a natural or accidental event. This subpart also specifies that bridge inspections must be conducted under the direct supervision of a designated bridge inspector. The inspector is deemed technically competent to view, measure, report, and record the condition of a railroad bridge and its individual components. FRA expects there will be a significant increase in the number of bridge inspections conducted by small railroads or their contractors or consulting engineers. FRA requested comments and input regarding the extent to which Class III railroads already conduct annual inspection of bridges and the extent to which they would have to conduct additional bridge inspections. FRA did not receive any comments or information related to this request.

Most small railroads do not have bridge engineers or inspectors on staff. They contract out bridge inspections. A typical contract is for the inspection of most (if not all) the bridges the railroad owns, with delivery of a final report addressing the state of all bridges. Interim reports are provided to the railroad, or the responsible railroad bridge engineer, to record the fact that a certain bridge has actually been inspected and whether or not any significant deficiencies were noted. Some States provide shortline railroads funding via grants and loans for infrastructure improvements including bridge rehabilitation, track maintenance, and bridge inspection. For instance, the Tennessee Department of Transportation provides significant grants for such projects to most of the 20 Class III railroads in the State.[6] The Pennsylvania Department of Transportation administers a matching grant program to support freight railroad maintenance and construction costs.

FRA believes that small railroads own, or would otherwise be responsible for inspecting, approximately 20,000 bridges. FRA estimates that the average cost per bridge inspection is $750, and that approximately 10,000 bridges are being inspected less frequently than once a year, while 5,000 are not inspected at all. Most small railroads may own track supported by several bridges, especially in some areas where the terrain requires such structures. FRA requested comment regarding the level of cost burden that the annual inspection would impose. The cost for this requirement was the largest cost in FRA's RIA. FRA believes that, of the railroads which do not presently inspect their bridges on an annual basis, most are small railroads.

(c) Determination of Bridge Load Capacities

Subpart D requires the determination of bridge load capacities. FRA believes that railroad bridge owners are generally aware of bridge load capacities. Nevertheless, it is likely that some railroads will have to take action to verify this information in order to develop the type of documentation required by this subpart. Bridge load capacity information is vital to ensuring that safe capacity is not exceeded. Small railroads affected by this requirement will likely have a consulting engineer perform such calculations. Most of the bridges that do not already have load capacities calculated are smaller, less complex structures.

(d) Repair and Modification of Bridges

Subpart F prescribes minimum standards for bridge modification and repair that will materially modify the capacity of a bridge or the stresses in any primary load carrying component of the bridge. Modifications and repairs to bridges (except for minor modifications and repairs) will have to be designed by railroad bridge engineers, and the work will have to be supervised by designated bridge supervisors. Small railroads will generally contract out such modifications and repairs. As common

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[6] U.S. General Accounting Office, "Railroad Bridges and Tunnels, Federal Role in Providing Safety Oversight and Freight Infrastructure Investment Could Be Better Targeted," August 2007, (GAO–07–770).

practice, consulting engineers meet the design and supervision requirements of this rule, and competent contractor employees may be designated to perform the immediate supervision of much of the modification and repair work.

(e) Audits

Each program will have to include provisions for auditing the effectiveness of several provisions of the program, including the validity of bridge inspection reports and bridge inventory data, and the correct application of movement restrictions to railroad equipment of exceptional weight or configuration. FRA anticipates that Class III railroad audits will generally be performed by a company official following guidance in the ASLRRA model program and without assistance from an external financial or engineering auditor. In general, FRA anticipates that the audit process will be simpler and consume fewer resources for small railroads than for larger railroads. This is because, by the nature of their operations, shortlines will probably have smaller and less complex bridge populations.

(5) A Description of the Steps the Agency Has Taken To Minimize the Significant Adverse Economic Impact On Small Entities Consistent With the Objectives of Applicable Statutes, Including a Statement of Factual, Policy, and Legal Reasons for Selecting the Alternative Adopted in the Final Rule, and Why Each of the Other Significant Alternatives to the Rule Considered by the Agency Was Rejected

In § 237.31, FRA sets the schedule for railroads to adopt bridge safety management programs. In consideration of the impact on small railroads that may not already have such programs, this schedule generally provides small railroads with an additional 18 months more than Class I carriers, and an additional 12 months more than Class II carriers, to adopt these programs.

FRA has identified no additional, significant alternative to this final rule that satisfies the mandate of the RSIA or meets the agency's objective in promulgating this rule, and that would minimize the economic impact of the rulemaking on small entities. As in all aspects of this rulemaking, FRA requested comments on this finding of no significant alternative related to small entities. No comments were received relative to the question of what alternatives could be provided to small entities.

The process by which this final rule was developed provided outreach to small entities. As noted in Section III of this final rule, this rule was developed in consultation with industry representatives through RSAC, which includes small railroad representatives. On December 10, 2008, RSAC referred to the Working Group, established in March 2008, the task of developing a draft rule requiring the owners of track carried on one or more railroad bridges to adopt a bridge safety management program to reduce the risk of human casualties, environmental damage, and disruption to the Nation's railroad transportation system resulting from catastrophic bridge failure. The Working Group met twice, on January 28–29, 2009, and February 23–24, 2009. Small railroad representatives participated in both meetings and raised issues of concern to small railroads. Of specific concern to small railroads that own several bridges and contract out the inspection of these bridges, was the ability to continue to enter into such contractual agreements structured such that final inspection reports are submitted as part of a single report at the completion of the contract, which could span several months. After the comment period for the NPRM closed, FRA held a 1-day meeting for the Working Group to review the comments to the docket. This meeting was held in Washington, DC, on December 15, 2009. At this meeting all comments were reviewed and the Working Group provided FRA with pertinent input on potential issues. This final rule takes into account the comments and input provided by the Working Group.

C. Paperwork Reduction Act

The information collection requirements in this final rule have been submitted for approval to the Office of Management and Budget (OMB) under the Paperwork Reduction Act of 1995, 44 U.S.C. 3501 *et seq.* The sections that contain the new information collection requirements and the estimated time to fulfill each requirement are as follows:

CFR Section	Respondent universe	Total annual responses	Average time per response	Total annual burden hours
237.3:				
Notifications to FRA of Assignment of Bridge Responsibility.	693 Railroads	15 notifications	90 minutes	22.5
Signed Statement by Assignee Concerning Bridge Responsibility.	693 Railroads	15 signed statements	30 minutes	7.5
237.9: Waivers—Petitions	693 Railroads	12 petitions	4 hours	48
237.31 and 237.33: Development/Adoption of Bridge Management Program.	693 Railroads	693 plans	Varies	20,100
237.57: Designation of Qualified Individuals	693 Railroads	200 designations	30 minutes	100
237.71: Determination of Bridge Load Capacities	693 Railroads	2,000 determinations	8 hours	16,000
237.73: Issuance of Instructions to Railroad Personnel by Track Owner.	693 Railroads	2,000 instructions	2 hours	4,000
237.105:				
Special Bridge Inspections and Reports/Records	693 Railroads	7,500 inspections and reports/records.	12.50 hours	93,750
Special Underwater Inspections	693 Railroads	50 inspections and reports/records.	40 hours	2,000
237.107 and 237.109:				
Nationwide Annual Bridge Inspections—Reports	693 Railroads	18,000 inspections and reports.	4 hours	72,000
Records	693 Railroads	18,000 records	1 hour	18,000

CFR Section	Respondent universe	Total annual responses	Average time per response	Total annual burden hours
Report of Deficient Condition on a Bridge (New from NPRM).	693 Railroads	50 reports	30 minutes	25
237.111:				
Review of Bridge Inspection Reports by Railroad Bridge Engineers.	693 Railroads	2,000 inspection report reviews.	30 minutes	1,000
Prescription of Bridge Inspection Procedure Modifications After Review.	693 Railroads	200 inspection procedure modifications.	30 minutes	100
237.131:				
Design of Bridge Modifications or Bridge Repairs	693 Railroads	1,250 designs	16 hours	20,000
Bridge Modification Repair Reviews/Supervisory Efforts	693 Railroads	1,250 bridge modification repair reviews.	1.50 hours	1,875
Common Standard Designed by Railroad Bridge Engineer (New from NPRM).	693 Railroads	50 standards	24 hours	1,200
237.153: Audits of Inspections	693 Railroads	693 inspection audits	80 hours/24 hours/6 hours.	5,470
237.155—Documents and Records:				
Establishment of Railroad Monitoring and Information Technology Security Systems for Electronic Recordkeeping.	693 Railroads	5 systems	80 hours	400
Employees Trained in System	693 Railroads	100 employees	8 hours	800

All estimates include the time for reviewing instructions; searching existing data sources; gathering or maintaining the needed data; and reviewing the information. For information or a copy of the paperwork package submitted to OMB, contact Mr. Robert Brogan at 202–493–6292 or Ms. Kimberly Toone at 202–493–6132, or via e-mail at the following respective addresses: *Robert.Brogan@dot.gov;* or *Kimberly.Toone@dot.gov.*

Organizations and individuals desiring to submit comments on the collection of information requirements should direct them to the Office of Management and Budget, Office of Information and Regulatory Affairs, Washington, DC 20503, Attention: FRA Desk Officer. Comments may also be sent via e-mail to the Office of Management and Budget at the following address: *oira_submissions@omb.eop.gov.*

OMB is required to make a decision concerning the collection of information requirements contained in this final rule between 30 and 60 days after publication of this document in the **Federal Register**. Therefore, a comment to OMB is best assured of having its full effect if OMB receives it within 30 days of publication.

FRA cannot impose a penalty on persons for violating information collection requirements that do not display a current OMB control number, if required. FRA intends to obtain current OMB control numbers for any new information collection requirements resulting from this rulemaking action prior to the effective date of this final rule. The OMB control number, when assigned, will be announced by separate notice in the **Federal Register**.

D. Environmental Impact

FRA has evaluated this final rule in accordance with its “Procedures for Considering Environmental Impacts” (FRA’s Procedures) (64 FR 28545, May 26, 1999) as required by the National Environmental Policy Act (42 U.S.C. 4321 *et seq.*), other environmental statutes, Executive Orders, and related regulatory requirements. FRA has determined that this action is not a major FRA action (requiring the preparation of an environmental impact statement or environmental assessment) because it is categorically excluded from detailed environmental review pursuant to section 4(c)(20) of FRA’s Procedures. 64 FR 28547, May 26, 1999. In accordance with section 4(c) and (e) of FRA’s Procedures, the agency has further concluded that no extraordinary circumstances exist with respect to this final rule that might trigger the need for a more detailed environmental review. As a result, FRA finds that this final rule is not a major Federal action significantly affecting the quality of the human environment.

E. Federalism Implications

Executive Order 13132, “Federalism” (64 FR 43255, Aug. 10, 1999), requires FRA to develop an accountable process to ensure “meaningful and timely input by State and local officials in the development of regulatory policies that have federalism implications.” “Policies that have federalism implications” are defined in the Executive Order to include regulations that have “substantial direct effects on the States, on the relationship between the national government and the States, or on the distribution of power and responsibilities among the various levels of government.” Under Executive Order 13132, the agency may not issue a regulation with federalism implications that imposes substantial direct compliance costs and that is not required by statute, unless the Federal government provides the funds necessary to pay the direct compliance costs incurred by State and local governments or the agency consults with State and local government officials early in the process of developing the regulation. Where a regulation has federalism implications and preempts State law, the agency seeks to consult with State and local officials in the process of developing the regulation.

FRA has analyzed this final rule in accordance with the principles and criteria contained in Executive Order 13132. This final rule will not have a substantial direct effect on the States, on the relationship between the Federal government and the States, or on the distribution of power and responsibilities among the various levels of government. FRA has also determined that this final rule will not impose substantial direct compliance costs on State and local governments. Therefore, the consultation and funding requirements of Executive Order 13132 do not apply.

Moreover, FRA notes that RSAC, which provided advice regarding this final rule, has as permanent members, two organizations representing State and local interests: AASHTO and ASRSM. Both of these State organizations concurred with the RSAC recommendation made in this rulemaking. RSAC regularly provides recommendations to the Administrator of FRA for solutions to regulatory issues that reflect significant input from its State members. To date, FRA has received no indication of concerns about the federalism implications of this rulemaking from these representatives or from any other representatives of State government.

However, this final rule could have preemptive effect by operation of law under a provision of the former Federal Railroad Safety Act of 1970 (former FRSA), 49 U.S.C 20106 (Sec. 20106). The former FRSA provides that States may not adopt or continue in effect any law, regulation, or order related to railroad safety or security that covers the subject matter of a regulation prescribed or order issued by the Secretary of Transportation (with respect to railroad safety matters) or the Secretary of Homeland Security (with respect to railroad security matters), except when the State law, regulation, or order qualifies under the "local safety or security hazard" exception to Section 20106.

In sum, FRA has analyzed this final rule in accordance with the principles and criteria contained in Executive Order 13132. As explained above, FRA has determined that this final rule has no federalism implications, other than the possible preemption of State laws under the former FRSA. Accordingly, FRA has determined that preparation of a federalism summary impact statement for this final rule is not required.

F. Unfunded Mandates Reform Act of 1995

Pursuant to Section 201 of the Unfunded Mandates Reform Act of 1995 (Pub. L. 104–4, 2 U.S.C. 1531), each Federal agency "shall, unless otherwise prohibited by law, assess the effects of Federal regulatory actions on State, local, and tribal governments, and the private sector (other than to the extent that such regulations incorporate requirements specifically set forth in law)." Section 202 of the Act (2 U.S.C. 1532) further requires that "before promulgating any general notice of proposed rulemaking that is likely to result in the promulgation of any rule that includes any Federal mandate that may result in the expenditure by State, local, and tribal governments, in the aggregate, or by the private sector, of $100,000,000 or more (adjusted annually for inflation) (currently $140,800,000) in any 1 year, and before promulgating any final rule for which a general notice of proposed rulemaking was published, the agency shall prepare a written statement" detailing the effect on State, local, and tribal governments and the private sector. This final rule will not result in the expenditure, in the aggregate, of $140,800,000 or more in any one year, and thus preparation of such a statement is not required.

G. Energy Impact

Executive Order 13211 requires Federal agencies to prepare a Statement of Energy Effects for any "significant energy action." See 66 FR 28355, May 22, 2001. Under the Executive Order a "significant energy action" is defined as any action by an agency that promulgates or is expected to lead to the promulgation of a final rule or regulation, including notices of inquiry, advance notices of proposed rulemaking, and notices of proposed rulemaking: (1)(i) That is a significant regulatory action under Executive Order 12866 or any successor order, and (ii) is likely to have a significant adverse effect on the supply, distribution, or use of energy; or (2) that is designated by the Administrator of the Office of Information and Regulatory Affairs as a significant energy action. FRA has evaluated this final rule in accordance with Executive Order 13211. FRA has determined that this final rule is not likely to have a significant adverse effect on the supply, distribution, or use of energy. Consequently, FRA has determined that this final rule is not a "significant energy action" within the meaning of the Executive Order.

H. Privacy Act Statement

Anyone is able to search the electronic form of all comments received into any of DOT's dockets by the name of the individual submitting the comment (or signing the comment, if submitted on behalf of an association, business, labor union, etc). You may review DOT's complete Privacy Act Statement published in the **Federal Register** on April 11, 2000 (Volume 65, Number 70, Pages 19477–78), or you may visit *http://DocketsInfo.dot.gov.*

List of Subjects

49 CFR Part 213

Penalties, Railroad safety, Reporting and recordkeeping requirements.

49 CFR Part 237

Penalties, Railroad safety, Bridge safety, Reporting and recordkeeping requirements.

The Rule

■ In consideration of the foregoing, FRA amends chapter II, subtitle B, of title 49, Code of Federal Regulations by removing appendix C to part 213 and adding part 237 as follows:

PART 213—[AMENDED]

■ 1. The authority citation for part 213 continues to read as follows:

Authority: 49 U.S.C. 20102–20114 and 20142; 28 U.S.C. 2461, note; and 49 CFR 1.49.

Appendix C to Part 213—[Removed]

■ 2. In part 213, remove appendix C.

■ 3. Add part 237 to read as follows:

PART 237—BRIDGE SAFETY STANDARDS

Authority: 49 U.S.C. 20102–20114; P.L. 110–432, division A, section 417; 28 U.S.C. 2461, note; and 49 CFR 1.49.

Subpart A—General

§ 237.1 Application.

(a) Except as provided in paragraphs (b) or (c) of this section, this part applies to all owners of railroad track with a gage of two feet or more and which is supported by a bridge.

(b) This part does not apply to bridges on track used exclusively for rapid transit operations in an urban area that are not connected with the general railroad system of transportation.

(c) This part does not apply to bridges located within an installation which is not part of the general railroad system of transportation and over which trains are not operated by a railroad.

§ 237.3 Responsibility for compliance.

(a) Except as provided in paragraph (b) of this section, an owner of track to which this part applies is responsible for compliance.

(b) If an owner of track to which this part applies assigns responsibility for the bridges that carry the track to another person (by lease or otherwise), written notification of the assignment shall be provided to the appropriate FRA Regional Office at least 30 days in advance of the assignment. The notification may be made by any party to that assignment, but shall be in writing and include the following—

(1) The name and address of the track owner;

(2) The name and address of the person to whom responsibility is assigned (assignee);

(3) A statement of the exact relationship between the track owner and the assignee;

(4) A precise identification of the track segment and the individual bridges in the assignment;

(5) A statement as to the competence and ability of the assignee to carry out the bridge safety duties of the track owner under this part; and

(6) A statement signed by the assignee acknowledging the assignment to him of responsibility for purposes of compliance with this part.

(c) The Administrator may hold the track owner or the assignee, or both, responsible for compliance with this part and subject to penalties under § 237.7.

(d) A common carrier by railroad which is directed by the Surface Transportation Board to provide service over the track of another railroad under 49 U.S.C. 11123 is considered the owner of that track for the purposes of the application of this part during the period the directed service order remains in effect.

(e) When any person, including a contractor for a railroad or track owner, performs any function required by this part, that person is required to perform that function in accordance with this part.

(f) Where an owner of track to which this part applies has previously assigned responsibility for a segment of track to another person as prescribed in 49 CFR 213.5(c), additional notification to FRA is not required.

(g) FRA reserves the right to reject an assignment of responsibility under § 237.3(b) for cause shown.

§ 237.5 Definitions.

For the purposes of this part—

Bridge modification means a change to the configuration of a railroad bridge that affects the load capacity of the bridge.

Bridge repair means remediation of damage or deterioration which has affected the structural integrity of a railroad bridge.

Railroad bridge means any structure with a deck, regardless of length, which supports one or more railroad tracks, or any other undergrade structure with an individual span length of 10 feet or more located at such a depth that it is affected by live loads.

Track owner means a person responsible for compliance in accordance with § 237.3.

§ 237.7 Penalties.

(a) Any person who violates any requirement of this part or causes the violation of any such requirement is subject to a civil penalty of at least $650 and not more than $25,000 per violation, except that: Penalties may be assessed against individuals only for willful violations, and, where a grossly negligent violation or a pattern of repeated violations has created an imminent hazard of death or injury to persons, or has caused death or injury, a penalty not to exceed $100,000 per violation may be assessed. “Person” means an entity of any type covered under 1 U.S.C. 1, including but not limited to the following: A railroad; a manager, supervisor, official, or other employee or agent of a railroad; any owner, manufacturer, lessor, or lessee of railroad equipment, track, or facilities; any independent contractor providing goods or services to a railroad; any employee of such owner, manufacturer, lessor, lessee, or independent contractor; and anyone held by the Administrator of the Federal Railroad Administration to be responsible under § 237.3(d). Each day a violation continues shall constitute a separate offense. See Appendix B to this part for a statement of agency civil penalty policy.

(b) Any person who knowingly and willfully falsifies a record or report required by this part may be subject to criminal penalties under 49 U.S.C. 21311.

§ 237.9 Waivers.

(a) Any person subject to a requirement of this part may petition the Administrator for a waiver of compliance with such requirement. The filing of such a petition does not affect that person’s responsibility for compliance with that requirement while the petition is being considered.

(b) Each petition for waiver must be filed in the manner and contain the information required by part 211 of this chapter.

(c) If the Administrator finds that a waiver of compliance is in the public interest and is consistent with railroad safety, the Administrator may grant the waiver subject to any conditions the Administrator deems necessary. If a waiver is granted, the Administrator publishes a notice in the Federal Register containing the reasons for granting the waiver.

Subpart B—Railroad Bridge Safety Assurance

§ 237.31 Adoption of bridge management programs.

Each track owner shall adopt a bridge safety management program to prevent the deterioration of railroad bridges by preserving their capability to safely carry the traffic to be operated over them, and reduce the risk of human casualties, environmental damage, and disruption to the Nation’s railroad transportation system that would result from a catastrophic bridge failure, not later than the dates in the following schedule:

(a) March 14, 2011: Class I carriers;

(b) March 14, 2011: Owners of track segments which are part of the general railroad system of transportation and which carry more than ten scheduled passenger trains per week;

(c) September 13, 2011: Class II carriers to which paragraph (b) of this section does not apply; and

(d) September 13, 2012: All other track owners subject to this part and not described paragraphs (a) through (c) of this section.

§ 237.33 Content of bridge management programs.

Each bridge management program adopted in compliance with this part shall include, as a minimum, the following:

(a) An accurate inventory of railroad bridges, which shall include a unique identifier for each bridge, its location, configuration, type of construction, number of spans, span lengths, and all other information necessary to provide for the management of bridge safety;

(b) A record of the safe load capacity of each bridge;

(c) A provision to obtain and maintain the design documents of each bridge if available, and to document all repairs, modifications, and inspections of each bridge; and

(d) A bridge inspection program covering as a minimum:

(1) Inspection personnel safety considerations;

(2) Types of inspection including required detail;

(3) Definitions of defect levels along with associated condition codes if condition codes are used;

(4) The method of documenting inspections including standard forms or formats;

(5) Structure type and component nomenclature; and

(6) Numbering or identification protocol for substructure units, spans, and individual components.

Subpart C—Qualifications and Designations of Responsible Persons

§ 237.51 Railroad bridge engineers.

(a) A railroad bridge engineer shall be a person who is determined by the track owner to be competent to perform the following functions as they apply to the particular engineering work to be performed:

(1) Determine the forces and stresses in railroad bridges and bridge components;

(2) Prescribe safe loading conditions for railroad bridges;

(3) Prescribe inspection and maintenance procedures for railroad bridges; and

(4) Design repairs and modifications to railroad bridges.

(b) The educational qualifications of a railroad bridge engineer shall include either:

(1) A degree in engineering granted by a school of engineering with at least one program accredited by ABET, Inc. or its successor organization as a professional engineering curriculum, or a degree from a program accredited as a professional engineering curriculum by a foreign organization recognized by ABET, Inc. or its successor; or

(2) Current registration as a professional engineer.

(c) Nothing in this part affects the States' authority to regulate the professional practice of engineering.

§ 237.53 Railroad bridge inspectors.

A railroad bridge inspector shall be a person who is determined by the track owner to be technically competent to view, measure, report and record the condition of a railroad bridge and its individual components which that person is designated to inspect. An inspector shall be designated to authorize or restrict the operation of railroad traffic over a bridge according to its immediate condition or state of repair.

§ 237.55 Railroad bridge supervisors.

A railroad bridge supervisor shall be a person, regardless of position title, who is determined by the track owner to be technically competent to supervise the construction, modification or repair of a railroad bridge in conformance with common or particular specifications, plans and instructions applicable to the work to be performed, and to authorize or restrict the operation of railroad traffic over a bridge according to its immediate condition or state of repair.

§ 237.57 Designations of individuals.

Each track owner shall designate those individuals qualified as railroad bridge engineers, railroad bridge inspectors and railroad bridge supervisors. Each individual designation shall include the basis for the designation in effect and shall be recorded.

Subpart D—Capacity of Bridges

§ 237.71 Determination of bridge load capacities.

(a) Each track owner shall determine the load capacity of each of its railroad bridges. The load capacity need not be the ultimate or maximum load capacity, but must be a safe load capacity.

(b) The load capacity of each bridge shall be documented in the track owner's bridge management program, together with the method by which the capacity was determined.

(c) The determination of load capacity shall be made by a railroad bridge engineer using appropriate engineering methods and standards that are particularly applicable to railroad bridges.

(d) Bridge load capacity may be determined from existing design and modification records of a bridge, provided that the bridge substantially conforms to its recorded configuration. Otherwise, the load capacity of a bridge shall be determined by measurement and calculation of the properties of its individual components, or other methods as determined by a railroad bridge engineer.

(e) If a track owner has a group of bridges for which the load capacity has not already been determined, the owner shall schedule the evaluation of those bridges according to their relative priority, as established by a railroad bridge engineer. The initial determination of load capacity shall be completed not later than five years following the required date for adoption of the track owner's bridge management program in conformance with § 237.31.

(f) Where a bridge inspection reveals that, in the determination of the railroad bridge engineer, the condition of a bridge or a bridge component might adversely affect the ability of the bridge to carry the traffic being operated, a new capacity shall be determined.

(g) Bridge load capacity may be expressed in terms of numerical values related to a standard system of bridge loads, but shall in any case be stated in terms of weight and length of individual or combined cars and locomotives, for the use of transportation personnel.

(h) Bridge load capacity may be expressed in terms of both normal and maximum load conditions. Operation of equipment that produces forces greater than the normal capacity shall be subject to any restrictions or conditions that may be prescribed by a railroad bridge engineer.

§ 237.73 Protection of bridges from over-weight and over-dimension loads.

(a) Each track owner shall issue instructions to the personnel who are responsible for the configuration and operation of trains over its bridges to prevent the operation of cars, locomotives and other equipment that would exceed the capacity or dimensions of its bridges.

(b) The instructions regarding weight shall be expressed in terms of maximum equipment weights, and either minimum equipment lengths or axle spacing.

(c) The instructions regarding dimensions shall be expressed in terms of feet and inches of cross section and equipment length, in conformance with common railroad industry practice for reporting dimensions of exceptional equipment in interchange in which height above top-of-rail is shown for each cross section measurement, followed by the width of the car of the shipment at that height.

(d) The instructions may apply to individual structures, or to a defined line segment or group(s) of line segments where the published capacities and dimensions are within the limits of all structures on the subject line segments.

Subpart E—Bridge Inspection

§ 237.101 Scheduling of bridge inspections.

(a) Each bridge management program shall include a provision for scheduling an inspection for each bridge in railroad service at least once in each calendar year, with not more than 540 days between any successive inspections.

(b) A bridge shall be inspected more frequently than provided for in the bridge management program when a railroad bridge engineer determines that such inspection frequency is necessary considering conditions noted on prior inspections, the type and configuration of the bridge, and the weight and frequency of traffic carried on the bridge.

(c) Each bridge management program shall define requirements for the special inspection of a bridge to be performed whenever the bridge is involved in an event which might have compromised the integrity of the bridge, including but not limited to a flood, fire, earthquake, derailment or vehicular or vessel impact.

(d) Any railroad bridge that has not been in railroad service and has not been inspected in accordance with this section within the previous 540 days shall be inspected and the inspection report reviewed by a railroad bridge engineer prior to the resumption of railroad service.

§ 237.103 Bridge inspection procedures.

(a) Each bridge management program shall specify the procedure to be used for inspection of individual bridges or classes and types of bridges.

(b) The bridge inspection procedures shall be as specified by a railroad bridge engineer who is designated as responsible for the conduct and review of the inspections. The inspection procedures shall incorporate the methods, means of access, and level of detail to be recorded for the various components of that bridge or class of bridges.

(c) The bridge inspection procedures shall ensure that the level of detail and the inspection procedures are appropriate to: the configuration of the bridge; conditions found during previous inspections; the nature of the railroad traffic moved over the bridge (including equipment weights, train frequency and length, levels of passenger and hazardous materials traffic); and vulnerability of the bridge to damage.

(d) The bridge inspection procedures shall be designed to detect, report and protect deterioration and deficiencies before they present a hazard to safe train operation.

§ 237.105 Special inspections.

(a) Each bridge management program shall prescribe a procedure for protection of train operations and for inspection of any bridge that might have been damaged by a natural or accidental event, including but not limited to a flood, fire, earthquake, derailment or vehicular or vessel impact.

(b) Each bridge management program shall provide for the detection of scour or deterioration of bridge components that are submerged, or that are subject to water flow.

§ 237.107 Conduct of bridge inspections.

Bridge inspections shall be conducted under the direct supervision of a designated railroad bridge inspector, who shall be responsible for the accuracy of the results and the conformity of the inspection to the bridge management program.

§ 237.109 Bridge inspection records.

(a) Each track owner to which this part applies shall keep a record of each inspection required to be performed on those bridges under this part.

(b) Each record of an inspection under the bridge management program prescribed in this part shall be prepared from notes taken on the day(s) the inspection is made, supplemented with sketches and photographs as needed. Such record will be dated with the date(s) the physical inspection takes place and the date the record is created, and it will be signed or otherwise certified by the person making the inspection.

(c) Each bridge management program shall specify that every bridge inspection report shall include, as a minimum, the following information:

(1) A precise identification of the bridge inspected;

(2) The date on which the physical inspection was completed;

(3) The identification and written or electronic signature of the inspector;

(4) The type of inspection performed, in conformance with the definitions of inspection types in the bridge management program;

(5) An indication on the report as to whether any item noted thereon requires expedited or critical review by a railroad bridge engineer, and any restrictions placed at the time of the inspection;

(6) The condition of components inspected, which may be in a condition reporting format prescribed in the bridge management program, together with any narrative descriptions necessary for the correct interpretation of the report; and

(7) When an inspection does not encompass the entire bridge, the portions of the bridge which were inspected shall be identified in the report.

(d) An initial report of each bridge inspection shall be placed in the location designated in the bridge management program within 30 calendar days of the completion of the inspection unless the complete inspection report is filed first. The initial report shall include the information required by paragraphs (c)(1) through (c)(5) of this section.

(e) A complete report of each bridge inspection, including as a minimum the information required in paragraphs (c)(1) through (c)(6) of this section, shall be placed in the location designated in the bridge management program within 120 calendar days of the completion of the inspection.

(f) Each bridge inspection program shall specify the retention period and location for bridge inspection records. The retention period shall be no less than two years following the completion of the inspection. Records of underwater inspections shall be retained until the completion and review of the next underwater inspection of the bridge.

(g) If a bridge inspector, supervisor, or engineer discovers a deficient condition on a bridge that affects the immediate safety of train operations, that person shall report the condition as promptly as possible to the person who controls the operation of trains on the bridge in order to protect the safety of train operations.

§ 237.111 Review of bridge inspection reports.

Bridge inspection reports shall be reviewed by railroad bridge supervisors and railroad bridge engineers to:

(a) Determine whether inspections have been performed in accordance with the prescribed schedule and specified procedures;

(b) Evaluate whether any items on the report represent a present or potential hazard to safety;

(c) Prescribe any modifications to the inspection procedures or frequency for that particular bridge;

(d) Schedule any repairs or modifications to the bridge required to maintain its structural integrity; and

(e) Determine the need for further higher-level review.

Subpart F—Repair and Modification of Bridges

§ 237.131 Design.

Each repair or modification which materially modifies the capacity of a bridge or the stresses in any primary load-carrying component of a bridge shall be designed by a railroad bridge engineer. The design shall specify the manner in which railroad traffic or other live loads may be permitted on the bridge while it is being modified or repaired. Designs and procedures for repair or modification of bridges of a common configuration, such as timber trestles, or instructions for in-kind replacement of bridge components, may be issued as a common standard. Where the common standard addresses procedures and methods that could materially modify the capacity of a bridge or the stresses in any primary load-carrying component of a bridge, the standard shall be designed and issued by a qualified railroad bridge engineer.

§ 237.133 Supervision of repairs and modifications.

Each repair or modification pursuant to this part shall be performed under the immediate supervision of a railroad bridge supervisor as defined in § 237.55 of this part who is designated and authorized by the track owner to supervise the particular work to be performed. The railroad bridge supervisor shall ensure that railroad traffic or other live loads permitted on the bridge under repair or modification are in conformity with the specifications in the design.

Subpart G—Documentation, Records, and Audits of Bridge Management Programs

§ 237.151 Audits; general.

Each program adopted to comply with this part shall include provisions for auditing the effectiveness of the several provisions of that program, including the validity of bridge inspection reports and bridge inventory data, and the correct application of movement restrictions to railroad equipment of exceptional weight or configuration.

§ 237.153 Audits of inspections.

(a) Each bridge management program shall incorporate provisions for an internal audit to determine whether the inspection provisions of the program are being followed, and whether the program itself is effectively providing for the continued safety of the subject bridges.

(b) The inspection audit shall include an evaluation of a representative sampling of bridge inspection reports at the bridges noted on the reports to determine whether the reports accurately describe the condition of the bridge.

§ 237.155 Documents and records.

Each track owner required to implement a bridge management program and keep records under this part shall make those program documents and records available for inspection and reproduction by the Federal Railroad Administration.

(a) *Electronic recordkeeping; general.* For purposes of compliance with the recordkeeping requirements of this part, a track owner may create and maintain any of the records required by this part through electronic transmission, storage, and retrieval provided that all of the following conditions are met:

(1) The system used to generate the electronic record meets all requirements of this subpart;

(2) The electronically generated record contains the information required by this part;

(3) The track owner monitors its electronic records database through sufficient number of monitoring indicators to ensure a high degree of accuracy of these records;

(4) The track owner shall train its employees who use the system on the proper use of the electronic recordkeeping system; and

(5) The track owner maintains an information technology security program adequate to ensure the integrity of the system, including the prevention of unauthorized access to the program logic or individual records.

(b) *System security.* The integrity of the bridge inspection records must be protected by a security system that incorporates a user identity and password, or a comparable method, to establish appropriate levels of program and record data access meeting all of the following standards:

(1) No two individuals have the same electronic identity;

(2) A record cannot be deleted or altered by any individual after the record is certified by the employee who created the record;

(3) Any amendment to a record is either—

(i) Electronically stored apart from the record that it amends; or

(ii) Electronically attached to the record as information without changing the original record;

(4) Each amendment to a record uniquely identifies the person making the amendment; and

(5) The electronic system provides for the maintenance of inspection records as originally submitted without corruption or loss of data.

Appendix A to Part 237—Supplemental Statement of Agency Policy on the Safety of Railroad Bridges

A Statement of Agency Policy on the Safety of Railroad Bridges was originally published by FRA in 2000 as Appendix C of the Federal Track Safety Standards, 49 CFR Part 213. With the promulgation of 49 CFR Part 237, Bridge Safety Standards, many of the non-regulatory provisions in that Policy Statement have been incorporated into the bridge safety standards in this part.

However, FRA has determined that other non-regulatory items are still useful as information and guidance for track owners. Those provisions of the Policy Statement are therefore retained and placed in this Appendix in lieu of their former location in the Track Safety Standards.

General

1. The structural integrity of bridges that carry railroad tracks is important to the safety of railroad employees and to the public. The responsibility for the safety of railroad bridges is specified in § 237.3, “Responsibility for compliance.”

2. The capacity of a bridge to safely support its traffic can be determined only by intelligent application of engineering principles and the law of physics. Track owners should use those principles to assess the integrity of railroad bridges.

3. The long term ability of a structure to perform its function is an economic issue beyond the intent of this policy. In assessing a bridge’s structural condition, FRA focuses on the present safety of the structure, rather than its appearance or long term usefulness.

4. FRA inspectors conduct regular evaluations of railroad bridge inspection and management practices. The objective of these evaluations is to document the practices of the evaluated railroad, to disclose any program weaknesses that could affect the safety of the public or railroad employees, and to assure compliance with the terms of this regulation. If the evaluation discloses problems, FRA seeks a cooperative resolution. If safety is jeopardized by a track owner’s failure to resolve a bridge problem, FRA will use appropriate measures, including assessing civil penalties and issuance of emergency orders, to protect the safety of railroad employees and the public.

5. This policy statement addresses the integrity of bridges that carry railroad tracks. It does not address the integrity of other types of structures on railroad property (i.e., tunnels, highway bridges over railroads, or other structures on or over the right-of-way).

6. The guidelines published in this statement are advisory. They do not have the force of regulations or orders, which FRA may enforce using civil penalties or other means. The guidelines supplement the requirements of part 237 and are retained for information and guidance.

Guidelines

1. *Responsibility for safety of railroad bridges.*

(a) The responsibility for the safety of railroad bridges is specified in § 237.3.

(b) The track owner should maintain current information regarding loads that may be operated over the bridge, either from its own engineering evaluations or as provided by a competent engineer representing the track owner. Information on permissible loads may be communicated by the track owner either in terms of specific car and locomotive configurations and weights, or as values representing a standard railroad bridge rating reference system. The most common standard bridge rating reference system incorporated in the Manual for Railway Engineering of the American Railway Engineering and Maintenance-of-Way Association is the dimensional and proportional load configuration devised by Theodore Cooper. Other reference systems may be used where convenient, provided their effects can be defined in terms of shear, bending and pier reactions as necessary for a comprehensive evaluation and statement of the capacity of a bridge.

(c) The owner of the track on a bridge should advise other railroads operating on that track of the maximum loads permitted on the bridge stated in terms of car and locomotive configurations and weights. No railroad should operate a load which exceeds those limits without specific authority from, and in accordance with restrictions placed by, the track owner.

2. *Capacity of railroad bridges.*

(a) The safe capacity of bridges should be determined pursuant to § 237.71.

(b) Proper analysis of a bridge requires knowledge of the actual dimensions, materials and properties of the structural members of the bridge, their condition, and the stresses imposed in those members by the service loads.

(c) The factors which were used for the design of a bridge can generally be used to determine and rate the load capacity of a bridge provided:

(i) The condition of the bridge has not changed significantly; and

(ii) The stresses resulting from the service loads can be correlated to the stresses for which the bridge was designed or rated.

3. *Railroad bridge loads.*

(a) Control of loads is governed by § 237.73.

(b) Authority for exceptions. Equipment exceeding the nominal weight restriction on a bridge should be operated only under conditions determined by a competent railroad bridge engineer who has properly analyzed the stresses resulting from the proposed loads and has determined that the proposed operation can be conducted safely without damaging the bridge.

(c) Operating conditions. Operating conditions for exceptional loads may include speed restrictions, restriction of traffic from adjacent multiple tracks, and weight limitations on adjacent cars in the same train.

4. *Railroad bridge records.*

(a) The organization responsible for the safety of a bridge should keep design, construction, maintenance and repair records readily accessible to permit the determination of safe loads. Having design or rating drawings and calculations that conform to the actual structure greatly simplifies the process of making accurate determinations of safe bridge loads. This provision is governed by § 237.33.

(b) Organizations acquiring railroad property should obtain original or usable copies of all bridge records and drawings, and protect or maintain knowledge of the location of the original records.

5. *Specifications for design and rating of railroad bridges.*

(a) The recommended specifications for the design and rating of bridges are those found in the Manual for Railway Engineering published by the American Railway Engineering and Maintenance-of-Way Association. These specifications incorporate recognized principles of structural design and analysis to provide for the safe and economic utilization of railroad bridges during their expected useful lives. These specifications are continually reviewed and revised by committees of competent engineers. Other specifications for design and rating, however, have been successfully used by some railroads and may continue to be suitable.

(b) A bridge can be rated for capacity according to current specifications regardless of the specification to which it was originally designed.

6. *Periodic inspections of railroad bridges.*

(a) Periodic bridge inspections by competent inspectors are necessary to determine whether a structure conforms to its design or rating condition and, if not, the degree of nonconformity. See § 237.101. Section 237.101(a) calls for every railroad bridge to be inspected at least once in each calendar year. Deterioration or damage may occur during the course of a year regardless of the level of traffic that passes over a bridge. Inspections at more frequent intervals may be required by the nature or condition of a structure or intensive traffic levels.

7. *Underwater inspections of railroad bridges.*

(a) Inspections of bridges should include measuring and recording the condition of substructure support at locations subject to erosion from moving water.

(b) Stream beds often are not visible to the inspector. Indirect measurements by sounding, probing, or any other appropriate means are necessary in these cases. A series of records of these readings will provide the best information in the event unexpected changes suddenly occur. Where such indirect measurements do not provide the necessary assurance of foundation integrity, diving inspections should be performed as prescribed by a competent engineer.

8. *Seismic considerations.*

(a) Owners of bridges should be aware of the risks posed by earthquakes in the areas in which their bridges are located. Precautions should be taken to protect the safety of trains and the public following an earthquake.

(b) Contingency plans for seismic events should be prepared in advance, taking into account the potential for seismic activity in an area.

(c) The predicted attenuation of ground motion varies considerably within the United States. Local ground motion attenuation values and the magnitude of an earthquake both influence the extent of the area affected by an earthquake. Regions with low frequency of seismic events produce less data from which to predict attenuation factors. That uncertainty should be considered when designating the area in which precautions should be taken following the first notice of an earthquake. In fact, earthquakes in such regions might propagate their effects over much wider areas than earthquakes of the same magnitude occurring in regions with frequent seismic activity.

9. *Special inspections of railroad bridges.* Requirements for special inspections of railroad bridges are found in § 237.105.

10. *Railroad bridge inspection records.*

(a) The requirements for recording and reporting bridge inspections are found in § 237.109.

(b) Information from bridge inspection reports should be incorporated into a bridge management program to ensure that exceptions on the reports are corrected or accounted for. A series of inspection reports prepared over time should be maintained so as to provide a valuable record of trends and rates of degradation of bridge components. The reports should be structured to promote comprehensive inspections and effective communication between an inspector and an engineer who performs an analysis of a bridge.

(c) An inspection report should be comprehensible to a competent person without interpretation by the reporting inspector.

11. *Railroad bridge inspectors and engineers.*

(a) Bridge inspections should be performed by technicians whose training and experience enable them to detect and record indications of distress on a bridge. Inspectors should provide accurate measurements and other information about the condition of the bridge in enough detail so that an engineer can make a proper evaluation of the safety of the bridge. Qualifications of personnel are addressed in subpart C to part 237.

(b) Accurate information about the condition of a bridge should be evaluated by an engineer who is competent to determine the capacity of the bridge. The inspector and the evaluator often are not the same individual; therefore, the quality of the bridge evaluation depends on the quality of the communication between them. Review of inspection reports is addressed in § 237.111.

12. *Scheduling inspections.*

(a) A bridge management program should include a means to ensure that each bridge under the program is inspected at the frequency prescribed for that bridge by a competent engineer. Scheduling of bridge inspections is addressed in § 237.101.

(b) Bridge inspections should be scheduled from an accurate bridge inventory list that includes the due date of the next inspection.

13. *Special considerations for railroad bridges.*

Railroad bridges differ from other types of bridges in the types of loads they carry, in their modes of failure and indications of distress, and in their construction details and components. Proper inspection and analysis of railroad bridges require familiarity with the loads, details and indications of distress that are unique to this class of structure. Particular care should be taken that modifications to railroad bridges, including retrofits for protection against the effects of earthquakes, are suitable for the structure to which they are to be applied. Modifications should not adversely affect the serviceability of neither the bridge nor its accessibility for periodic or special inspection.

14. *Railroad implementation of bridge safety programs.*

FRA recommends that each track owner or other entity which is responsible for the integrity of bridges which support its track should comply with the intent of this regulation by adopting and implementing an effective and comprehensive program to ensure the safety of its bridges. The bridge safety program should incorporate the following essential elements, applied according to the configuration of the railroad and its bridges. The basis of the program should be in one comprehensive and coherent document which is available to all railroad personnel and other persons who are responsible for the application of any portion of the program. The program should include:

(a) Clearly defined roles and responsibilities of all persons who are designated or authorized to make determinations regarding the integrity of the track owner's bridges. The designations may be made by position or by individual;

(b) Provisions for a complete inventory of bridges that carry the owner's track, to include the following information on each bridge:

(1) A unique identifier, such as milepost location and a subdivision code;

(2) The location of the bridge by nearest town or station, and geographic coordinates;

(3) The name of the geographic features crossed by the bridge;

(4) The number of tracks on the bridge;

(5) The number of spans in the bridge;

(6) The lengths of the spans;

(7) Types of construction of:

(i) Substructure;

(ii) Superstructure; and

(iii) Deck;

(8) Overall length of the bridge;

(9) Dates of:

(i) Construction;

(ii) Major renovation; and

(iii) Strengthening; and

(10) Identification of entities responsible for maintenance of the bridge or its different components.

(c) Known capacity of its bridges as determined by rating by competent railroad bridge engineer or by design documents;

(d) Procedures for the control of movement of high, wide or heavy loads exceeding the nominal capacity of bridges;

(e) Instructions for the maintenance of permanent records of design, construction, modification, and repair;

(f) Railroad-specific procedures and standards for design and rating of bridges;

(g) Detailed bridge inspection policy, including:

(1) Inspector qualifications; including:

(i) Bridge experience or appropriate educational training;

(ii) Training on bridge inspection procedures; and

(iii) Training on Railroad Workplace Safety; and

(2) Type and frequency of inspection; including:

(i) Periodic (at least annually);

(ii) Underwater;

(iii) Special;

(iv) Seismic; and

(v) Cursory inspections of overhead bridges that are not the responsibility of the railroad;

(3) Inspection schedule for each bridge;

(4) Documentation of inspections; including:

(i) Date;

(ii) Name of inspector;

(iii) Reporting Format; and

(iv) Coherence of information;

(5) Inspection Report Review Process;

(6) Record retention; and

(7) Tracking of critical deficiencies to resolution; and

(h) Provide for the protection of train operations following an inspection, noting a critical deficiency, repair, modification or adverse event and should include:

(1) A listing of qualifications of personnel permitted to authorize train operations following an adverse event; and

(2) Detailed internal program audit procedures to ensure compliance with the provisions of the program.

Appendix B to Part 237—Schedule of Civil Penalties

APPENDIX B TO PART 237—SCHEDULE OF CIVIL PENALTIES [1]

Section [2]	Violation	Willful violation
Subpart B—Railroad Bridge Safety Assurance		
237.31 Adoption of bridge management program	$9,500	$17,000
237.33 Content of bridge management program:		
(a) Inventory of railroad bridges	2,500	5,000
(b) Record of safe load capacity	5,500	10,000
(c) Provision to obtain and maintain:		
(i) Design documents	5,500	10,000
(ii) Documentation of repairs and modifications	2,500	5,000
(iii) Inspection reports	2,500	5,000
(d) Bridge inspection program content	2,500	5,000
Subpart C—Qualification and Designation of Responsible Persons		
237.51 Railroad bridge engineers:		
(a) Competency	5,500	10,000
(b) Educational qualification	2,500	5,000
237.53 Railroad bridge inspectors	5,500	10,000
237.55 Railroad bridge supervisors	5,500	10,000
237.57 Designation of individuals	2,500	5,000
Subpart D—Capacity of Bridges		
237.71 Determination of bridge load capacities:		
(a) Safe load capacity	5,500	10,000
(b) Load capacity documented	5,500	10,000
(c) Load capacity determined by a railroad bridge engineer	5,500	10,000
(d) Method of load capacity determination	2,500	5,000
(e) Prioritization of load capacity determination	2,500	5,000
(f) New load capacity determined due to change in condition	2,500	5,000
(g) Load capacity stated in terms of weight and length of equipment	2,500	5,000
(h) Restriction on operations by railroad bridge engineer	5,500	10,000
237.73 Protection of bridges from over-weight and over-dimension equipment:		
(a) Instructions issued	5,500	10,000
(b) Weight instructions	2,500	5,000

APPENDIX B TO PART 237—SCHEDULE OF CIVIL PENALTIES [1]—Continued

Section [2]	Violation	Willful violation
(c) Dimensional instructions	2,500	5,000
(d) Incorrect instructions issued	2,500	5,000
Subpart E—Bridge Inspection		
237.101 Scheduling of bridge inspections:		
(a) Scheduling:		
(i) Failure to inspect	9,500	17,000
(ii) Inspection within calendar year	2,500	5,000
(iii) Inspection frequency exceeding 540 days	2,500	5,000
(b) Increased inspection frequency	5,500	10,000
(c) Special inspections	2,500	5,000
(d) Resumption of railroad operations prior to inspection & review	9,500	17,000
237.103 Bridge inspection procedures	2,500	5,000
237.105 Special inspections:		
(a) Procedures to protect train operations and requiring special inspections	2,500	5,000
(b) Provision for the detection of scour or underwater deterioration	2,500	5,000
237.107 Conduct of bridge inspections	5,500	10,000
237.109 Bridge inspection records:		
(a) Record of inspection	2,500	5,000
(b) Inspection record:		
(i) Certification and date	2,500	5,000
(ii) Falsification	....	17,000
(c) Inspection record information	2,500	5,000
(d) Initial report within 30 days	2,500	5,000
(e) Final inspection report within 120 calendar days	2,500	5,000
(f) Retention	2,500	5,000
(g) Prompt reporting of dangerous conditions	5,500	10,000
237.111 Review of bridge inspection reports.		
(a) Review by railroad bridge engineers and supervisors	2,500	5,000
(b) Appropriate action concerning present or potential safety hazards	5,500	10,000
(c) Modification of inspection frequency or procedures	2,500	5,000
(d) Scheduling remedial action	2,500	5,000
(e) Higher-level review	2,500	5,000
Subpart F—Repair and Modification of Bridges		
237.131 Design	5,500	10,000
237.133 Supervision of repairs and modifications	5,500	10,000
Subpart G—Documentation, Records and Audits of Bridge Management Programs		
237.151 Audits; general	2,500	5,000
237.153 Audits of inspections	2,500	5,000
237.155 Documents and records:		
(a) Electronic recordkeeping, general	2,500	5,000
(b) System security	2,500	5,000

[1] A penalty may be assessed against an individual only for a willful violation. The Administrator reserves the right to assess a penalty of up to $100,000 for any violation where circumstances warrant. See 49 CFR part 209, appendix A.

[2] The penalty schedule uses section numbers from 49 CFR part 237. If more than one item is listed as a type of violation of a given section, each item is also designated by a "penalty code," which is used to facilitate assessment of civil penalties, and which may or may not correspond to any subsection designation(s). For convenience, penalty citations will cite the CFR section and the penalty code, if any. FRA reserves the right, should litigation become necessary, to substitute in its complaint the CFR citation in place of the combined CFR and penalty code citation, should they differ.

Issued in Washington, DC, on July 7, 2010.

Joseph C. Szabo,

Administrator, Federal Railroad Administration.

[FR Doc. 2010–16929 Filed 7–14–10; 8:45 am]

BILLING CODE 4910–06–P

Version: 1.0 - February, 2012

APPENDIX 2
2007 CONNECTICUT RAIL TRANSPORTATION OWNERSHIP AND SERVICE MAP

ACTIVE RAIL LINES

NO.	LOCATION	OWNER	PASSENGER SERVICE	FREIGHT SERVICE
①	NY STATE LINE (GREENWICH) TO NEW HAVEN 1) NEW HAVEN MAIN LINE 2) NORTHEAST CORRIDOR (WEST)	CDOT 10/31/85 No. 7001-MISC-319	1) MNR 2) AMTRAK	CSX
②	STAMFORD TO NEW CANAAN (NEW CANAAN BRANCH)	CDOT 10/31/85 No. 7001-MISC-319	MNR	CSX
③	NORWALK TO DANBURY (DANBURY BRANCH)	CDOT 10/31/85 No. 7001-MISC-319	MNR	P&W
④	(WATERBURY BRANCH) 1) MILFORD TO DERBY JCT 2) DERBY JCT TO WATERBURY	CDOT 10/31/85 No. 7001-MISC-319	MNR	1) P&W 2) STR
⑤	NEW HAVEN TO RI STATE LINE (STONINGTON) 1) NEW HAVEN TO NEW LONDON 2) NORTHEAST CORRIDOR (EAST)	AMTRAK	1) SHORE LINE EAST 2) AMTRAK	P&W
⑥	1) DERBY JCT TO NY STATE LINE (DANBURY) 2) BROOKFIELD TO NEW MILFORD	HRRC	NONE	HRRC
⑦	NEW MILFORD TO MA STATE LINE (N. CANAAN)	CDOT	NONE	HRRC
⑧	WATERBURY TO TORRINGTON (NAUGATUCK RAILROAD/ RAILROAD MUSEUM OF NEW ENGLAND)	CDOT	NAUG (SEASONAL SCENIC)	NAUG
⑨	1) WATERBURY TO BERLIN 2) SOUTHINGTON TO PLAINVILLE	PAR	NONE	PAR
⑩	1) NEW HAVEN TO N. HAVEN/WALLINGFORD 2) N. HAVEN/WALLINGFORD TO MA STATE LINE (ENFIELD)	AMTRAK	AMTRAK	1) CSX 2) CSO
⑪	NEW HAVEN TO N. HAVEN	CSX	NONE	CSX
⑫	SUFFIELD TO WINDSOR LOCKS	CDOT	NONE	CSO
⑬	NORTH HAVEN TO DURHAM	TILCON	NONE	P&W
⑭	1) MIDDLETOWN TO MIDDLETOWN 2) DURHAM TO MIDDLETOWN 3) HARTFORD TO MIDDLETOWN 4) MIDDLETOWN TO PORTLAND	CDOT	NONE	P&W
⑮	BRANFORD TO N. BRANFORD	BSRR	NONE	BSRR
⑯	OLD SAYBROOK TO HADDAM (ESSEX STEAM TRAIN)	CDEP	VRR (SEASONAL SCENIC)	NONE
⑰	NEW LONDON TO MA STATE LINE (STAFFORD)	NECR	NONE	NECR
⑱	1) GROTON TO MA STATE LINE (THOMPSON) 2) GROTON TO OLD GROTON (GROTON) 3) NEW HAVEN TO BELLE DOCK (NEW HAVEN) 4) PLAINFIELD TO SPRAGUE	P&W	NONE	P&W
⑲	1) HARTFORD TO WINDSOR 2) S. WINDSOR TO MA STATE LINE (ENFIELD)	CDOT	NONE	CNZR
⑳	1) E. HARTFORD TO S. WINDSOR 2) HARTFORD TO MANCHESTER 3) WINDSOR LOCKS TO SUFFIELD 4) HARTFORD TO HARTFORD	CSO	NONE	CSO
㉑	1) WINDHAM TO SPRAGUE 2) PLAINFIELD TO PLAINFIELD 3) WINDHAM TO COLUMBIA	CDOT	NONE	P&W
㉒	STRATFORD	APU	NONE	CSX
㉓	TERRYVILLE	STR	NONE	STR
㉔	TERRYVILLE	CITY OF BRISTOL	NONE	STR

NAME ABBREVIATIONS

APU	AMERICAN PREMIER UNDERWRITERS	GTI	GUILFORD TRANSPORTATION INDUSTRIES
AMTRAK	NATIONAL RAILROAD PASSENGER CORPORATION	HRRC	HOUSATONIC RAILROAD COMPANY
B&M	BOSTON & MAINE CORPORATION	MNR	METRO-NORTH RAILROAD COMPANY
BSRR	BRANFORD STEAM RAILROAD	NAUG	NAUGATUCK RAILROAD COMPANY
CDEP	CONNECTICUT DEPARTMENT OF ENVIRONMENTAL PROTECTION	NECR	NEW ENGLAND CENTRAL RAILROAD (FORMERLY CENTRAL VT)
CDOT	CONNECTICUT DEPARTMENT OF TRANSPORTATION	PAR	PAN AM RAILWAYS
CNZR	CENTRAL NEW ENGLAND RAILROAD	P&W	PROVIDENCE & WORCESTER RAILROAD COMPANY
CSO	CONNECTICUT SOUTHERN RAILROAD	STR	SPRINGFIELD TERMINAL RAILROAD
CSX	CSX CORPORATION	TILCON	TILCON CONNECTICUT, INC.
CT	CONNECTICUT	VRR	VALLEY RAILROAD COMPANY

LEGEND

ACQ'D	ACQUIRED
AGR	AGREEMENT NUMBER
LANDBANKED ———————	R.O.W. W/RAIL REMOVED. PURCHASED FOR FUTURE TRANSPORTATION PURPOSES
NO.	CDOT ACQ FILE NUMBER
NIS	NOT IN SERVICE
R.O.W.	RIGHT-OF-WAY
RAILBANKED ▬ ▬ ▬ ▪	R.O.W. W/RAIL IN PLACE. PURCHASED FOR FUTURE TRANSPORTATION PURPOSES

2007 CONNECTICUT RAIL TRANSPORTATION OWNERSHIP AND SERVICE

CONNECTICUT DEPT. OF TRANSPORTATION
BUREAU OF PUBLIC TRANSPORTATION
OFFICE OF RAIL
AS OF OCTOBER 2006

SCALE IN MILES
10 0 7.5

RJB 10-06
LAL 10-06

APPENDIX 3

INVENTORY OF RAILROAD BRIDGES

METRO-NORTH RAILROAD BRIDGES

State of Connecticut-Department of Transportation-Office of Rails
Inventory of Metro-North Railroad Bridges 06-13-11

Track Chart Name	Town	Bridge Type	Bridge No.	Location	Mile Point	Deck Area (sqft)	Bridge Structural Type	Deck Type	No. of Tracks	No. of Spans	Length of Max Span	Total Length of Bridge	Year Built	Year Rehabilitated
DANBURY	NORWALK	U	04134R	MARSHALL STREET	0.11	530	DG	OD	1	1	49	53	1895	1962
DANBURY	NORWALK	U	08200R	ANN STREET	0.19	2052	DG	OD	3	1	49	55	1895	---
DANBURY	NORWALK	U	08225R	REED STREET	0.36	2816	PC	BD	4	1	64	70	2009	---
DANBURY	NORWALK	U	08201R	NORWALK RIVER - STEEL GIRDER	1.56	2614	TG	BD	1	2	64	130	UK	1990
DANBURY	NORWALK	U	08202R	NORWALK RIVER - STEEL GIRDER	3.20	2117	TG	OD	1	2	79	150	1905	---
DANBURY	WILTON	U	08203R	BROOK - MULTIBEAM DECK	5.12	144	DG	OD	1	1	11	15	1919	---
DANBURY	WILTON	U	08204R	STREAM - MULTIBEAM DECK	6.43	360	DG	OD	1	1	35	45	1904	1956
DANBURY	WILTON	U	08205R	NORWALK RIVER - STEEL GIRDER	6.64	495	DG	OD	1	1	46	55	1919	---
DANBURY	WILTON	U	08206R	NORWALK RIVER - STEEL GIRDER	8.70	510	DG	OD	1	1	54	60	1896	1956
DANBURY	WILTON	U	08207R	NORWALK RIVER - STEEL GIRDER	9.42	672	DG	OD	1	2	39	86	1904	---
DANBURY	WILTON	U	08208R	BROOK - CULVERT MASONRY	9.91	252	SB	BD	1	1	6	12	UK	---
DANBURY	WILTON	U	08209R	OLD MILL ROAD	11.01	320	DG	OD	1	1	28	32	1909	---
DANBURY	WILTON	U	08210R	NORWALK RIVER - STEEL GIRDER	11.55	1570	DG	OD	1	3	50	161	1896	---
DANBURY	WILTON	U	08211R	FACTORY POND	12.17	588	DG	OD	1	1	43	49	1904	1985
DANBURY	REDDING	U	08212R	BRANCHVILLE BROOK	12.83	420	CB	BD	2	1	6	12	UK	---
DANBURY	REDDING	U	08213R	OLD REDDING ROAD	14.16	208	DG	OD	1	1	22	26	1904	1940
DANBURY	REDDING	U	08214R	SIMPAUG TURNPIKE	14.80	199	BA	CS	1	1	14	14	1893	1998
DANBURY	REDDING	U	08215R	UMPAWAUG POND BROOK - STEEL GIRDER	16.41	248	DG	OD	1	1	24	29	1904	1987
DANBURY	REDDING	U	08216R	SAUGATUCK RIVER - STEEL GIRDER	17.09	392	DG	OD	1	1	43	49	1904	1956
DANBURY	BETHEL	U	01020R	GRASSY PLAIN ROAD (ROUTE 53)	19.64	468	DG	OD	1	1	36	41	1909	2004
DANBURY	BETHEL	U	08224R	SYMPAUG BROOK - DOUBLE BARREL MASONRY CULVE	19.79	1036	SB	BD	1	2	3	20	UK	---
DANBURY	BETHEL	U	08217R	BROOK - CONCRETE	19.99	390	SB	BD	1	1	4	13	UK	---
DANBURY	BETHEL	U	08218R	SYMPAUG BROOK - MULTIBEAM DECK	21.41	216	DG	OD	1	1	18	22	1919	---
DANBURY	DANBURY	U	08219R	SYMPAUG BROOK - CONCRETE SLAB	21.52	216	SB	BD	1	1	16	18	1936	---
DANBURY	DANBURY	U	08220R	STILL RIVER - STEEL GIRDER	22.39	2520	TG	BD	1	2	67	140	1975	---
DANBURY	DANBURY	U	05100R	STILL RIVER - CONCRETE CULVERT	22.94	1680	CB	BD	1	2	22	46	1975	---
DANBURY	DANBURY	U	08223R	STILL RIVER - CONCRETE CULVERT	23.18	8820	CB	BD	1	2	20	42	1976	---
DANBURY	DANBURY	U	04290R	STILL RIVER - CONCRETE CULVERT	23.42	2537	CB	BD	2	2	20	43	1976	---
MAINLINE	GREENWICH	U	03943R	NORTH WATER STREET	26.10	2068	TG	BD	4	1	44	50	1892	2004
MAINLINE	GREENWICH	U	03945R	HAMILTON AVENUE	26.79	1296	TG	BD	4	1	27	33	1893	2004
MAINLINE	GREENWICH	PT	08000R	PEDESTRIAN UNDERPASS AT HAMILTON AVENUE	26.79	684	CA	BD	4	1	8	8	1935	---
MAINLINE	GREENWICH	U	03947R	FIELD POINT ROAD	27.77	2160	SA	BD	4	1	40	40	1895	---
MAINLINE	GREENWICH	U	03673R	ARCH STREET (SR 742)	28.06	5304	DG	BD	4	1	100	115	1895	2005
MAINLINE	GREENWICH	PO	08002R	PEDESTRIAN OVERPASS FOOTBRIDGE	28.16	385	TT	CS	0	1	61	77	2005	---
MAINLINE	GREENWICH	U	03946R	STEAMBOAT ROAD	28.22	3068	DG	OD	4	1	53	59	1895	1940

State of Connecticut-Department of Transportation-Office of Rails
Inventory of Metro-North Railroad Bridges 06-13-11

Track Chart Name	Town	Bridge Type	Bridge No.	Location	Mile Point	Deck Area (sqft)	Bridge Structural Type	Deck Type	No. of Tracks	No. of Spans	Length of Max Span	Total Length of Bridge	Year Built	Year Rehabilitated
MAINLINE	GREENWICH	U	08003R	DAVIS AVENUE #2	28.48	1824	DG	OD	4	1	33	38	1894	---
MAINLINE	GREENWICH	U	08004R	INDIAN HARBOR (DAVIS MILL POND)	28.68	3400	DG	OD	4	1	63	68	1895	1943
MAINLINE	GREENWICH	U	08005R	SACHEM ROAD	29.50	2240	DG	OD	4	1	26	32	1893	1936
MAINLINE	GREENWICH	U	08006R	LUKES CROSSING (SOUND SHORE DRIVE)	29.68	1672	DG	OD	4	1	35	38	1893	---
MAINLINE	GREENWICH	M	08008R	MIANUS RIVER (COS COB BRIDGE) - MOVABLE	29.90	58262	DT	OD	4	12	122	1089	1904	1989
MAINLINE	GREENWICH	U	08009R	ARCH STREET #2 - MASONRY ARCH	31.03	1330	SA	BD	4	1	14	14	1895	---
MAINLINE	GREENWICH	U	08010R	STREAM - MASONRY CULVERT	31.12	1120	SA	BD	4	1	10	10	1890	---
MAINLINE	GREENWICH	U	03948R	SOUND BEACH AVENUE	31.29	3416	MB	BD	4	2	27	56	1894	1929
MAINLINE	GREENWICH	U	03955R	TOMAC AVENUE	31.62	1800	TG	OD	4	1	32	36	1895	1943
MAINLINE	STAMFORD	U	03680R	GREENWICH AVENUE	32.81	3465	TG	OD	4	3	40	63	1896	1944
MAINLINE	STAMFORD	U	08011R	RIPPOWAM RIVER - TRUSS	32.85	7280	DT	OD	4	1	120	130	1896	1988
MAINLINE	STAMFORD	U	03683R	WASHINGTON BOULEVARD (STATE ROUTE 493)	32.97	7700	TG	BD	5	2	59	127	1898	2003
MAINLINE	STAMFORD	U	08012R	ATLANTIC STREET	33.19	4580	TG	OD	5	3	44	71	1896	---
MAINLINE	STAMFORD	U	03678R	CANAL STREET	33.41	5850	DG	OD	7	1	60	65	1896	---
MAINLINE	STAMFORD	U	03686R	ELM STREET	33.75	6144	DG	OD	7	3	37	64	1896	---
MAINLINE	STAMFORD	U	02237R	EAST MAIN STREET (U.S. ROUTE 1)	34.17	6825	TG	OD	5	3	71	105	1896	1931
MAINLINE	STAMFORD	U	08013R	HAMILTON AVENUE	34.72	3060	TG	OD	5	2	34	51	1896	1958
MAINLINE	STAMFORD	U	08014R	NOROTON RIVER - MASONRY ARCH	35.58	2646	MP/CA/BA	BD	4	1	27	27	1894	2003
MAINLINE	DARIEN	PO	08015R	NOROTON STATION PEDESTRIAN OVERPASS	36.24	525	TT	CS	0	1	74	75	1972	---
MAINLINE	DARIEN	U	08016R	STONY BROOK - MASONRY CULVERT	37.16	812	CA/SA	BD	4	1	10	10	1893	1955
MAINLINE	DARIEN	U	08017R	CUMMINGS BROOK - MASONRY CULVERT	37.36	360	SA	BD	4	1	6	6	1893	---
MAINLINE	DARIEN	U	04142R	LEROY AVENUE #1	37.59	1616	DG	OD	4	1	27	32	1894	1993
MAINLINE	DARIEN	U	00316R	BOSTON POST ROAD (U.S. ROUTE 1)	37.82	3840	DG	BD	4	3	56	113	1894	2011
MAINLINE	DARIEN	U	08018R	GOODWIVES RIVER - CONCRETE DECK	38.00	1144	SB	BD	4	1	15	22	1894	1946
MAINLINE	DARIEN	U	08019R	STREAM	38.36	---	---	---	---	---	---	---	---	---
MAINLINE	DARIEN	U	08020R	TOKENEKE BROOK - 2 STONE CULVERTS	38.53	720	CA	BD	4	1	4	4	2008	2008
MAINLINE	DARIEN	U	08021R	TOKENEKE BROOK #2 - MASONRY CULVERT	38.68	600	SA	BD	4	1	6	6	1893	---
MAINLINE	DARIEN	U	04271R	RAYMOND STREET	38.93	1392	DG	OD	4	1	25	30	1894	---
MAINLINE	DARIEN	U	08022R	FIVE MILE RIVER - BRICK ARCH	39.07	2795	SA/BA	BD	4	1	26	26	1893	---
MAINLINE	NORWALK	U	08023R	DRY STREAM - MASONRY CULVERT	39.08	384	SA	BD	4	1	10	10	1893	---
MAINLINE	NORWALK	U	04132R	ROWAYTON AVENUE	39.11	1778	MB	BD	4	1	29	34	1893	2011
MAINLINE	NORWALK	U	08024R	FARM CREEK	39.55	---	---	---	---	---	---	---	---	---
MAINLINE	NORWALK	U	08025R	FRANKLIN STREET (SPRING STREET)	40.89	3000	TG	OD	4	1	46	52	1896	---
MAINLINE	NORWALK	PT	08026R	STATION UNDERPASS	41.02	500	SB	BD	4	1	10	10	1895	1994
MAINLINE	NORWALK	U	08027R	MONROE STREET	41.12	7040	TG	BD	6	3	51	78	1895	2011

State of Connecticut-Department of Transportation-Office of Rails
Inventory of Metro-North Railroad Bridges 06-13-11

Track Chart Name	Town	Bridge Type	Bridge No.	Location	Mile Point	Deck Area (sqft)	Bridge Structural Type	Deck Type	No. of Tracks	No. of Spans	Length of Max Span	Total Length of Bridge	Year Built	Year Rehabilitated
MAINLINE	NORWALK	U	03693R	WASHINGTON & MAIN STREETS	41.28	7008	TT	OD	4	1	146	155	1896	1999
MAINLINE	NORWALK	M	04288R	NORTH WATER STREET & NORWALK RIVER - MOVABLE	41.51	33840	DT	OD	4	4	198	564	1896	1985
MAINLINE	NORWALK	U	04131R	FORT POINT STREET	41.79	2000	DG	BD	4	1	36	43	1890	1941
MAINLINE	NORWALK	U	08028R	OSBORNE AVENUE	41.96	2064	TG	OD	4	1	37	43	1894	---
MAINLINE	NORWALK	U	03691R	EAST AVENUE	42.14	1968	TG	OD	4	1	39	41	1905	---
MAINLINE	NORWALK	U	08029R	BROOK - MASONRY CULVERT	42.26	480	SA/BA	BD	4	1	5	5	UK	1890
MAINLINE	NORWALK	U	03692R	STRAWBERRY HILL AVENUE	42.37	1767	DG	BD	4	1	32	38	1890	1940
MAINLINE	WESTPORT	U	08103R	STREAM - STONE CULVERT	43.50	UK	SB	BD	4	0	3	UK	1890	---
MAINLINE	WESTPORT	U	08290R	INDIAN RIVER - TWO CONCRETE PIPES 7' DIAMETER	43.80	3233	CA	BD	4	2	7	27	1997	---
MAINLINE	WESTPORT	U	01348R	SAUGATUCK AVENUE (ROUTE 136)	43.97	3024	TG	BD	5	1	41	48	1888	1940
MAINLINE	WESTPORT	U	08030R	SAUGATUCK AVE SIDING	---	---	---	---	---	---	---	---	---	---
MAINLINE	WESTPORT	PT	08105R	NEW STATION UNDERPASS	44.12	1021	CB	BD	4	1	11	13	2007	---
MAINLINE	WESTPORT	PT	08031R	STATION UNDERPASS	44.20	785	CB	BD	4	1	10	10	1907	---
MAINLINE	WESTPORT	M	08032R	FERRY LANE & SAUGATUCK RIVER - MOVABLE	44.32	25190	DG	OD	4	6	92	460	1904	1990
MAINLINE	WESTPORT	U	03963R	COMPO ROAD	44.70	2200	TG	BD	4	1	39	44	1891	1940
MAINLINE	WESTPORT	U	08033R	SHERWOOD MILL POND - CONCRETE CULVERT	45.75	336	CA	BD	4	1	6	6	1951	---
MAINLINE	WESTPORT	U	08034R	MUDDY BROOK - CONCRETE CULVERT	46.11	436	CA	BD	4	1	8	8	1951	---
MAINLINE	WESTPORT	U	08035R	NEW CREEK ROAD	47.15	1954	DG	OD	4	1	32	36	1891	1934
MAINLINE	WESTPORT	U	08036R	GREENS FARMS BROOK - METAL PIPE CULVERT	47.29	600	MP	CS/BD	4	1	5	5	UK	2002
MAINLINE	WESTPORT	U	08037R	MAPLE LANE	47.44	2100	DG	BD	4	1	39	45	1889	1941
MAINLINE	WESTPORT	U	08038R	SASCO RIVER - MULTIBEAM DECK	48.29	2000	SB	BD	4	1	34	40	1940	---
MAINLINE	FAIRFIELD	U	08039R	WESTWAY ROAD	48.65	2697	DG	BD	4	1	48	58	1890	1940*
MAINLINE	FAIRFIELD	U	08040R	MASONRY CULVERT	48.80	240	CA	BD	4	1	4	4	1890	---
MAINLINE	FAIRFIELD	U	04200R	CENTER STREET	48.81	1925	DG	BD	4	1	33	43	1890	1940
MAINLINE	FAIRFIELD	U	08041R	SPRUCE STREET	48.91	1584	DG	BD	4	1	32	38	1890	1940
MAINLINE	FAIRFIELD	U	08042R	OLD POST ROAD	49.01	1700	DG	BD	4	1	33	38	1890	1940
MAINLINE	FAIRFIELD	U	08043R	MILL RIVER - MULTIBEAM DECK	49.66	3744	DG	BD	4	1	74	78	1891	1941
MAINLINE	FAIRFIELD	U	08044R	NORTH PINE CREEK ROAD	50.02	1680	DG	BD	4	1	27	33	1890	1941
MAINLINE	FAIRFIELD	U	04197R	MILL PLAIN ROAD	50.29	1968	DG	BD	4	1	38	44	1890	1941
MAINLINE	FAIRFIELD	U	04198R	ROUND HILL ROAD	50.90	1650	DG	BD	4	1	33	38	1890	1940
MAINLINE	FAIRFIELD	U	01344R	NORTH BENSON ROAD (ROUTE 135)	51.12	1724	DG	BD	4	1	32	36	1890	1940*
MAINLINE	FAIRFIELD	U	08045R	FAIRFIELD CREEK - MULTIBEAM DECK	51.68	960	DG	OD	4	1	14	18	1890	1921
MAINLINE	FAIRFIELD	U	08046R	CULVERT	52.29	---	---	---	---	---	---	---	---	---
MAINLINE	FAIRFIELD	U	08047R	ASH CREEK - MULTIBEAM DECK	53.00	1900	IB	BD	4	1	31	38	1890	1940
MAINLINE	BRIDGEPORT	U	03635R	FAIRFIELD AVENUE (ROUTE 130)	53.42	5724	TG	BD	4	3	58	106	1895	---*

State of Connecticut-Department of Transportation-Office of Rails
Inventory of Metro-North Railroad Bridges 06-13-11

Track Chart Name	Town	Bridge Type	Bridge No.	Location	Mile Point	Deck Area (sqft)	Bridge Structural Type	Deck Type	No. of Tracks	No. of Spans	Length of Max Span	Total Length of Bridge	Year Built	Year Rehabilitated
MAINLINE	BRIDGEPORT	U	08048R	BOSTWICK AVENUE	53.60	3200	TG	OD	4	3	40	67	1900	1952
MAINLINE	BRIDGEPORT	U	08049R	HANCOCK AVENUE	53.72	3400	TG	OD	4	3	40	68	1900	---
MAINLINE	BRIDGEPORT	U	08050R	HOWARD AVENUE	53.84	3264	DG	OD	4	3	40	68	1900	---
MAINLINE	BRIDGEPORT	U	08051R	WORDIN AVENUE	54.07	3564	DG	OD	4	3	51	81	1900	---
MAINLINE	BRIDGEPORT	U	08052R	IRANISTAN AVENUE	54.22	3496	DG	OD	4	3	51	76	1900	---
MAINLINE	BRIDGEPORT	U	08053R	SOUTH AVENUE	54.44	4224	TG	OD	4	3	46	88	1900	---*
MAINLINE	BRIDGEPORT	U	03638R	PARK AVENUE	54.58	4752	TG	OD	4	3	57	99	1900	1931
MAINLINE	BRIDGEPORT	U	08054R	MYRTLE AVENUE	54.70	2928	TG	OD	4	3	33	62	1900	---
MAINLINE	BRIDGEPORT	U	08055R	WARREN STREET	54.77	2436	DG	OD	4	3	31	58	1900	---
MAINLINE	BRIDGEPORT	U	08056R	LAFAYETTE STREET	54.84	2436	DG	OD	4	3	32	58	1900	---
MAINLINE	BRIDGEPORT	U	08057R	BROAD STREET	54.93	2990	DG	OD	4	3	31	65	1900	1996
MAINLINE	BRIDGEPORT	U	08058R	MAIN STREET #1	54.98	3400	DG	OD	4	3	35	68	1900	1968*
MAINLINE	BRIDGEPORT	U	08059R	HOUSATONIC CROSSING	55.13	6090	TT	BD	4	1	77	101	1903	---
MAINLINE	BRIDGEPORT	PO	08107R	SOUTH PEDESTRIAN OVERPASS	55.35	5653	TT	N/A	0	16	120	695	2008	---
MAINLINE	BRIDGEPORT	U	08060R	UNION STREET	55.40	2552	TG	OD	4	1	34	40	1903	1996
MAINLINE	BRIDGEPORT	PO	08108R	NORTH PEDESTRIAN OVERPASS	55.41	5211	TT	N/A	0	5	140	605	2008	---
MAINLINE	BRIDGEPORT	U	08061R	BRIDGEPORT HARBOR - REINFORCED CONCRETE SLAB	55.41	51308	CS	CS	4	35	25	690	1955	1998
MAINLINE	BRIDGEPORT	PT	08104R	BRIDGEPORT HARBOR - PEDESTRIAN TUNNEL	55.50	1078	CB	BD	0	1	75	77	1973	---
MAINLINE	BRIDGEPORT	U	08062R	STATION VIADUCT	55.51	22500	DG	BD	4	7	60	360	1998	---
MAINLINE	BRIDGEPORT	U	03636R	STRATFORD AVENUE (ROUTE 130)	55.61	9110	TG	BD	4	3	74	119	1998	---
MAINLINE	BRIDGEPORT	U	08063R	VIADUCT - PARKING LOT NORTH	55.69	70860	CB	BD	4	25	59	1028	1998	---
MAINLINE	BRIDGEPORT	M	08064R	PEQUONNOCK RIVER - MOVABLE	55.90	32941	TG	BD	4	5	138	462	1998	---
MAINLINE	BRIDGEPORT	U	08065R	VIADUCT	55.91	12875	DG	BD	4	4	50	190	1998	---
MAINLINE	BRIDGEPORT	U	08066R	PULASKI STREET	55.95	4410	DG	BD	4	1	61	63	1998	---
MAINLINE	BRIDGEPORT	U	08067R	VIADUCT	55.97	5735	DG	BD	4	2	45	83	1998	---
MAINLINE	BRIDGEPORT	U	08068R	NOBLE AVENUE	55.98	5717	TG	BD	4	1	76	78	1998	---
MAINLINE	BRIDGEPORT	U	08101R	VIADUCT	55.99	7788	DG	BD	4	2	66	125	1998	---
MAINLINE	BRIDGEPORT	U	08102R	CLARENCE STREET	56.00	4173	TG	BD	4	1	62	68	1998	---
MAINLINE	BRIDGEPORT	U	08069R	KOSSUTH STREET	56.10	2402	DG	BD	4	1	47	52	1998	---
MAINLINE	BRIDGEPORT	U	03639R	EAST MAIN STREET (ROUTE 127)	56.20	3400	TG	OD	4	3	41	69	1902	1963
MAINLINE	BRIDGEPORT	U	08070R	PEMBROKE STREET	56.35	3100	TG	OD	4	3	33	62	1902	1950
MAINLINE	BRIDGEPORT	U	08071R	HALLETT STREET	56.46	2950	TG	OD	4	3	30	59	1902	1964
MAINLINE	BRIDGEPORT	U	08072R	YELLOW MILL POND - BRICK ARCH	56.68	1056	BA	BD	4	1	16	16	1890	1902
MAINLINE	BRIDGEPORT	U	08073R	YELLOW MILL POND SIDING	56.68	---	---	---	---	---	---	---	---	---
MAINLINE	BRIDGEPORT	U	08074R	SEAVIEW AVENUE	56.77	3534	TG	OD	5	3	30	55	1902	1948

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Track Chart Name	Town	Bridge Type	Bridge No.	Location	Mile Point	Deck Area (sqft)	Bridge Structural Type	Deck Type	No. of Tracks	No. of Spans	Length of Max Span	Total Length of Bridge	Year Built	Year Rehabilitated
MAINLINE	BRIDGEPORT	U	08075R	BISHOP AVENUE	57.46	4320	TG	OD	6	3	31	60	1896	1969
MAINLINE	BRIDGEPORT	U	08076R	BRUCE BROOK - CONCRETE PIPE 9' DIAMETER	57.54	3380	CA	BD	6	2	9	26	UK	1984
MAINLINE	STRATFORD	U	08077R	BRUCE AVENUE	57.62	2573	TG	OD	6	1	33	38	1906	1944
MAINLINE	STRATFORD	U	08078R	WEST BROAD STREET	58.72	1919	TG	OD	4	1	34	39	1893	1966
MAINLINE	STRATFORD	U	08079R	KING STREET	58.88	1850	TG	OD	4	1	35	39	1893	---
MAINLINE	STRATFORD	U	01318R	MAIN STREET (ROUTE 113)	59.01	3692	TG	OD	4	3	40	71	1893	1935
MAINLINE	STRATFORD	U	01312R	EAST MAIN STREET (ROUTE 110)	59.96	3308	TG	OD	5	1	43	49	1905	1966
MAINLINE	STRATFORD	M	08080R	HOUSATONIC RIVER (DEVON BRIDGE)	60.42	76433	TT	OD	4	7	223	1069	1905	1990
MAINLINE	MILFORD	U	08081R	BEAVER CREEK - MASONRY ARCH	61.62	384	SA	BD	4	1	8	10	1893	---
MAINLINE	MILFORD	U	08082R	BEARDSLEY AVENUE	62.94	1850	DG	OD	3	1	33	37	1893	1999
MAINLINE	MILFORD	U	03640R	HIGH STREET	63.27	3135	TG	BD	3	1	48	53	1894	2006
MAINLINE	MILFORD	U	03644R	RIVER STREET	63.44	3840	TG	BD	3	3	52	72	1894	2006
MAINLINE	MILFORD	U	08083R	WEPAWAUG RIVER & PROSPECT STREET	63.53	6500	DG	BD	3	2	94	130	1893	1999
MAINLINE	MILFORD	U	08084R	GULF STREET	63.83	900	DG	OD	3	1	26	30	1894	---
MAINLINE	MILFORD	PT	08085R	PEDESTRIAN UNDERPASS AT GULF STREET	63.84	549	CA/PT	BD	3	1	8	8	1960	---
MAINLINE	MILFORD	U	08086R	INDIAN RIVER - MULTIBEAM DECK	64.59	1748	DG	OD	3	1	33	38	1880	1987
MAINLINE	MILFORD	U	08087R	OLD GATE LANE	64.74	1600	DG	BD	3	2	39	85	1893	2006
MAINLINE	MILFORD	U	08088R	QUIRK POND BROOK - MASONRY CULVERT	66.29	600	SA	BD	4	1	6	6	1880	1893
MAINLINE	MILFORD	U	08090R	DEPOT ROAD	66.66	971	CB	BD	4	1	10	10	2000	---
MAINLINE	ORANGE	U	08091R	OYSTER RIVER - MASONRY CULVERT	67.50	1360	SA	BD	4	1	8	8	1893	1990
MAINLINE	WEST HAVEN	U	08092R	STREAM - STONE/CONCRETE CULVERT	67.98	540	CA/MP/SA	BD	4	1	6	6	1880	---
MAINLINE	WEST HAVEN	U	08093R	MORGAN LANE	68.11	1550	DG	OD	4	1	28	33	1917	1987
MAINLINE	WEST HAVEN	U	08094R	CULVERT	68.14	---	---	---	---	---	---	---	---	---
MAINLINE	WEST HAVEN	U	08095R	CULVERT- NEW IN 1995	68.89	336	CA	BD	4	1	4	4	1995	---
MAINLINE	WEST HAVEN	U	08096R	COVE RIVER - MASONRY CULVERT	69.19	1985	MP/SA	BD	4	1	8	8	1893	---
MAINLINE	WEST HAVEN	U	01403R	SAW MILL ROAD (ROUTE 162)	69.66	3185	DG	BD	4	1	61	67	1962	---
MAINLINE	WEST HAVEN	U	08097R	CAMPBELL AVENUE	70.19	3050	DG	OD	4	3	36	61	1894	1966
MAINLINE	WEST HAVEN	U	08098R	WASHINGTON AVENUE	70.36	2900	TG	OD	4	3	33	58	1894	1940
MAINLINE	WEST HAVEN	U	08099R	WEST RIVER - CONCRETE BOX	71.26	7192	CB	BD	4	4	30	131	1930	1998
MAINLINE	NEW HAVEN	PT	08100R	STATION UNDERPASS	72.28	2880	MB/CB	BD	8	2	16	34	1929	1988
MAINLINE	NEW HAVEN	PO	08106R	STATE STREET STATION OVERPASS	72.80	1413	TT	N/A	N/A	1	108	109	2000	---
NEW CANAAN	STAMFORD	U	08150R	VIADUCT ROAD	2.81	1885	TG	BD	1	1	82	89	1996	---
NEW CANAAN	STAMFORD	U	08151R	NOROTON RIVER - MULTIBEAM DECK	3.77	296	DG	OD	1	1	31	37	1907	1957
NEW CANAAN	NEW CANAAN	U	00710R	MERRITT PARKWAY (ROUTE 15)	5.76	1008	CA	BD	1	2	32	77	1937	---
NEW CANAAN	NEW CANAAN	U	01302R	OLD STAMFORD ROAD (ROUTE 106)	6.16	795	TG	OD	1	1	50	55	1906	---

State of Connecticut-Department of Transportation-Office of Rails
Inventory of Metro-North Railroad Bridges 06-13-11

Track Chart Name	Town	Bridge Type	Bridge No.	Location	Mile Point	Deck Area (sqft)	Bridge Structural Type	Deck Type	No. of Tracks	No. of Spans	Length of Max Span	Total Length of Bridge	Year Built	Year Rehabilitated
NEW CANAAN	NEW CANAAN	U	08154R	WATERWAY - MASONRY CULVERT	7.00	787	SA	BD	1	1	6	6	1900	---
WATERBURY	MILFORD	U	08250R	BROOK	3.12	---	---	---	---	---	---	---	---	---
WATERBURY	MILFORD	U	08251R	CULVERT	3.30	---	---	---	---	---	---	---	---	---
WATERBURY	MILFORD	U	08252R	UNNAMED STREAM - CONCRETE & RAIL DECK	3.80	160	SB	CS	1	1	4	7	1900	---
WATERBURY	MILFORD	U	08253R	BROOK - MASONRY CULVERT	4.14	552	SA	BD	1	1	7	7	1900	---
WATERBURY	MILFORD	U	08254R	BEARDS FARMWAY	4.55	528	DG	OD	1	1	20	24	1917	1944
WATERBURY	MILFORD	U	08255R	FARMWAY CROSSING	4.88	572	CB	CS	1	1	18	22	1944	1983
WATERBURY	MILFORD	U	08256R	DRAINAGE PIPE - ACC METAL PIPE	4.90	1025	MP	BD	1	1	5	5	UK	---
WATERBURY	MILFORD	U	08257R	GOLF CROSSING - REINFORCED CONCRETE SLAB	5.01	442	CS	CS	1	1	14	17	1944	1982
WATERBURY	ORANGE	U	08258R	DAVIS BROOK - 2 CONCRETE CULVERTS	7.02	1696	CA	BD	1	2	6	16	1995	---
WATERBURY	ORANGE	U	08260R	TWO MILE BROOK (TURKEY BROOK) - CONCRETE CULV	7.36	560	BA/CA/SA	BD	1	1	8	8	1901	---
WATERBURY	DERBY	U	08261R	STREAM - UNNAMED STREAM	7.92	660	SB	BD	1	1	3	3	UK	---
WATERBURY	DERBY	U	08262R	NAUGATUCK RIVER - STEEL TRUSS	8.62	3948	TT	OD	1	3	107	330	1903	1965
WATERBURY	DERBY	U	08263R	NAUGATUCK RIVER FLOOD PLAIN	8.68	4680	PG	BD	1	10	30	246	1965	---
WATERBURY	ANSONIA	U	08264R	NAUGATUCK RIVER - STEEL TRUSS	10.30	9827	TT	OD	1	2	155	317	1903	1956
WATERBURY	ANSONIA	U	08266R	RACEWAY FARREL COMPANY - MASONRY ARCH	10.85	768	SA	BD	1	1	14	14	1900	---
WATERBURY	ANSONIA	U	08267R	SPILLWAY	11.36	2366	TG	OD	1	2	45	94	1904	2003
WATERBURY	SEYMOUR	U	08268R	CANAL - STEEL GIRDER	12.57	1170	TG	OD	1	2	43	95	1904	1956
WATERBURY	SEYMOUR	U	08269R	MUD BROOK - MASONRY CULVERT	13.20	396	SA	BD	1	1	6	6	1904	---
WATERBURY	SEYMOUR	U	01321R	MAIN STREET (ROUTES 115 & 313)	14.29	1664	TG	OD	1	2	48	71	1906	---
WATERBURY	SEYMOUR	PO	08270R	JAMES STREET FOOTBRIDGE	14.45	608	TI	N/A	0	6	42	76	1906	2001
WATERBURY	SEYMOUR	U	01063R	DERBY AVENUE (ROUTE 67)	14.61	754	TG	OD	1	1	82	89	1906	1999
WATERBURY	SEYMOUR	U	08272R	NAUGATUCK RIVER - MULTIBEAM DECK	14.64	2763	DG	OD	1	5	71	307	1903	1956
WATERBURY	BEACON FALLS	U	08274R	OLD PINE'S BRIDGE ROAD	16.79	150	DG	OD	1	1	18	23	1905	1952
WATERBURY	BEACON FALLS	U	08275R	HEMP SWAMP BROOK - MASONRY CULVERT	16.81	1140	SA	BD	1	1	12	12	1900	---
WATERBURY	BEACON FALLS	U	08276R	SPRUCE BROOK - MULTIBEAM DECK	19.21	180	DG	OD	1	1	17	23	1900	1947
WATERBURY	NAUGATUCK	U	08277R	SUGAR BUSH BROOK - MULTIBEAM DECK	20.11	180	DG	OD	1	1	18	23	1905	1940
WATERBURY	NAUGATUCK	U	08278R	US RUBBER COMPANY - PEDESTRIAN TUNNEL	21.22	336	CA	BD	2	1	8	8	1930	---
WATERBURY	NAUGATUCK	U	08279R	PRIVATE ROAD AT UNIROYAL	21.36	504	DG	OD	2	1	19	22	1910	1960
WATERBURY	NAUGATUCK	U	08280R	LONGMEADOW POND BROOK - CONCRETE ARCH	21.48	6240	CA	BD	2	2	19	48	1906	2008
WATERBURY	NAUGATUCK	U	08281R	OVERFLOW - CONCRETE SLAB	21.65	5440	CA	BD	2	1	10	14	1906	---
WATERBURY	NAUGATUCK	U	04224R	MAPLE STREET	21.74	972	TG	OD	1	1	64	69	1913	---
WATERBURY	NAUGATUCK	U	08282R	CANAL	22.11	---	---	---	---	---	---	---	---	---
WATERBURY	NAUGATUCK	U	08283R	HOP BROOK - MULTIBEAM DECK	22.42	359	DG	OD	1	1	43	48	1900	---
WATERBURY	NAUGATUCK	U	08284R	BRIDGE STREET (GENERAL PULASKI WALK)	22.74	754	TG	OD	1	3	41	58	1906	---

State of Connecticut-Department of Transportation-Office of Rails
Inventory of Metro-North Railroad Bridges 06-13-11

Track Chart Name	Town	Bridge Type	Bridge No.	Location	Mile Point	Deck Area (sqft)	Bridge Structural Type	Deck Type	No. of Tracks	No. of Spans	Length of Max Span	Total Length of Bridge	Year Built	Year Rehabilitated
WATERBURY	WATERBURY	U	03723R	BRISTOL STREET #1	24.10	611	TG	OD	1	1	45	50	1904	1918
WATERBURY	WATERBURY	U	08285R	STREAM - STONE/CONCRETE CULVERT	24.34	1320	SA	BD	1	1	8	8	1905	---
WATERBURY	WATERBURY	U	04232R	WASHINGTON AVENUE #1	26.18	2144	TG	OD	1	1	61	67	1906	---
WATERBURY	WATERBURY	U	04235R	BANK STREET #1	26.35	2054	TG	OD	2	1	77	82	1910	---
WATERBURY	WATERBURY	U	08286R	NAUGATUCK RIVER - STEEL GIRDER	26.42	3435	DG	OD	2	2	114	229	1907	1956
WATERBURY	WATERBURY	U	08287R	JACKSON STREET	26.50	2074	TG	OD	2	2	53	78	1910	---
WATERBURY	WATERBURY	U	08288R	GAS CONDUIT	26.64	UK	CA	BD	14	UK	7	7	1900	---

TOTAL NUMBER OF STRUCTURES: 216

KEY TO ABBREVIATIONS

BRIDGE TYPE

U = UNDERGRADE BRIDGE
M = MOVABLE BRIDGE
PT = PEDESTRIAN TUNNEL
PO = PEDESTRIAN OVERPASS

BRIDGE STRUCTURAL TYPE

TT = THROUGH TRUSS
DT = DECK TRUSS
TG = THROUGH GIRDER
DG = DECK GIRDER
SA = STONE ARCH
BA = BRICK ARCH
MA = METAL/STEEL ARCH
CA = CONCRETE ARCH
PC = PRESTRESSED CONCRETE SLABS
PG = PRESTRESSED GIRDER
TI = TIMBER TRESTLE
ST = STEEL TRESTLE
MP = METAL/STEEL PIPE CULVERT
CP = CONCRETE PIPE CULVERT
CB = CONCRETE BOX CULVERT
SB = STONE BOX CULVERT
PP = PLASTIC PIPE CULVERT
SR = CONCRETE ENCASED STOCK RAILS
MB = MULTI-BEAM

DECK TYPE

OD = OPEN DECK
DF = DIRECT FIXATION
SP = STEEL PLATE
IP = IRON PLATE
CS = CONCRETE SLAB
SS = STONE SLAB
TD = TIMBER/PLANK
BD = BALLASTED DECK

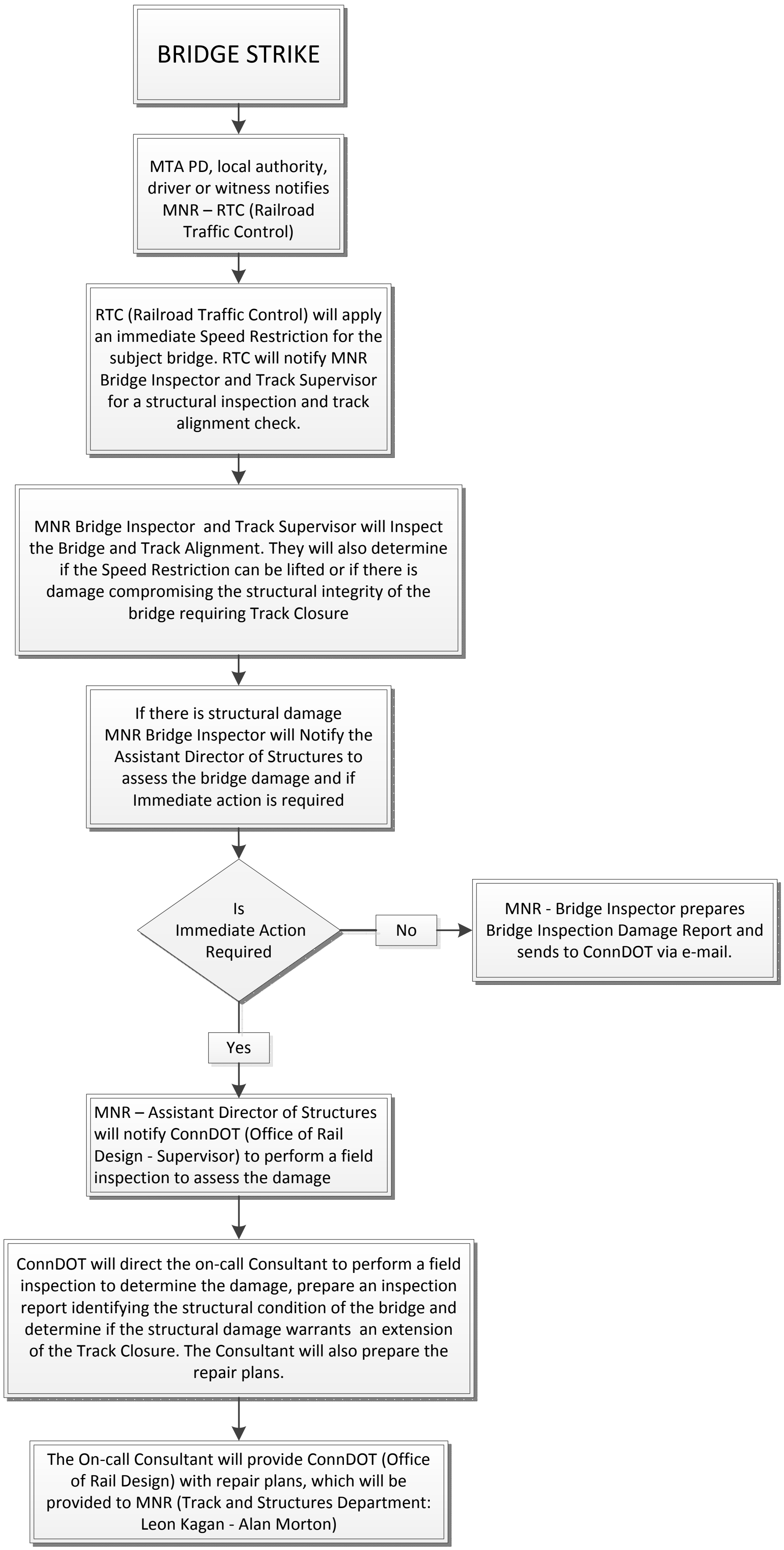
***** = CURRENTLY UNDER CONSTRUCTION
UK = UNKNOWN

Version: 1.1 - February, 2014

APPENDIX 3A

2014 OFFICE OF RAIL – METRO NORTH BRIDGE STRIKE PROCEDURE

OFFICE OF RAIL - MNR RAILROAD BRIDGE STRIKE PROCEDURE



MTA PD, local authority, driver or witness notifies MNR – RTC (Railroad Traffic Control)

RTC (Railroad Traffic Control) will apply an immediate Speed Restriction for the subject bridge. RTC will notify MNR Bridge Inspector and Track Supervisor for a structural inspection and track alignment check.

MNR Bridge Inspector and Track Supervisor will Inspect the Bridge and Track Alignment. They will also determine if the Speed Restriction can be lifted or if there is damage compromising the structural integrity of the bridge requiring Track Closure

If there is structural damage MNR Bridge Inspector will Notify the Assistant Director of Structures to assess the bridge damage and if Immediate action is required

MNR - Bridge Inspector prepares Bridge Inspection Damage Report and sends to ConnDOT via e-mail.

MNR – Assistant Director of Structures will notify ConnDOT (Office of Rail Design - Supervisor) to perform a field inspection to assess the damage

ConnDOT will direct the on-call Consultant to perform a field inspection to determine the damage, prepare an inspection report identifying the structural condition of the bridge and determine if the structural damage warrants an extension of the Track Closure. The Consultant will also prepare the repair plans.

The On-call Consultant will provide ConnDOT (Office of Rail Design) with repair plans, which will be provided to MNR (Track and Structures Department: Leon Kagan - Alan Morton)

APPENDIX 4

INVENTORY OF RAILROAD BRIDGES

OFF-SYSTEM RAILROAD BRIDGES

State of Connecticut - Department of Transportation - Office of Rail
Inventory List of Off-System Railroad Bridges 6/09/2011

Bridge No.	M.P.	Railroad	Track Chart Name	Town	Location	Deck Area (sqft)	Bridge Type	Bridge Structural Type	Deck Type	No. of Tracks	No. Of Spans	Length of max. Span (ft)	Total Length of Bridge (ft)	Year Built	Year Rehabilitated
09901R	30.39	ABANDONED	AIRLINE VL MAP 54-64/29	EAST HAMPTON	MINE BROOK-STONE CULV.	3667	U	SA	CS	0	1	19	19	1910	---
09902R	31.53	ABANDONED	AIRLINE VL MAP 54-64/30	EAST HAMPTON	PINE BROOK	76	U	DG	CD	0	1	18	24	1910	---
09903R	32.20	ABANDONED	AIRLINE VL MAP 54-64/31	EAST HAMPTON	MUDDY GUTTER BROOK	1919	U	SA	CS	0	1	19	19	1900	---
09904R	33.09	ABANDONED	AIRLINE VL MAP 54-64/32	EAST HAMPTON	MAIN STREET	86	U	---	---	0	0	---	---	1900	---
09905R	33.17	ABANDONED	AIRLINE VL MAP 54-64/32	EAST HAMPTON	BROOK	760	U	DG	OD	0	2	45	76	1900	---
09908R	32.54	ABANDONED	MOOSUP V MAP 54-67/13	PLAINFIELD	MOOSUP RIVER	1447	U	DG	OD	0	4	79	201	1920	---
09909R	31.53	ABANDONED	MOOSUP V MAP 54-67/15	PLAINFIELD	HORSE BROOK	---	U	SB	CD	0	1	3	3	1900	---
09101R	0.12	BOSTON & MAINE	TORRINGTON SEC.	WATERBURY	CONC. BOX/PIPE CULVERT	840	U	CB	CS	2	1	6	6	1930	1960
00600R	24.16	BOSTON & MAINE	TORRINGTON SEC.	WATERBURY	WEST MAIN STREET (SR 847)	4929	U	TG	SP	1	3	68	106	1906	---
09100R	24.20	BOSTON & MAINE	TORRINGTON SEC.	WATERBURY	CRANE STREET	2883	U	DG	OD	4	2	36	95	1907	---
04234R	24.34	BOSTON & MAINE	TORRINGTON SEC.	WATERBURY	FREIGHT STREET	6717	U	DG	OD	4	4	36	95	1907	---
09814R	10.81	CENTRAL NEW ENGLAND	E. LONGMEADOW SEC.(ARMORY LINE)	SOUTH WINDSOR	DRY BROOK	221	U	DG	OD	1	1	22	26	1917	---
09815R	12.26	CENTRAL NEW ENGLAND	E. LONGMEADOW SEC.(ARMORY LINE)	EAST WINDSOR	KETCH BROOK	281	U	CA	CS	1	1	14	14	1910	---
09816R	15.81	CENTRAL NEW ENGLAND	E. LONGMEADOW SEC.(ARMORY LINE)	EAST WINDSOR	BROAD BROOK AND PRIV. RD.	880	U	DG	OD	1	2	40	88	1910	---
09817R	15.91	CENTRAL NEW ENGLAND	E. LONGMEADOW SEC.(ARMORY LINE)	EAST WINDSOR	CULVERT	605	U	SA	CS	0	1	9	15	UK	---
09818R	19.44	CENTRAL NEW ENGLAND	E. LONGMEADOW SEC.(ARMORY LINE)	ENFIELD	SCANTIC RIVER	2340	U	DG	OD	1	2	71	180	1914	---
09819R	19.45	CENTRAL NEW ENGLAND	E. LONGMEADOW SEC.(ARMORY LINE)	ENFIELD	WATER STREET	1020	U	TG	OD	1	1	63	68	1914	---
09820R	19.70	CENTRAL NEW ENGLAND	E. LONGMEADOW SEC.(ARMORY LINE)	ENFIELD	TERRY BRK-2 CULVERTS	1615	U	CP	SS	1	2	8	19	UK	---
09821R	21.04	CENTRAL NEW ENGLAND	E. LONGMEADOW SEC.(ARMORY LINE)	ENFIELD	STREAM	208	U	SR	CS	1	1	6	13	UK	---
09823R	0.00	CENTRAL NEW ENGLAND	GRIFFIN'S INDUST. TRK.	HARTFORD	CULVERT	---	U	CP	CS	1	1	43	48	1940	---
09824R	2.56	CENTRAL NEW ENGLAND	GRIFFIN'S INDUST. TRK.	HARTFORD	STREAM	330	U	SA	CS	1	1	10	10	1910	---
09825R	6.81	CENTRAL NEW ENGLAND	GRIFFIN'S INDUST. TRK.	BLOOMFIELD	STREAM (WASH BROOK)	280	U	SR	CS	1	2	6	14	1911	---
09200R	15.00	HOUSATONIC	NEW MILFORD SEC.(BERKSHIRE LINE)	NEW MILFORD	STREAM - STONE CULVERT	516	U	SA/MA	SS	1	1	5	8	1900	---
09201R	16.20	HOUSATONIC	NEW MILFORD SEC.(BERKSHIRE LINE)	NEW MILFORD	BROOK - STONE CULVERT	252	U	SB	SS	1	1	4	7	1900	---
09202R	16.70	HOUSATONIC	NEW MILFORD SEC.(BERKSHIRE LINE)	NEW MILFORD	BROOK - CULVERT	140	U	SB	SS	1	1	4	11	1900	---
09203R	18.90	HOUSATONIC	NEW MILFORD SEC.(BERKSHIRE LINE)	NEW MILFORD	BROOK - CULVERT	287	U	SB	SS	1	1	10	10	1900	---
09204R	21.62	HOUSATONIC	NEW MILFORD SEC.(BERKSHIRE LINE)	KENT	SWAMP (CULVERT)	254	U	DG	SP	1	2	5.5	14.5	UK	---
09206R	25.80	HOUSATONIC	NEW MILFORD SEC.(BERKSHIRE LINE)	KENT	COBBLE BROOK	634	U	SA	SS	1	1	16	16	1900	---
09207R	26.80	HOUSATONIC	NEW MILFORD SEC.(BERKSHIRE LINE)	KENT	MAUWEE BROOK	159	U	SR	CS	1	1	6	9	1900	---
09208R	28.20	HOUSATONIC	NEW MILFORD SEC.(BERKSHIRE LINE)	KENT	KENT FALLS BROOK-CULVERT	776	U	SA	SS	1	1	16	16	1900	---
09209R	28.80	HOUSATONIC	NEW MILFORD SEC.(BERKSHIRE LINE)	KENT	CULVERT-DBL 4' CULVERTS	---	U	CP	CS	1	1	4	13	1900	---
09210R	29.50	HOUSATONIC	NEW MILFORD SEC.(BERKSHIRE LINE)	CORNWALL	DEEP BROOK	221	U	SR	CS	1	1	10	13	1900	---
09211R	30.10	HOUSATONIC	NEW MILFORD SEC.(BERKSHIRE LINE)	CORNWALL	MILLARD BROOK	221	U	SR	CS	1	1	10	13	1900	---
09212R	31.20	HOUSATONIC	NEW MILFORD SEC.(BERKSHIRE LINE)	CORNWALL	GUNN BROOK	175	U	SA	SS	1	1	10	14	1900	1940
09213R	32.20	HOUSATONIC	NEW MILFORD SEC.(BERKSHIRE LINE)	CORNWALL	BONNEY BROOK	1147	U	CS	CS	2	2	19	39	1960	---
09214R	32.60	HOUSATONIC	NEW MILFORD SEC.(BERKSHIRE LINE)	CORNWALL	FURNACE BROOK	910	U	DG	OD	1	1	31	35	1893	---
09215R	32.80	HOUSATONIC	NEW MILFORD SEC.(BERKSHIRE LINE)	CORNWALL	BROOK	225	U	SR	CS	1	1	6	13	1900	---
09217R	36.60	HOUSATONIC	NEW MILFORD SEC.(BERKSHIRE LINE)	CORNWALL	MILL BROOK	310	U	DG	OD	1	1	25	31	1900	---
09218R	40.10	HOUSATONIC	NEW MILFORD SEC.(BERKSHIRE LINE)	CORNWALL	STREAM	210	U	DG	OD	1	1	16	21	1910	---
09219R	41.50	HOUSATONIC	NEW MILFORD SEC.(BERKSHIRE LINE)	CANAAN	CHILD POND BROOK	332	U	SA	SS	1	1	6	11	1910	---
09220R	41.70	HOUSATONIC	NEW MILFORD SEC.(BERKSHIRE LINE)	CANAAN	BROOK - STONE SLAB	414	U	SB	SS	1	1	3	3	1910	---
09221R	42.80	HOUSATONIC	NEW MILFORD SEC.(BERKSHIRE LINE)	CANAAN	WATER STREET	320	U	DG	OD	1	1	26	32	1913	---
09222R	43.90	HOUSATONIC	NEW MILFORD SEC.(BERKSHIRE LINE)	CANAAN	BRANCH HOUSATONIC RIVER	580	U	DG	OD	1	1	52	58	1890	1951
09223R	44.50	HOUSATONIC	NEW MILFORD SEC.(BERKSHIRE LINE)	CANAAN	HOLLENBECK RIVER	1073	U	DG	CD	1	6	12	75	1910	---
09224R	48.30	HOUSATONIC	NEW MILFORD SEC.(BERKSHIRE LINE)	NORTH CANAAN	BLACKBERRY RIVER	1264	U	DG	OD	1	2	47	98	1900	1950
09225R	49.10	HOUSATONIC	NEW MILFORD SEC.(BERKSHIRE LINE)	NORTH CANAAN	NORTH BLACKBERRY RIVER	315	U	SR	CS	2	1	5	10	1910	---
04242R	4.68	INACTIVE	NEW BRITAIN SEC.	NEW BRITAIN	ROUTE 9 **(BUSWAY)**	13754	U	TG	SP	1	5	122	598	1976	---
09826R	5.59	INACTIVE	NEW BRITAIN SEC.	NEW BRITAIN	CEMETERY UNDERPASS**(BW)**	645	U	SR	CS	1	1	10	14	1910	---
09827R	5.82	INACTIVE	NEW BRITAIN SEC.	NEW BRITAIN	PIPER BROOK **(BUSWAY)**	1782	U	CB	CS	0	1	14	14	1950	---
09916R	53.61	INACTIVE	VAL. MAP 57-72/54	WINCHESTER	STILL RIVER	281	U	DG	OD	0	1	30	36	1907	---
09104R	0.81	NAUGATUCK	TORRINGTON SEC.	WATERBURY	MAHAN CANAL	260	U	DG	OD	1	1	21	26	1902	---
09105R	1.31	NAUGATUCK	TORRINGTON SEC.	WATERBURY	BROOK	340	U	CB	CS	1	1	5	5	1950	---
09106R	1.45	NAUGATUCK	TORRINGTON SEC.	WATERBURY	HANCOCK BROOK	1714	U	TG	OD	1	2	53	115	1902	---
09107R	2.16	NAUGATUCK	TORRINGTON SEC.	WATERBURY	AMERICAN PIN FOOTBRIDGE	1166	Z	TT	TD	0	1	67	67	1935	---
09108R	3.16	NAUGATUCK	TORRINGTON SEC.	WATERBURY	NAUGATUCK RIVER	2924	U	DG	OD	1	4	56	238	1907	---
09109R	3.98	NAUGATUCK	TORRINGTON SEC.	WATERTOWN	CULVERT	582	U	MP	CS	1	1	97	97	1950	---

State of Connecticut - Department of Transportation - Office of Rail
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Bridge No.	M.P.	Railroad	Track Chart Name	Town	Location	Deck Area (sqft)	Bridge Type	Bridge Structural Type	Deck Type	No. of Tracks	No. Of Spans	Length of max. Span (ft)	Total Length of Bridge (ft)	Year Built	Year Rehabilitated
09110R	5.41	NAUGATUCK	TORRINGTON SEC.	WATERTOWN	NAUGATUCK RIVER	**3624**	U	DG	OD	1	5	65	302	1907	---
09111R	9.05	NAUGATUCK	TORRINGTON SEC.	THOMASTON	BROOK	**534**	U	CP	CS	1	1	6	6	1950	---
09112R	9.11	NAUGATUCK	TORRINGTON SEC.	THOMASTON	RAILROAD STREET ANNEX	**322**	U	DG	OD	1	1	18	23	1958	---
09113R	9.18	NAUGATUCK	TORRINGTON SEC.	THOMASTON	BROOK - CULVERT	**393**	U	CP	CS	1	1	5.5	6	1958	---
09114R	10.01	NAUGATUCK	TORRINGTON SEC.	THOMASTON	NAUGATUCK RIVER DAM SP.	**2718**	U	TG	SP	1	1	100	106	1958	---
09115R	10.16	NAUGATUCK	TORRINGTON SEC.	THOMASTON	DAM CONTROL	**3880**	U	CP	CS	1	1	10	10	1958	---
09116R	11.34	NAUGATUCK	TORRINGTON SEC.	LITCHFIELD	BROOK - CULVERT-CONC. PIPE	**460**	U	CP	CS	1	1	6	6	1960	---
09117R	12.47	NAUGATUCK	TORRINGTON SEC.	LITCHFIELD	CULVERT	**1130**	U	CB	CS	1	1	9	11	1958	---
09118R	12.90	NAUGATUCK	TORRINGTON SEC.	LITCHFIELD	BROOK	**855**	U	CP	CS	1	1	5	5	1960	---
09119R	13.12	NAUGATUCK	TORRINGTON SEC.	LITCHFIELD	CULVERT	---	U	CP	CS	1	1	3	3	1950	---
09120R	14.97	NAUGATUCK	TORRINGTON SEC.	LITCHFIELD	SPRUCE BROOK	**765**	U	DG	CS	1	1	39	45	1958	---
09121R	17.57	NAUGATUCK	TORRINGTON SEC.	TORRINGTON	BROOK - CULVERT	**290**	U	CS	CS	1	1	5	10	1950	---
09122R	18.37	NAUGATUCK	TORRINGTON SEC.	TORRINGTON	GULF STREAM	**478**	U	DG	OD	1	1	27	33	1907	---
09123R	18.98	NAUGATUCK	TORRINGTON SEC.	TORRINGTON	SUMMER STREET	**1971**	U	TG	OD	1	1	39	45	1903	1914
09124R	19.04	NAUGATUCK	TORRINGTON SEC.	TORRINGTON	PASSWAY	**623**	U	DG	OD	1	1	18	22	1899	---
09125R	19.10	NAUGATUCK	TORRINGTON SEC.	TORRINGTON	NAUGATUCK RIVER	**2128**	U	DG	OD	1	1	69	152	1907	1917
09000R	15.26	PROV & WORCESTER	CROMWELL IND. TRACK	MIDDLETOWN	SEBETHE RIVER	**2483**	U	TG	OD	1	4	63	191	1910	---
00863R	16.01	PROV & WORCESTER	CROMWELL IND. TRACK	MIDDLETOWN	HARTFORD AVENUE	**1093**	U	TG	CS	1	1	66	71	1925	---
09001R	0.79	PROV & WORCESTER	EAST BERLIN IND. TRACK	MIDDLETOWN	COGINCHAUG RIVER	**1030**	U	DG	OD	1	2	46	103	1926	---
09002R	0.19	PROV & WORCESTER	LAUREL IND. TRACK	MIDDLETOWN	GREEN STREET	**500**	U	DG	OD	1	1	22	22	1911	---
09003R	0.79	PROV & WORCESTER	LAUREL IND. TRACK	MIDDLETOWN	SUMNER BROOK	**1518**	U	TG	OD	1	2	51	115	1911	---
09004R	1.20	PROV & WORCESTER	LAUREL IND. TRACK	MIDDLETOWN	EASTERN DRIVE	**230**	U	DG	OD	1	1	22	27	1911	---
09005R	1.99	PROV & WORCESTER	LAUREL IND. TRACK	MIDDLETOWN	RESERVOIR BROOK	**306**	U	DG	OD	1	1	29	34	1904	---
09006R	2.32	PROV & WORCESTER	LAUREL IND. TRACK	MIDDLETOWN	INDIAN HILL BROOK	**320**	U	DG	OD	1	1	27	32	1911	---
09007R	2.97	PROV & WORCESTER	LAUREL IND. TRACK	MIDDLETOWN	FOREST CREEK	**246**	U	CS	CS	1	2	5	12	1910	---
09008R	3.23	PROV & WORCESTER	LAUREL IND. TRACK	MIDDLETOWN	ASYLUM CREEK	**280**	U	DG	OD	1	1	23	28	1904	---
09009R	3.70	PROV & WORCESTER	LAUREL IND. TRACK	MIDDLETOWN	MAROMAS CREEK	**240**	U	DG	OD	1	1	17	24	1904	---
09010R	16.75	PROV & WORCESTER	MIDDLETOWN SEC.	MIDDLEFIELD	CATTLE PASS	**150**	U	DG	OD	1	1	11	15	1917	---
01373R	16.92	PROV & WORCESTER	MIDDLETOWN SEC.	MIDDLEFIELD	RTE 147 (BAILEYVILLE ROAD)	**880**	U	DG	OD	1	1	81	88	1998	---
09011R	17.86	PROV & WORCESTER	MIDDLETOWN SEC.	MIDDLEFIELD	COGINCHAUG RIVER	**682**	U	DG	OD	1	1	52	62	1898	---
09012R	18.76	PROV & WORCESTER	MIDDLETOWN SEC.	MIDDLEFIELD	FARMWAY	**390**	U	DT	OD	1	1	113	135	1898	---
09013R	18.77	PROV & WORCESTER	MIDDLETOWN SEC.	MIDDLEFIELD	COGINCHAUG RIVER	**1243**	U	---	---	---	---	---	---	---	---
09014R	19.93	PROV & WORCESTER	MIDDLETOWN SEC.	MIDDLETOWN	COGINCHAUG RIVER	**1419**	U	DT	OD	1	1	118	129	1898	---
09015R	20.58	PROV & WORCESTER	MIDDLETOWN SEC.	MIDDLETOWN	UNKNOWN STREAM	**108**	U	PP	SS	1	2	3	8	1900	---
00522R	21.18	PROV & WORCESTER	MIDDLETOWN SEC.	MIDDLETOWN	ROUTE 66	**4400**	U	TT	CS	1	1	200	204	1996	---
00639R	0.19	PROV & WORCESTER	PORTLAND IND. TRK.	MIDDLETOWN	RT. 9 & CONNECTICUT RIVER	**19520**	M	TG/TT	OD	1	5	210	1199	1910	1999
00479R	3.20	PROV & WORCESTER	WETHERSFIELD SEC.	HARTFORD	AIRPORT ROAD (SR 530)	**1037**	U	TG	CS	1	1	70	78	1959	---
09833R	3.80	PROV & WORCESTER	WETHERSFIELD SEC.	HARTFORD	FOLLY BROOK-CULVERT	**1980**	U	MP	SS	1	1	12	12	UK	---
09832R	5.20	PROV & WORCESTER	WETHERSFIELD SEC.	WETHERSFIELD	BEAVER BROOK-CULVERT	---	U	MP	CS	1	1	---	---	---	---
09831R	7.10	PROV & WORCESTER	WETHERSFIELD SEC.	ROCKY HILL	GOFF'S BROOK	**600**	U	DG	OD	1	1	54	60	1909	---
09830R	9.60	PROV & WORCESTER	WETHERSFIELD SEC.	ROCKY HILL	EVAN'S ROAD	**139**	U	DG	OD	1	1	16	19	1950	---
09836R	10.50	PROV & WORCESTER	WETHERSFIELD SEC.	ROCKY HILL	DIVIDEND BROOK	**864**	U	MP	SS	1	1	9	9	1990	---
09829R	12.70	PROV & WORCESTER	WETHERSFIELD SEC.	CROMWELL	NOOKS HILL ROAD	**319**	U	DG	OD	1	1	23.5	29	1910	---
09828R	14.30	PROV & WORCESTER	WETHERSFIELD SEC.	CROMWELL	SOUTH STREET	**308**	U	DG	OD	1	1	22	28	1910	---
09834R	42.85	PROV & WORCESTER	WETHERSFIELD SEC.	HARTFORD	THRASHER'S CROSSING	**594**	U	DG	OD	2	1	22.9	27	1911	---
09835R	35.71	PROV & WORCESTER	WETHERSFIELD SEC.	CROMWELL	FIRE ACCESS ROAD	**190**	U	DG	OD	0	1	13	19	1910	---
09301R	15.23	PROV & WORCESTER	WILLIMANTIC BRANCH	SPRAGUE	WALDO BROOK	**680**	U	CA	CS	1	1	27	35	1906	---
09302R	15.93	PROV & WORCESTER	WILLIMANTIC BRANCH	SCOTLAND	MERRICK BROOK	**600**	U	DG	OD	1	1	55	60	1901	---
09303R	17.36	PROV & WORCESTER	WILLIMANTIC BRANCH	WINDHAM	FROG BROOK	**120**	U	SA	CS	1	1	---	---	1954	---
09304R	20.93	PROV & WORCESTER	WILLIMANTIC BRANCH	WINDHAM	SHETUCKET RIVER	**2450**	U	DG	OD	1	4	58	245	1907	---
09305R	21.28	PROV & WORCESTER	WILLIMANTIC BRANCH	WINDHAM	PLAINS ROAD	**836**	U	DG	OD	2	1	33	38	1911	---
01849R	22.55	PROV & WORCESTER	WILLIMANTIC BRANCH	WINDHAM	ABANDONED RD/PEDESTRIAN	**1571**	U	TG	OD	2	1	50	52	1892	---
09306R	22.76	PROV & WORCESTER	WILLIMANTIC BRANCH	WINDHAM	WILLIMANTIC RIVER	**5427**	U	DG	OD	2	3	103	257	1904	---
09307R	22.89	PROV & WORCESTER	WILLIMANTIC BRANCH	WINDHAM	STATION FOOTBRIDGE	**2388**	Z	TT	CD	0	5	156	640	1910	---
09800R	28.97	RAILS TO TRAILS*	AVON SECONDARY	FARMINGTON	SCOTT SWAMP BROOK	**750**	U	SA	CS	1	1	10	10	1900	---
09802R	32.00	RAILS TO TRAILS*	AVON SECONDARY	FARMINGTON	FARMINGTON RIVER	**3960**	U	DG	OD	1	4	112	396	1956	---

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Inventory List of Off-System Railroad Bridges 6/09/2011

Bridge No.	M.P.	Railroad	Track Chart Name	Town	Location	Deck Area (sqft)	Bridge Type	Bridge Structural Type	Deck Type	No. of Tracks	No. Of Spans	Length of max. Span (ft)	Total Length of Bridge (ft)	Year Built	Year Rehabilitated
00430R	32.25	RAILS TO TRAILS*	AVON SECONDARY	FARMINGTON	FARMINGTON AVENUE	**1098**	U	DG	CS	0	1	55	60	1928	1954
09803R	34.05	RAILS TO TRAILS*	AVON SECONDARY	AVON	THOMPSON BROOK	**465**	U	CA	CS	0	1	15	15	1900	---
01624R	36.65	RAILS TO TRAILS*	AVON SECONDARY	AVON	ARCH ROAD	**1299**	U	TG	SP	0	1	63	71	1896	---
09804R	37.79	RAILS TO TRAILS*	AVON SECONDARY	AVON	NOD BROOK	**845**	U	SA	SS	0	1	10	10	1900	---
09805R	37.81	RAILS TO TRAILS*	AVON SECONDARY	AVON	ROSEWOOD ROAD	**516**	U	SA	SS	0	1	12	12	1900	---
09806R	41.38	RAILS TO TRAILS*	AVON SECONDARY	SIMSBURY	HOP BROOK	**336**	U	DG	OD	1	1	34	37	1940	---
09807R	44.91	RAILS TO TRAILS*	AVON SECONDARY	SIMSBURY	ROBERT'S CATTLE PASS	**150**	U	SA	SS	0	1	5	5	1920	---
09808R	46.25	RAILS TO TRAILS*	AVON SECONDARY	EAST GRANBY	FARMINGTON CANAL	---	U	---	---	---	---	---	---	---	---
09809R	46.44	RAILS TO TRAILS*	AVON SECONDARY	EAST GRANBY	SALMON RIVER	**3270**	U	DG	TD	0	2	68	268	1950	---
09810R	49.46	RAILS TO TRAILS*	AVON SECONDARY	EAST GRANBY	GRIFFIN'S BROOK	**280**	U	DG	OD	0	3	9	28	1950	---
09811R	50.06	RAILS TO TRAILS*	AVON SECONDARY	SUFFIELD	MUDDY RIVER-CONC. ARCH	**1464**	U	MP	SS	0	1	6	24	---	---
09812R	51.07	RAILS TO TRAILS*	AVON SECONDARY	SUFFIELD	FARMINGTON CANAL	**340**	U	SR	CS	0	1	8	17	1910	---
09813R	51.27	RAILS TO TRAILS*	AVON SECONDARY	SUFFIELD	STREAM	**211**	U	DG	TD	0	3	10	27	1950	---
09911R	32.81	RAILS TO TRAILS*	FARMINGTON VALLEY GREENWAY	FARMINGTON	HYDE BROOK-STONE ARCH	---	U	---	---	---	---	---	---	---	---
09300R	1.10	RAILS TO TRAILS*	KENDALL'S IND. TRACK	WINDHAM	NATCHAUG RIVER	**2471**	U	DG	CD	0	2	84	174	1905	---
09912R	33.09	RAILS TO TRAILS*	VAL MAP 56-60/4	FARMINGTON	OLD BROOK-ARCH CULVERT	**704**	U	SA	SS	0	1	16	16	1900	---
09921R	5.61	RAILS TO TRAILS*	VAL MAP 56-60/6	BURLINGTON	BARNES BROOK - DEP	---	U	DG	OD	0	1	43	48	---	---
09922R	6.14	RAILS TO TRAILS*	VAL MAP 56-60/7	BURLINGTON	CEDAR BROOK - DEP	---	U	DG	OD	0	1	34	40	---	---
09923R	6.37	RAILS TO TRAILS*	VAL MAP 56-60/7	BURLINGTON	BROOK - DEP	---	U	DG	OD	0	1	13	17	---	---
09913R	33.17	RAILS TO TRAILS*	VAL MAP 56-60/8	CANTON	FARMINGTON RIVER	**7716**	U	TT	CD	0	1	175	643	1910	---
09914R	33.19	RAILS TO TRAILS*	VAL MAP 56-60/8	CANTON	FARMINGTON CANAL	---	U	---	---	---	---	---	---	---	---

133 TOTAL STRUCTURES

KEY TO ABBREVIATIONS

BRIDGE TYPE
U = UNDERGRADE BRIDGE
M = MOVABLE BRIDGE
PT = PEDESTRIAN TUNNEL
PO = PEDESTRIAN OVERPASS

BRIDGE STRUCTURAL TYPE
TT = THROUGH TRUSS
DT = DECK TRUSS
TG = THROUGH GIRDER
DG = DECK GIRDER
SA = STONE ARCH
BA = BRICK ARCH
MA = METAL/STEEL ARCH
CA = CONCRETE ARCH
PC = PRESTRESSED CONCRETE SLABS
PG = PRESTRESSED GIRDER
TI = TIMBER TRESTLE
ST = STEEL TRESTLE
MP = METAL/STEEL PIPE CULVERT
CP = CONCRETE PIPE CULVERT
CB = CONCRETE BOX CULVERT
SB = STONE BOX CULVERT
PP = PLASTIC PIPE CULVERT
SR = CONCRETE ENCASED STOCK RAILS
MB = MULTI-BEAM

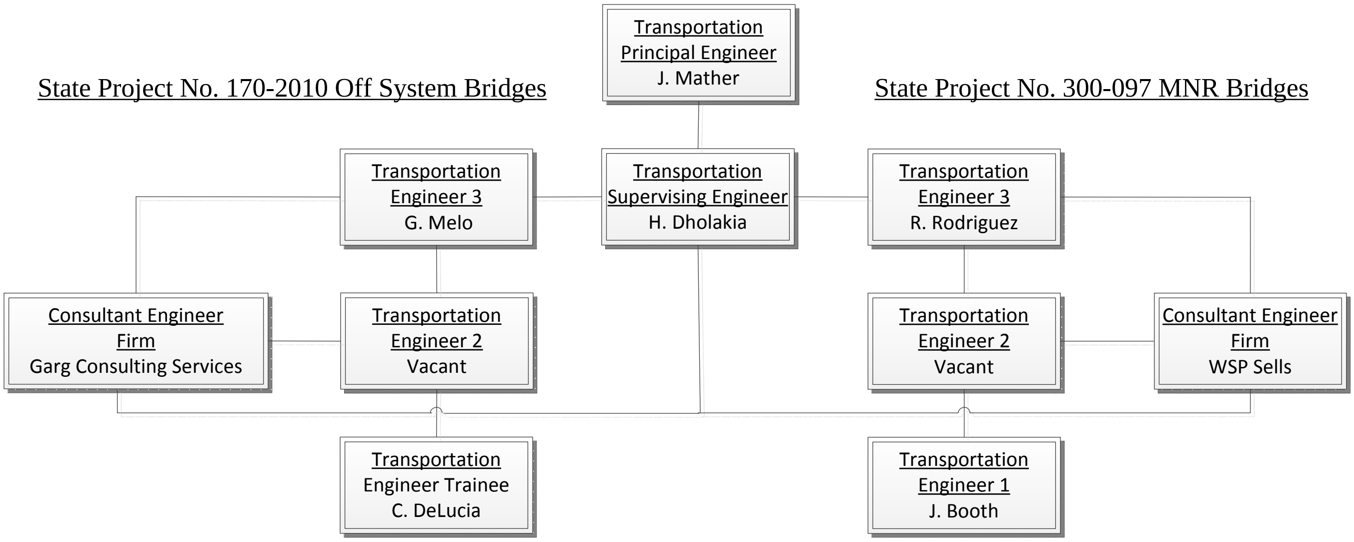
DECK TYPE
OD = OPEN DECK
DF = DIRECT FIXATION
SP = STEEL PLATE
IP = IRON PLATE
CS = CONCRETE SLAB
SS = STONE SLAB
TD = TIMBER/PLANK
BD = BALLASTED DECK

***** = CURRENTLY UNDER CONSTRUCTION
UK = UNKNOWN

APPENDIX 5

ORGANIZATION CHARTS FOR INSPECTION OF RAILROAD BRIDGES

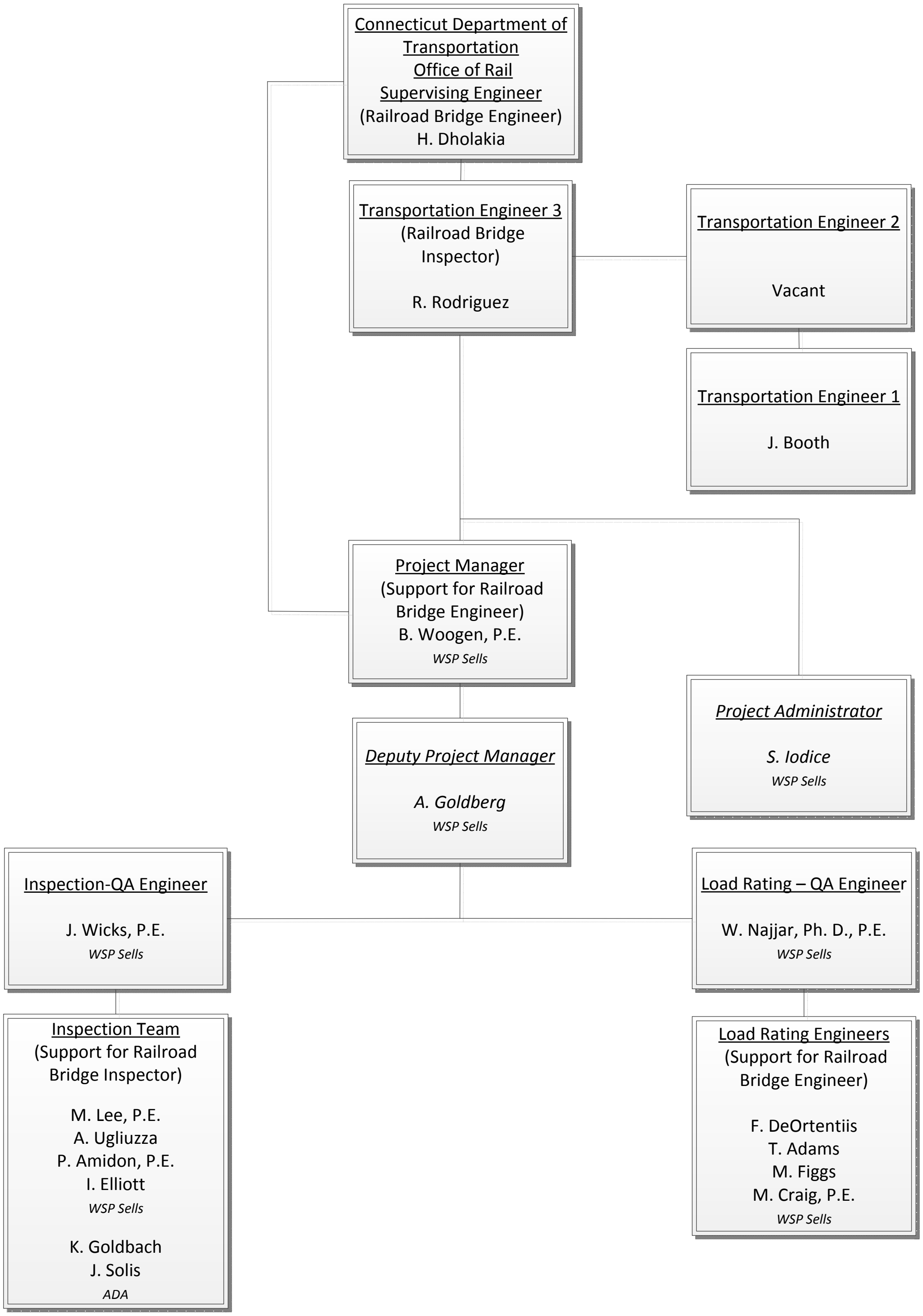
ORGANIZATION CHART FOR INSPECTION OF RAILROAD BRIDGES



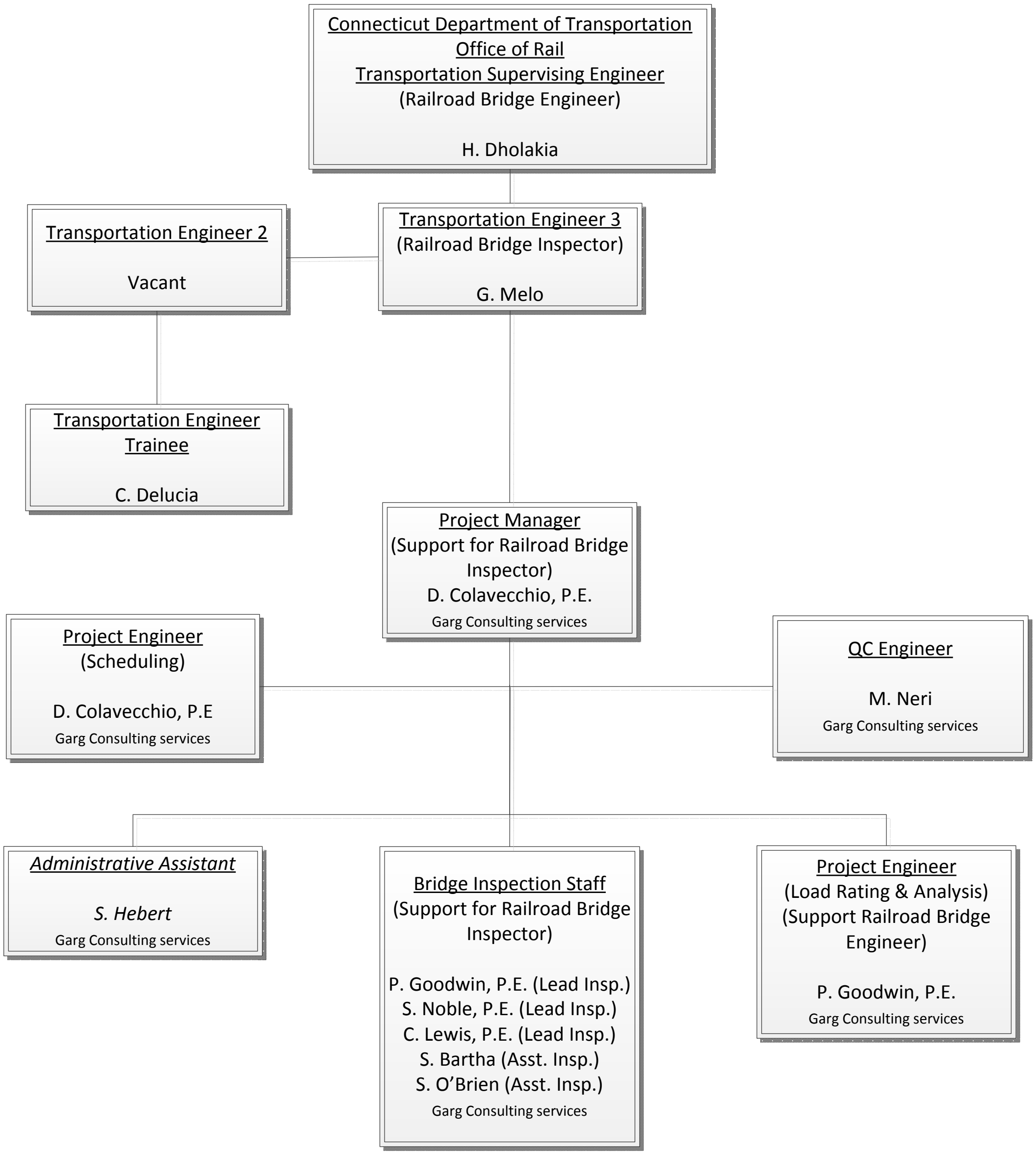
FRA Designation	CDOT Office of Rail Designation
Railroad Bridge Engineer –	Transportation Supervising Engineer with support from Consultant Engineering Firm
Railroad Bridge Inspector –	Transportation Engineer 3 with support from Consultant Engineering Firm
Railroad Bridge Supervisor –	Transportation Engineer 3 with support from Consultant Engineering Firm

See Page A5-2 Detailed Organization Charts for Inspection (Routine and Verification) of Metro-North Railroad Bridges
See Page A5-3 Detailed Organization Charts for Routine and Verification Inspections of Off-System Bridges

METRO-NORTH RAILROAD BRIDGE INSPECTION
(ROUTINE AND VERIFICATION)
STATE PROJECT NO. 300-097
ORGANIZATION CHART
CONNDOT – WSP SELLS
(CONSULTING ENGINEERING FIRM)



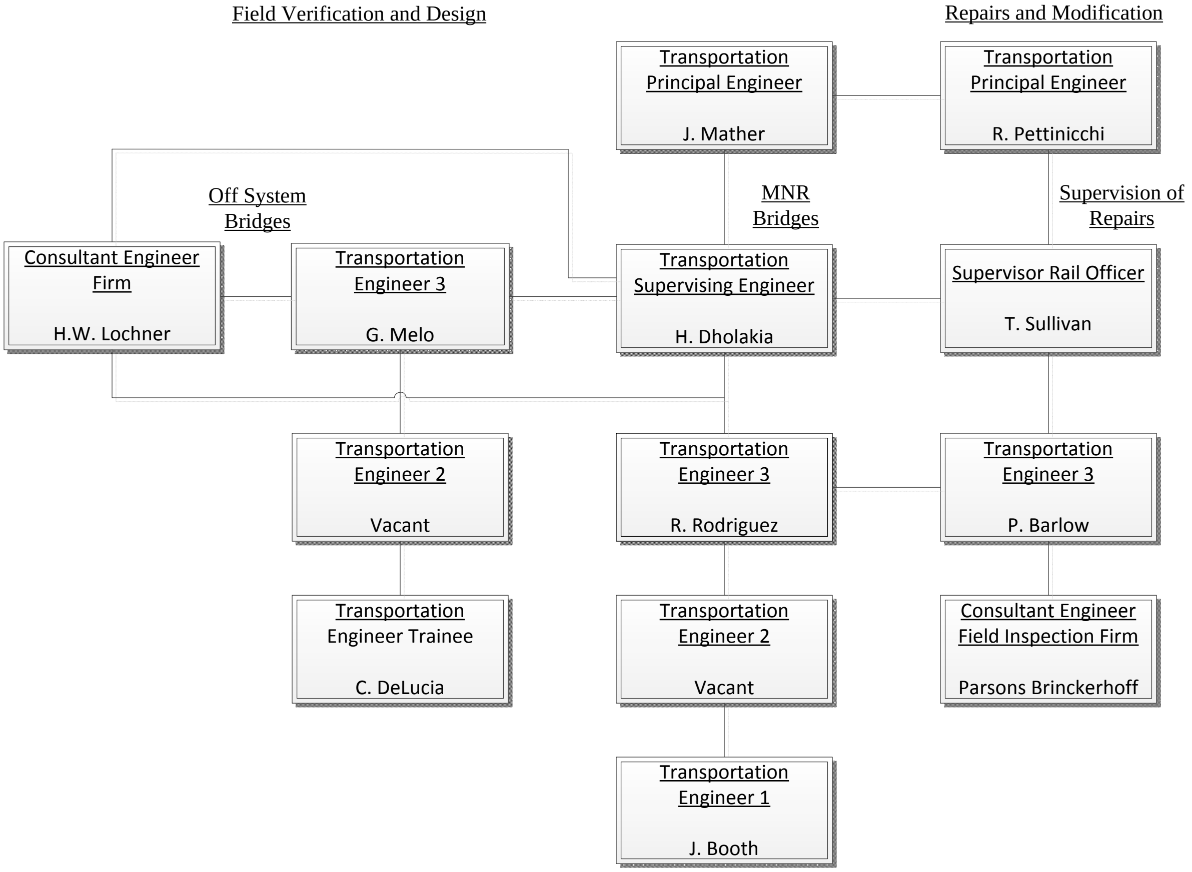
OFF SYSTEM ROUTINE AND VERIFICATION INSPECTIONS
STATE PROJECT NO. 170-2010
ORGANIZATION CHART
CONNDOT – GARG CONSULTING SERVICES, INC.
(CONSULTING ENGINEERING FIRM)



APPENDIX 6

ORGANIZATION CHARTS FOR FIELD VERIFICATION AND DESIGN OF REPAIRS FOR RAILROAD BRIDGES

ORGANIZATION CHART FOR FIELD VERIFICATION AND DESIGN OF REPAIRS FOR RAILROAD BRIDGES

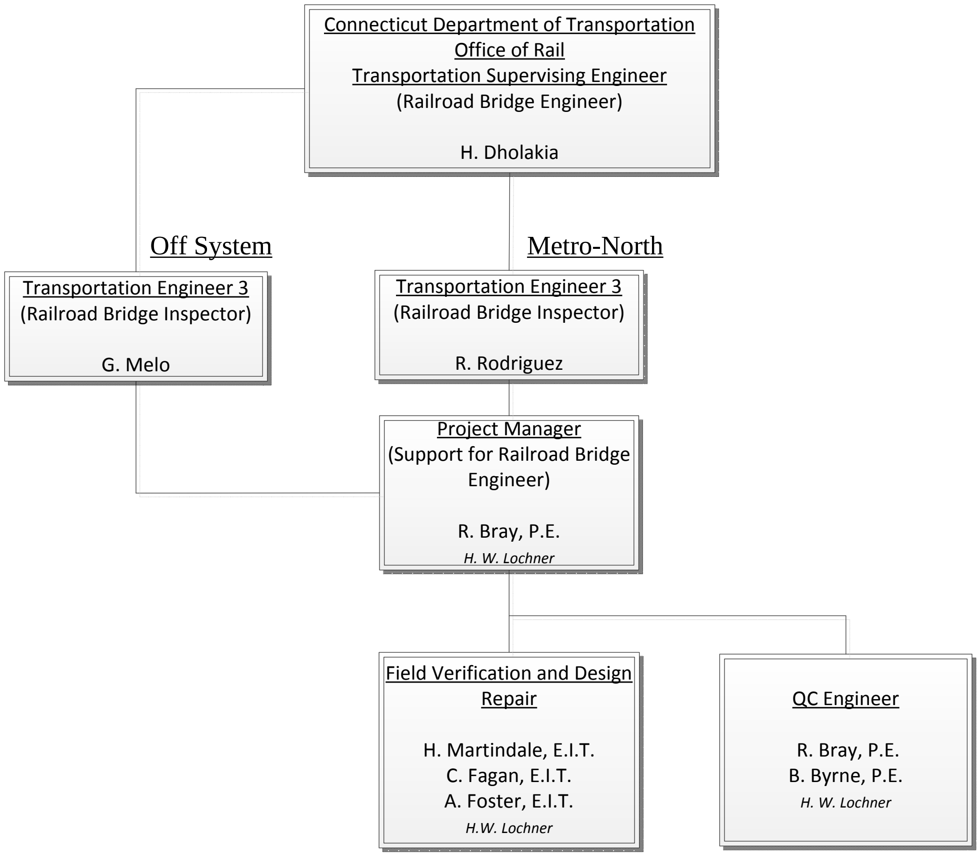


FRA Designation	CDOT Office of Rail Designation
Railroad Bridge Engineer –	Supervising Engineer with support from Consultant Engineer.
Railroad Bridge Supervisor–	Supervisor Rail Officer and Transportation Engineer 3 with support from Consultant Engineer.

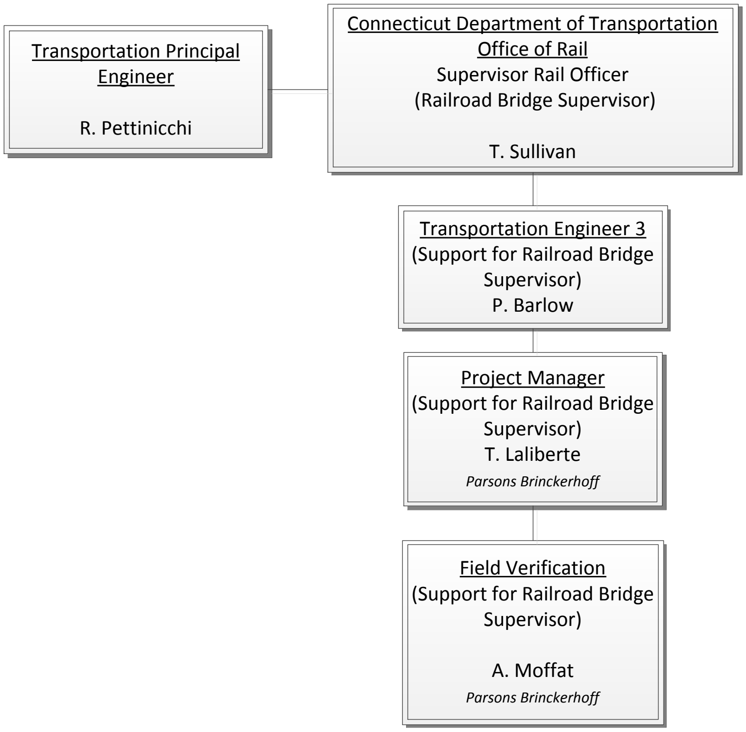
See Page A6-2 – Detail Organization Chart for Field Verification and Design Repairs of Railroad Bridges

See Page A6-3 – Detail Organization Chart for Field Repairs and Modification of Railroad Bridges

FIELD VERIFICATION AND DESIGN OF REPAIRS FOR RAILROAD BRIDGES
STATE PROJECT NO. 300-0175
ORGANIZATION CHART
CONNDOT – H.W. LOCHNER, INC
(CONSULTING ENGINEERING FIRM)



FIELD REPAIRS AND MODIFICATIONS ON RAILROAD BRIDGES
ORGANIZATION CHART
CONNDOT – PARSONS BRINCKERHOFF
(CONSULTING ENGINEERING FIRM)



APPENDIX 7

DRAFT SUMMARY OF SAFE LOAD CAPACITY OF METRO-NORTH RAILROAD BRIDGES

State of Connecticut-Department of Transportation-Office of Rail

Draft Safe Load Assesment List of Metro-North Railroad Bridge - As of 6/13/11

Track Chart Name	Town	Bridge Type	Bridge No.	Location	Mile Point	Overall Cond. Rating	2008-2010 New E80 Cooper Rating		Controlling Member & Location				Time Table max Equip Load lbs	Demand for Permitted Car from Graph/Table (cooper)	Does Normal Rating (Capacity) meets Demand?	Load rating for Actual Equipment		Axle load for Actual Equipment (Kip)	Meets Safe Load capacity?	Comments
						Current	Norm	Max	Member	Moment or Shear	Track No./Span No.	Rating Span Length (ft.)				Norm	Max			
DANBURY	NORWALK	U	04134R	MARSHALL STREET	0.11	5	68	86	G1 & G2	Moment	1/1	46.75	263,000							
DANBURY	NORWALK	U	08200R	ANN STREET	0.19	5	62	78	G4	Moment	2/1	49.58	263,000							
DANBURY	NORWALK	U	08225R	REED STREET	0.36							64.00	263,000							
DANBURY	NORWALK	U	08201R	NORWALK RIVER - STEEL GIRDER	1.56	7	76	102	G2	Moment	1/1	64.00	263,000							
DANBURY	NORWALK	U	08202R	NORWALK RIVER - STEEL GIRDER	3.20	5	74	96	G1	Moment	1/1	60.40	263,000							
DANBURY	WILTON	U	08203R	BROOK - MULTIBEAM DECK	5.12	6	124	151	G5	Moment	1/1	11.42	263,000							
DANBURY	WILTON	U	08204R	STREAM - MULTIBEAM DECK	6.43	4	64	80	G2 & G3	Moment	1/1	35.00	263,000							
DANBURY	WILTON	U	08205R	NORWALK RIVER - STEEL GIRDER	6.64	5	63	79	G1 & G4	Moment	1/1	46.00	263,000							
DANBURY	WILTON	U	08206R	NORWALK RIVER - STEEL GIRDER	8.70	4	69	87	G1 & G2	Moment	1/1	54.19	263,000							
DANBURY	WILTON	U	08207R	NORWALK RIVER - STEEL GIRDER	9.42	5	76	99	G1 & G2	Moment	1/1& 2	40.68	263,000							
DANBURY	WILTON	U	08208R	BROOK - CULVERT MASONRY	9.91	5	--	--	N/A	N/A	N/A	N/A	263,000							
DANBURY	WILTON	U	08209R	OLD MILL ROAD	11.01	4	53	67	G8	Moment	1/1	27.75	263,000							
DANBURY	WILTON	U	08210R	NORWALK RIVER - STEEL GIRDER	11.55	5	69	87	G1	Moment	1/1	50.15	263,000							
DANBURY	WILTON	U	08211R	FACTORY POND	12.17	5	60	77	??	Moment	1/1	33.42	263,000							
DANBURY	REDDING	U	08212R	BRANCHVILLE BROOK	12.83															
DANBURY	REDDING	U	08213R	OLD REDDING ROAD	14.16	6	93	118	G1-G8	Moment	1/1	21.00	263,000							
DANBURY	REDDING	U	08214R	SIMPAUG TURNPIKE	14.80	6	--	--	N/A	N/A	N/A	N/A	263,000							
DANBURY	REDDING	U	08215R	UMPAWAUG POND BROOK - STEEL GIRDER	16.41	5	91	115	G1	Moment	1/1	23.42	263,000							
DANBURY	REDDING	U	08216R	SAUGATUCK RIVER - STEEL GIRDER	17.09	5	76	96	G1	Moment	1/1	43.40	263,000							
DANBURY	BETHEL	U	01020R	GRASSY PLAIN ROAD (ROUTE 53)	19.64	5	209	309	G1-G6	Moment	1/1	36.20	263,000							
DANBURY	BETHEL	U	08224R	SYMPAUG BROOK - DOUBLE BARREL MASONRY CULV	19.79															
DANBURY	BETHEL	U	08217R	BROOK - CONCRETE	19.99	4	--	--	N/A	N/A	N/A	N/A	263,000							
DANBURY	BETHEL	U	08218R	SYMPAUG BROOK - MULTIBEAM DECK	21.41	4	68	94	G1	Moment	1/1	20.00	263,000							
DANBURY	DANBURY	U	08219R	SYMPAUG BROOK - CONCRETE SLAB	21.52	5	91	123	G1	Moment	1/1	16.33	263,000							
DANBURY	DANBURY	U	08220R	STILL RIVER - STEEL GIRDER	22.39	7	87	140	G1 & G2	Moment	1/1	67.00	263,000							
DANBURY	DANBURY	U	05100R	STILL RIVER - CONCRETE CULVERT	22.94	7	99	129	Concrete Culvert	Shear	1/1	22.00	263,000							
DANBURY	DANBURY	U	08223R	STILL RIVER - CONCRETE CULVERT	23.18	7	114	148	Concrete Culvert	Moment	1/1	20.00	263,000							
DANBURY	DANBURY	U	04290R	STILL RIVER - CONCRETE CULVERT	23.42	6	86	112	Concrete Culvert	Moment	1/1	20.00	263,000							
MAINLINE	GREENWICH	U	03943R	NORTH WATER STREET	26.10	6	93	140	G2-G17	Moment	T1-T4/1	44.00	263,000							
MAINLINE	GREENWICH	U	03945R	HAMILTON AVENUE	26.79	7	135	208	G2-G17	Moment	T1-T4/1	27.00	263,000							
MAINLINE	GREENWICH	U	08000R	PEDESTRIAN UNDERPASS AT HAMILTON AVENUE	26.79	6	--	--	N/A	N/A	N/A	N/A	263,000							
MAINLINE	GREENWICH	U	03947R	FIELD POINT ROAD	27.77	6	--	--	N/A	N/A	N/A	N/A	263,000							
MAINLINE	GREENWICH	U	03673R	ARCH STREET (SR 742)	28.06	7	95	113	G3	Moment	4/1	100.00	263,000							
MAINLINE	GREENWICH	Z	08002R	PEDESTRIAN OVERPASS FOOTBRIDGE	28.16	8	--	--	N/A	N/A	N/A	N/A	263,000							
MAINLINE	GREENWICH	U	03946R	STEAMBOAT ROAD	28.22	4	55	69	G1	Moment	3/1	53.47	263,000							
MAINLINE	GREENWICH	U	08003R	DAVIS AVENUE #2	28.48	4	53	67	G5	Moment	2/1	32.50	263,000							
MAINLINE	GREENWICH	U	08004R	INDIAN HARBOR (DAVIS MILL POND)	28.68	5	56	71	G1-G8	Moment	T1-T4/1	62.25	263,000							
MAINLINE	GREENWICH	U	08005R	SACHEM ROAD	29.50	5	66	96	G2	Moment	3/1	25.92	263,000							
MAINLINE	GREENWICH	U	08006R	LUKES CROSSING (SOUND SHORE DRIVE)	29.68	4	65	82	G1-G8	Moment	T1-T4/1	34.33	263,000							
MAINLINE	GREENWICH	M	08008R	MIANUS RIVER (COS COB BRIDGE) - MOVABLE	29.90								263,000							
MAINLINE	GREENWICH	U	08009R	ARCH STREET #2 - MASONRY ARCH	31.03	5	--	--	N/A	N/A	N/A	N/A	263,000							
MAINLINE	GREENWICH	U	08010R	STREAM - MASONRY CULVERT	31.12	5	--	--	N/A	N/A	N/A	N/A	263,000							

Draft Safe Load Assesment List of Metro-North Railroad Bridge - As of 6/13/11

Track Chart Name	Town	Bridge Type	Bridge No.	Location	Mile Point	Overall Cond. Rating	2008-2010 New E80 Cooper Rating		Controlling Member & Location				Time Table max Equip Load lbs	Demand for Permitted Car from Graph/Table (cooper)	Does Normal Rating (Capacity) meets Demand?	Load rating for Actual Equipment		Axle load for Actual Equipment (Kip)	Meets Safe Load capacity?	Comments
						Current	Norm	Max	Member	Moment or Shear	Track No./Span No.	Rating Span Length (ft.)				Norm	Max			
MAINLINE	GREENWICH	U	03948R	SOUND BEACH AVENUE	31.29	4	74	122	Pier Cap	Shear	3/--	27.00	263,000							
MAINLINE	GREENWICH	U	03955R	TOMAC AVENUE	31.62	5	57	73	G2-G4	Moment	T1-T4/1	31.96	263,000							
MAINLINE	STAMFORD	U	03680R	GREENWICH AVENUE	32.81	4	61	79	G2-G4	Shear	T1-T4/2	39.81	263,000							
MAINLINE	STAMFORD	U	08011R	RIPPOWAM RIVER - TRUSS	32.85	5	66	102	T1 & T 8/U3 & U4	Axial Comp. & Moment	T3 &T4/1	120.00	263,000							
MAINLINE	STAMFORD	U	03683R	WASHINGTON BOULEVARD (STATE ROUTE 493)	32.97	7	85	142	G3 & G6	Moment	T2 & T3/S1&S2	59.42	263,000							
MAINLINE	STAMFORD	U	08012R	ATLANTIC STREET	33.19	4	49	75	G5	Shear	T2 & T4/2	58.02	263,000							
MAINLINE	STAMFORD	U	03678R	CANAL STREET	33.41	5	67	85	G3, G13, G14	Moment	T5 & T6/1	62.75	263,000							
MAINLINE	STAMFORD	U	03686R	ELM STREET	33.75	4	60	88	G5, G7, G9, G11, G13	Moment & Shear	T3, T1, T2, T4, T6/2	36.60	263,000							
MAINLINE	STAMFORD	U	02237R	EAST MAIN STREET (U.S. ROUTE 1)	34.17	3	48	65	G3 & G5	Shear	T1-T4/2	69.60	263,000							
MAINLINE	STAMFORD	U	08013R	HAMILTON AVENUE	34.72	4	48	73	G3-G5	Shear	T1-T4/1	36.67	263,000							
MAINLINE	STAMFORD	U	08014R	NOROTON RIVER - MASONRY ARCH	35.58	5	--	--	N/A	N/A	N/A	N/A	263,000							
MAINLINE	DARIEN	Z	08015R	NOROTON STATION PEDESTRIAN OVERPASS	36.24	5	--	--	N/A	N/A	N/A	N/A	263,000							
MAINLINE	DARIEN	U	08016R	STONY BROOK - MASONRY CULVERT	37.16	5	--	--	N/A	N/A	N/A	N/A	263,000							
MAINLINE	DARIEN	U	08017R	CUMMINGS BROOK - MASONRY CULVERT	37.36	5	--	--	N/A	N/A	N/A	N/A	263,000							
MAINLINE	DARIEN	U	04142R	LEROY AVENUE #1	37.59	6	54	68	G8	Moment	4/1	27.00	263,000							
MAINLINE	DARIEN	U	00316R	BOSTON POST ROAD (U.S. ROUTE 1)	37.82	4	56	73	New Bridge	New Bridge	New Bridge	New Bridge	263,000							
MAINLINE	DARIEN	U	08018R	GOODWIVES RIVER - CONCRETE DECK	38.00	7	76	126	B1 & B8	Moment	T3 & T4/1	16.31	263,000							
MAINLINE	DARIEN	U	08019R	STREAM	38.36															
MAINLINE	DARIEN	U	08020R	TOKENEKE BROOK - 2 STONE CULVERTS	38.53	8	--	--	N/A	N/A	N/A	N/A	263,000							
MAINLINE	DARIEN	U	08021R	TOKENEKE BROOK #2 - MASONRY CULVERT	38.68	5	--	--	N/A	N/A	N/A	N/A	263,000							
MAINLINE	DARIEN	U	04271R	RAYMOND STREET	38.93	5	54	70	G5 & G6	Moment	2/1	25.21	263,000							
MAINLINE	DARIEN	U	08022R	FIVE MILE RIVER - BRICK ARCH	39.07	5	--	--	N/A	N/A	N/A	N/A	263,000							
MAINLINE	NORWALK	U	08023R	DRY STREAM - MASONRY CULVERT	39.08	5	--	--	N/A	N/A	N/A	N/A	263,000							
MAINLINE	NORWALK	U	04132R	ROWAYTON AVENUE	39.11	4	45	59	New Bridge	New Bridge	New Bridge	New Bridge	263,000							
MAINLINE	NORWALK	U	08024R	FARM CREEK	39.55															
MAINLINE	NORWALK	U	08025R	FRANKLIN STREET (SPRING STREET)	40.89	5	62	90	G3-G5	Shear	T1-T4/1	45.33	263,000							
MAINLINE	NORWALK	U	08026R	STATION UNDERPASS	41.02	6	--	--	N/A	N/A	N/A	N/A	263,000							
MAINLINE	NORWALK	U	08027R	MONROE STREET	41.12	5	134	171	New Bridge	New Bridge	New Bridge	New Bridge	263,000							
MAINLINE	NORWALK	U	03693R	WASHINGTON & MAIN STREETS	41.28	4	55	86	Center Truss L7-L8	Axial Tension	N/A	112.00	263,000							
MAINLINE	NORWALK	M	04288R	NORTH WATER STREET & NORWALK RIVER - MOVABL	41.51	5	48	73					263,000							
MAINLINE	NORWALK	U	04131R	FORT POINT STREET	41.79	5	60	79	End Floorbeams	Moment	T1-T4/1	12.52	263,000							
MAINLINE	NORWALK	U	08028R	OSBORNE AVENUE	41.96	5	52	67	G2-G4	Moment	T1-T4/1	37.33	263,000							
MAINLINE	NORWALK	U	03691R	EAST AVENUE	42.14	4	50	73	FB1-FB3	Moment	T1-T4/1	12.00	263,000							
MAINLINE	NORWALK	U	08029R	BROOK - MASONRY CULVERT	42.26	5	--	--	N/A	N/A	N/A	N/A	263,000							
MAINLINE	NORWALK	U	03692R	STRAWBERRY HILL AVENUE	42.37	6	67	88	G8	Moment	4/1	32.50	263,000							
MAINLINE	WESTPORT	U	08103R	STREAM - STONE CULVERT	43.50															
MAINLINE	WESTPORT	U	08290R	INDIAN RIVER - TWO CONCRETE PIPES 7' DIAMETER	43.80	7	--	--	N/A	N/A	N/A	N/A	263,000							
MAINLINE	WESTPORT	U	01348R	SAUGATUCK AVENUE (ROUTE 136)	43.97	5	69	91	G3-G10	Moment	T1-T4/1	40.00	263,000							
MAINLINE	WESTPORT	U	08030R	SAUGATUCK AVE SIDING	43.97															
MAINLINE	WESTPORT	U	08105R	NEW STATION UNDERPASS	44.12	7	--	--	N/A	N/A	N/A	N/A	263,000							
MAINLINE	WESTPORT	U	08031R	STATION UNDERPASS - CONCRETE CULVERT	44.20	6	--	--	N/A	N/A	N/A	N/A	263,000							
MAINLINE	WESTPORT	M	08032R	FERRY LANE & SAUGATUCK RIVER - MOVABLE	44.32	5	66	100	G8	Moment	4/3	96.38	263,000							

Draft Safe Load Assesment List of Metro-North Railroad Bridge - As of 6/13/11

Track Chart Name	Town	Bridge Type	Bridge No.	Location	Mile Point	Overall Cond. Rating	2008-2010 New E80 Cooper Rating		Controlling Member & Location				Time Table max Equip Load lbs	Demand for Permitted Car from Graph/Table (cooper)	Does Normal Rating (Capacity) meets Demand?	Load rating for Actual Equipment		Axle load for Actual Equipment (Kip)	Meets Safe Load capacity?	Comments
						Current	Norm	Max	Member	Moment or Shear	Track No./Span No.	Rating Span Length (ft.)				Norm	Max			
MAINLINE	WESTPORT	U	03963R	COMPO ROAD	44.70	6	68	89	G1-G8 & East FB	Moment	1/1	38.50	263,000							
MAINLINE	WESTPORT	U	08033R	SHERWOOD MILL POND - CONCRETE CULVERT	45.75	5	--	--	N/A	N/A	N/A	N/A	263,000							
MAINLINE	WESTPORT	U	08034R	MUDDY BROOK - CONCRETE CULVERT	46.11	6	--	--	N/A	N/A	N/A	N/A	263,000							
MAINLINE	WESTPORT	U	08035R	NEW CREEK ROAD	47.15	5	60	87	G2, G3, G5-G8	Moment	4/1	31.75	263,000							
MAINLINE	WESTPORT	U	08036R	GREENS FARMS BROOK - METAL PIPE CULVERT	47.29	6	--	--	N/A	N/A	N/A	N/A	263,000							
MAINLINE	WESTPORT	U	08037R	MAPLE LANE	47.44	5	53	83	G1-G3	Moment	T1 & T3/1	39.04	263,000							
MAINLINE	WESTPORT	U	08038R	SASCO RIVER - MULTIBEAM DECK	48.29	6	67	113	G2-G31	Moment	T1-T4/1	34.00	263,000							
MAINLINE	FAIRFIELD	U	08039R	WESTWAY ROAD	48.65	4	--	--	New Bridge	New Bridge	New Bridge	New Bridge	263,000							
MAINLINE	FAIRFIELD	U	08040R	MASONRY CULVERT	48.80															
MAINLINE	FAIRFIELD	U	04200R	CENTER STREET	48.81	6	63	94	FB1 @ G7 & G8	Moment	4/1	10.50	263,000							
MAINLINE	FAIRFIELD	U	08041R	SPRUCE STREET	48.91	5	72	107	FB18 @ G1 & G2	Moment	3/1	10.50	263,000							
MAINLINE	FAIRFIELD	U	08042R	OLD POST ROAD	49.01	5	67	101	FB1 @ G1 & G2	Moment	3/1	10.50	263,000							
MAINLINE	FAIRFIELD	U	08043R	MILL RIVER - MULTIBEAM DECK	49.66	5	64	81	G3 & G4	Moment	1/1	74.33	263,000							
MAINLINE	FAIRFIELD	U	08044R	NORTH PINE CREEK ROAD	50.02	5	58	86	FB1 & FB14 @ G5/G6	Moment	2/1	10.50	263,000							
MAINLINE	FAIRFIELD	U	04197R	MILL PLAIN ROAD	50.29	5	65	99	End FB2 & FB23 @ G5 & G6	Shear	2/1	10.50	263,000							
MAINLINE	FAIRFIELD	U	04198R	ROUND HILL ROAD	50.90	5	59	89	FB19 @ G1 & G2	Moment	3/1	10.50	263,000							
MAINLINE	FAIRFIELD	U	01344R	NORTH BENSON ROAD (ROUTE 135)	51.12	4	46	72	New Bridge	New Bridge	New Bridge	New Bridge	263,000							
MAINLINE	FAIRFIELD	U	08045R	FAIRFIELD CREEK - MULTIBEAM DECK	51.68	5	97	141	G1-G24	Moment	T1-T4/1	13.92	263,000							
MAINLINE	FAIRFIELD	U	08046R	CULVERT	52.29															
MAINLINE	FAIRFIELD	U	08047R	ASH CREEK - MULTIBEAM DECK	53.00	6	72	118	G25	Moment	4/1	34.00	263,000							
MAINLINE	BRIDGEPORT	U	03635R	FAIRFIELD AVENUE (ROUTE 130)	53.42	4	47	72	New Bridge	New Bridge	New Bridge	New Bridge	263,000							
MAINLINE	BRIDGEPORT	U	08048R	BOSTWICK AVENUE	53.60	5	54	70	G2-G4	Moment	T1-T4/2	40.00	263,000							
MAINLINE	BRIDGEPORT	U	08049R	HANCOCK AVENUE	53.72	5	68	88	G3 & G4	Moment	T1, T2, T4/2	40.00	263,000							
MAINLINE	BRIDGEPORT	U	08050R	HOWARD AVENUE	53.84	5	60	105	G7	Shear	4/2	40.00	263,000							
MAINLINE	BRIDGEPORT	U	08051R	WORDIN AVENUE	54.07	5	59	87	G1	Moment	3/2	51.17	263,000							
MAINLINE	BRIDGEPORT	U	08052R	IRANISTAN AVENUE	54.22	5	64	93	G6	Moment	2/2	43.65	263,000							
MAINLINE	BRIDGEPORT	U	08053R	SOUTH AVENUE	54.44	4	73	95	New Bridge	New Bridge	New Bridge	New Bridge	263,000							
MAINLINE	BRIDGEPORT	U	03638R	PARK AVENUE	54.58	5	64	83	G3	Moment	T1 & T2/2	56.61	263,000							
MAINLINE	BRIDGEPORT	U	08054R	MYRTLE AVENUE	54.70	5	68	92	G2-G4	Shear	T1-T4/2	32.91	263,000							
MAINLINE	BRIDGEPORT	U	08055R	WARREN STREET	54.77	5	71	103	C1-C8	Axial & Bending	T1-T4(Piers 1 &2)/2	30.73	263,000							
MAINLINE	BRIDGEPORT	U	08056R	LAFAYETTE STREET	54.84	5	74	129	G1, G3, G5, G7	Shear	T1-T4/2	30.29	263,000							
MAINLINE	BRIDGEPORT	U	08057R	BROAD STREET	54.93	5	67	106	G4	Shear	1/2	30.67	263,000							
MAINLINE	BRIDGEPORT	U	08058R	MAIN STREET #1	54.98	4	52	68	New Bridge	New Bridge	New Bridge	New Bridge	263,000							
MAINLINE	BRIDGEPORT	U	08059R	HOUSATONIC CROSSING	55.13	5	72	114	South End FB supported by west truss	Moment	T1 & T3/1	18.17/4.70	263,000							
MAINLINE	BRIDGEPORT	Z	08107R	SOUTH PEDESTRIAN OVERPASS	55.35	7	--	--	N/A	N/A	N/A	N/A	263,000							
MAINLINE	BRIDGEPORT	U	08060R	UNION STREET	55.40	4	67	99	G6	Moment	T2 & T4/1	33.75	263,000			🟥	🟥			
MAINLINE	BRIDGEPORT	Z	08108R	NORTH PEDESTRIAN OVERPASS	55.41	8	--	--	N/A	N/A	N/A	N/A	263,000							
MAINLINE	BRIDGEPORT	U	08061R	BRIDGEPORT HARBOR - REINFORCED CONCRETE SLA	55.41	5	44	73	Span 5/Pier 5	Moment	All/5	25.00	263,000							
MAINLINE	BRIDGEPORT		08104R	BRIDGEPORT HARBOR - PEDESTRIAN TUNNEL	55.50	7	--	--	N/A	N/A	N/A	N/A	263,000							
MAINLINE	BRIDGEPORT	U	08062R	STATION VIADUCT	55.51	6	85	111	G1 & G4	Moment	T1 & T3/7	38.33	263,000							
MAINLINE	BRIDGEPORT	U	03636R	STRATFORD AVENUE (ROUTE 130)	55.61	7	75	125	G2	Moment	T1 - T4/2	73.50	263,000							

Draft Safe Load Assesment List of Metro-North Railroad Bridge - As of 6/13/11

Track Chart Name	Town	Bridge Type	Bridge No.	Location	Mile Point	Overall Cond. Rating	2008-2010 New E80 Cooper Rating		Controlling Member & Location				Time Table max Equip Load lbs	Demand for Permitted Car from Graph/Table (cooper)	Does Normal Rating (Capacity) meets Demand?	Load rating for Actual Equipment		Axle load for Actual Equipment (Kip)	Meets Safe Load capacity?	Comments
						Current	Norm	Max	Member	Moment or Shear	Track No./Span No.	Rating Span Length (ft.)				Norm	Max			
MAINLINE	BRIDGEPORT	U	08063R	VIADUCT - PARKING LOT NORTH	55.69	7	81	117	G1-G8	Moment	T1-T4/22	43.29 (G2, G3, G6, G7)/43.45 (G1, G4, G5, G8)	263,000							
MAINLINE	BRIDGEPORT	M	08064R	PEQUONNOCK RIVER - MOVABLE	55.90	6	85	125	FB7 (No. & So.)	Moment	T1-T4/3	12.80	263,000							
MAINLINE	BRIDGEPORT	U	08065R	VIADUCT	55.91	7	77	124	G6	Moment	2/4	45.49	263,000							
MAINLINE	BRIDGEPORT	U	08066R	PULASKI STREET	55.95	7	73	94	G1, G4, G5, G8	Moment	T1-T4/1	61.70	263,000							
MAINLINE	BRIDGEPORT	U	08067R	VIADUCT	55.97	7	75	122	G1	Moment	3/1	59.45	263,000							
MAINLINE	BRIDGEPORT	U	08068R	NOBLE AVENUE	55.98	7	74	129					263,000							
MAINLINE	BRIDGEPORT	U	08101R	VIADUCT	55.99	7	71	84	G8	Moment	4/2	68.27	263,000							
MAINLINE	BRIDGEPORT	U	08102R	CLARENCE STREET	56.00	7	78	126	FB0	Moment	T1 & T3/1	35.25	263,000							
MAINLINE	BRIDGEPORT	U	08069R	KOSSUTH STREET	56.10	7	103	157	G2, G3, G4	Moment	T1-T4/1	46.55	263,000							
MAINLINE	BRIDGEPORT	U	03639R	EAST MAIN STREET (ROUTE 127)	56.20	5	78	100	G1, G3, G5	Shear (G1 & G5)/Moment (G3)	T1-T4/2	40.92	263,000							
MAINLINE	BRIDGEPORT	U	08070R	PEMBROKE STREET	56.35	4	72	92	G3	Moment	T1 & T2/2	32.52	263,000							
MAINLINE	BRIDGEPORT	U	08071R	HALLETT STREET	56.46	4	57	87	G3	Shear	T1 & T2/2	30.24	263,000							
MAINLINE	BRIDGEPORT	U	08072R	YELLOW MILL POND - BRICK ARCH	56.68	5	--	--	N/A	N/A	N/A	N/A	263,000							
MAINLINE	BRIDGEPORT	U	08073R	YELLOW MILL POND SIDING	56.68															
MAINLINE	BRIDGEPORT	U	08074R	SEAVIEW AVENUE	56.77	4	55	98	G3 & G4	Shear	T1, T2, T4/2	30.04	263,000							
MAINLINE	BRIDGEPORT	U	08075R	BISHOP AVENUE	57.46	5	64	80	FB1	Moment	1/2	12.00	263,000							
MAINLINE	BRIDGEPORT	U	08076R	BRUCE BROOK - CONCRETE PIPE 9' DIAMETER	57.54	5	--	--	N/A	N/A	N/A	N/A	263,000							
MAINLINE	STRATFORD	U	08077R	BRUCE AVENUE	57.62	5	65	84	G5	Moment	T2 & T4/1	32.50	263,000							
MAINLINE	STRATFORD	U	08078R	WEST BROAD STREET	58.72	4	70	89	G1 & G5	Moment	T3 & T4/1	33.42	263,000							
MAINLINE	STRATFORD	U	08079R	KING STREET	58.88	5	74	96	G2 & G4	Shear	T1-T4/1	32.53	263,000							
MAINLINE	STRATFORD	U	01318R	MAIN STREET (ROUTE 113)	59.01	4	56	72	G4	Moment	T2 & T4/2	40.00	263,000							
MAINLINE	STRATFORD	U	01312R	EAST MAIN STREET (ROUTE 110)	59.96	4	60	91	G2 & G4	Shear	T1-T4/1	42.44	263,000							
MAINLINE	STRATFORD	M	08080R	HOUSATONIC RIVER (DEVON BRIDGE)	60.42	4	50	74					263,000							
MAINLINE	MILFORD	U	08081R	BEAVER CREEK - MASONRY ARCH	61.62	5	--	--	N/A	N/A	N/A	N/A	263,000							
MAINLINE	MILFORD	U	08082R	BEARDSLEY AVENUE	62.94	5	68	88	G3, G7, G8	Moment	T1 & T4/1	32.58	263,000							
MAINLINE	MILFORD	U	03640R	HIGH STREET	63.27	8	80	124	G2, G3, G4	Moment	T1-T4/1	47.50	263,000							
MAINLINE	MILFORD	U	03644R	RIVER STREET	63.44	7	86	134	G2, G3, G4	Moment	T1-T4/2	52.40	263,000							
MAINLINE	MILFORD	U	08083R	WEPAWAUG RIVER & PROSPECT STREET	63.53	7	88	134	G1	Moment	1/2	31.83	263,000							
MAINLINE	MILFORD	U	08084R	GULF STREET	63.83	5	58	72	G7	Moment	T4/1	25.67	263,000							
MAINLINE	MILFORD	U	08085R	PEDESTRIAN UNDERPASS AT GULF STREET	63.84	6	--	--	N/A	N/A	N/A	N/A	263,000							
MAINLINE	MILFORD	U	08086R	INDIAN RIVER - MULTIBEAM DECK	64.59	4	88	127	G3-G8	Moment	T1-T4/1	32.75	263,000							
MAINLINE	MILFORD	U	08087R	OLD GATE LANE	64.74	5	102	155	G2-G19	Moment	T1-T4/S1 & S2	39.37	263,000							
MAINLINE	MILFORD	U	08088R	QUIRK POND BROOK - MASONRY CULVERT	66.29	5	--	--	N/A	N/A	N/A	N/A	263,000							
MAINLINE	MILFORD	U	08090R	DEPOT ROAD	66.66	7	80	134	N/A (LR on file)	N/A (LR on file)	N/A (LR on file)	N/A (LR on file)	263,000							
MAINLINE	ORANGE	U	08091R	OYSTER RIVER - MASONRY CULVERT	67.50	6	--	--	N/A	N/A	N/A	N/A	263,000							
MAINLINE	WEST HAVEN	U	08092R	STREAM - STONE/CONCRETE CULVERT	67.98	6	--	--	N/A	N/A	N/A	N/A	263,000							
MAINLINE	WEST HAVEN	U	08093R	MORGAN LANE	68.11	6	85	107	G1-G8	Moment	T1-T4/1	27.50	263,000							
MAINLINE	WEST HAVEN	U	08094R	CULVERT	68.14															
MAINLINE	WEST HAVEN	U	08095R	CULVERT- NEW IN 1995	68.89															
MAINLINE	WEST HAVEN	U	08096R	COVE RIVER - MASONRY CULVERT	69.19	6	--	--	N/A	N/A	N/A	N/A	263,000							
MAINLINE	WEST HAVEN	U	01403R	SAW MILL ROAD (ROUTE 162)	69.66	5	65	120	G1 & G8	Shear	T1-T4/1	61.00	263,000							
MAINLINE	WEST HAVEN	U	08097R	CAMPBELL AVENUE	70.19	4	54	67	G1-G6	Moment	T1-T3/2	36.00	263,000							

Draft Safe Load Assesment List of Metro-North Railroad Bridge - As of 6/13/11

Track Chart Name	Town	Bridge Type	Bridge No.	Location	Mile Point	Overall Cond. Rating	2008-2010 New E80 Cooper Rating		Controlling Member & Location				Time Table max Equip Load lbs	Demand for Permitted Car from Graph/Table (cooper)	Does Normal Rating (Capacity) meets Demand?	Load rating for Actual Equipment		Axle load for Actual Equipment (Kip)	Meets Safe Load capacity?	Comments
						Current	Norm	Max	Member	Moment or Shear	Track No./Span No.	Rating Span Length (ft.)				Norm	Max			
MAINLINE	WEST HAVEN	U	08098R	WASHINGTON AVENUE	70.36	4	54	80	G4	Moment	T2 & T4/2	33.00	263,000							
MAINLINE	WEST HAVEN	U	08099R	WEST RIVER - CONCRETE BOX	71.26	7	113	188	Box Girder	Moment	All/4	30.00	263,000							
MAINLINE	NEW HAVEN	U	08100R	STATION UNDERPASS	72.28	6	111	193	??	??	??	??	263,000							
MAINLINE	NEW HAVEN	Z	08106R	STATE STREET STATION OVERPASS	72.80	7	--	--	N/A	N/A	N/A	N/A	263,000							
NEW CANAAN	STAMFORD	U	08150R	VIADUCT ROAD	2.81	7	103	156	G2 (East Girder)	Moment	1/1	82.02	263,000							
NEW CANAAN	STAMFORD	U	08151R	NOROTON RIVER - MULTIBEAM DECK	3.77	5	69	87	G1	Moment	1/1	31.00	263,000							
NEW CANAAN	NEW CANAAN	U	00710R	MERRITT PARKWAY (ROUTE 15)	5.76	4	73	90	Horizontal legs of the frame	Moment	1/1 & 2	35.50	263,000							
NEW CANAAN	NEW CANAAN	U	01302R	OLD STAMFORD ROAD (ROUTE 106)	6.16	5	98	125	G1 & G2	Moment	1/1	50.00	263,000							
NEW CANAAN	NEW CANAAN	U	08154R	WATERWAY - MASONRY CULVERT	7.00	4	--	--	N/A	N/A	N/A	N/A	263,000							
WATERBURY	MILFORD	U	08250R	BROOK	3.12															
WATERBURY	MILFORD	U	08251R	CULVERT	3.30															
WATERBURY	MILFORD	U	08252R	UNNAMED STREAM - CONCRETE & RAIL DECK	3.80	5	--	--	N/A	N/A	N/A	N/A	263,000							
WATERBURY	MILFORD	U	08253R	BROOK - MASONRY CULVERT	4.14	6	--	--	N/A	N/A	N/A	N/A	263,000							
WATERBURY	MILFORD	U	08254R	BEARDS FARMWAY	4.55	6	121	176	G1-G4	Moment	1/1	20.00	263,000							
WATERBURY	MILFORD	U	08255R	FARMWAY CROSSING	4.88	5	81	136	Precast Beam	Moment	1/1	17.42	263,000							
WATERBURY	MILFORD	U	08256R	DRAINAGE PIPE - ACC METAL PIPE	4.90															
WATERBURY	MILFORD	U	08257R	GOLF CROSSING - REINFORCED CONCRETE SLAB	5.01	6	63	105	B4	Moment	1/1	12.92	263,000							
WATERBURY	ORANGE	U	08258R	DAVIS BROOK - 2 CONCRETE CULVERTS	7.02	7	--	--	N/A	N/A	N/A	N/A	263,000							
WATERBURY	ORANGE	U	08260R	TWO MILE BROOK (TURKEY BROOK) - CONCRETE CUL	7.36	5	--	--	N/A	N/A	N/A	N/A	263,000							
WATERBURY	DERBY	U	08261R	STREAM - UNNAMED STREAM	7.92	4	--	--	N/A	N/A	N/A	N/A	263,000							
WATERBURY	DERBY	U	08262R	NAUGATUCK RIVER - STEEL TRUSS	8.62	4	74	109	FB1-FB11	Moment	Active Track/Spans1-3	16.50	263,000							
WATERBURY	DERBY	U	08263R	NAUGATUCK RIVER FLOOD PLAIN	8.68	5	--	--	N/A	N/A	N/A	N/A	263,000							
WATERBURY	ANSONIA	U	08264R	NAUGATUCK RIVER - STEEL TRUSS	10.30	5	102	162	S1 @ FB1 & FB3/S2 @ FB2 & FB3	Moment	1/1	9.66	263,000							
WATERBURY	ANSONIA	U	08266R	RACEWAY FARREL COMPANY - MASONRY ARCH	10.85	5	--	--	N/A	N/A	N/A	N/A	263,000							
WATERBURY	ANSONIA	U	08267R	SPILLWAY	11.36	5	68	100	G1	Moment	1/2	43.19	263,000							
WATERBURY	SEYMOUR	U	08268R	CANAL - STEEL GIRDER	12.57	4	89	132	G1	Moment	1/1	43.17	263,000							
WATERBURY	SEYMOUR	U	08269R	MUD BROOK - MASONRY CULVERT	13.20	5	--	--	N/A	N/A	N/A	N/A	263,000							
WATERBURY	SEYMOUR	U	01321R	MAIN STREET (ROUTES 115 & 313)	14.29	5	75	96	S1 & S2	Shear	1/2	47.42	263,000							
WATERBURY	SEYMOUR	Z	08270R	JAMES STREET FOOTBRIDGE	14.45	6	--	--	N/A	N/A	N/A	N/A	263,000							
WATERBURY	SEYMOUR	U	01063R	DERBY AVENUE (ROUTE 67)	14.61	7	137	234	S2 @ FB1 & No. Abutment	Shear	1/1	78.84	263,000							
WATERBURY	SEYMOUR	U	08272R	NAUGATUCK RIVER - MULTIBEAM DECK	14.64	4	71	92	G2	Moment	1/5	47.50	263,000							
WATERBURY	BEACON FALLS	U	08274R	OLD PINE'S BRIDGE ROAD	16.79	4	97	123	G1A, G1B, G2A, G2B	Moment	1/1	18.00	263,000							
WATERBURY	BEACON FALLS	U	08275R	HEMP SWAMP BROOK - MASONRY CULVERT	16.81	5	--	--	N/A	N/A	N/A	N/A	263,000							
WATERBURY	BEACON FALLS	U	08276R	SPRUCE BROOK - MULTIBEAM DECK	19.21	4	78	118	G1 & G2	Shear	1/1	17.08	263,000							
WATERBURY	NAUGATUCK	U	08277R	SUGAR BUSH BROOK - MULTIBEAM DECK	20.11	5	69	85	G1-G4	Moment	1/1	18.15	263,000							
WATERBURY	NAUGATUCK	U	08278R	US RUBBER COMPANY - PEDESTRIAN TUNNEL	21.22	6	--	--	N/A	N/A	N/A	N/A	263,000							
WATERBURY	NAUGATUCK	U	08279R	PRIVATE ROAD AT UNIROYAL	21.36	4	79	115	G8-G10	Moment	2/1	19.92	263,000							
WATERBURY	NAUGATUCK	U	08280R	LONGMEADOW POND BROOK - CONCRETE ARCH	21.48	7	--	--	N/A	N/A	N/A	N/A	263,000							
WATERBURY	NAUGATUCK	U	08281R	OVERFLOW - CONCRETE SLAB	21.65	6	--	--	N/A	N/A	N/A	N/A	263,000							
WATERBURY	NAUGATUCK	U	04224R	MAPLE STREET	21.74	4	77	99	G1	Moment	1/1	63.50	263,000							
WATERBURY	NAUGATUCK	U	08282R	CANAL	22.11															
WATERBURY	NAUGATUCK	U	08283R	HOP BROOK - MULTIBEAM DECK	22.42	4	77	127	G1	Shear	1/1	43.00	263,000							
WATERBURY	NAUGATUCK	U	08284R	BRIDGE STREET (GENERAL PULASKI WALK)	22.74	4	91	134	G1	Moment	1/2	40.68	263,000							

Draft Safe Load Assesment List of Metro-North Railroad Bridge - As of 6/13/11

Track Chart Name	Town	Bridge Type	Bridge No.	Location	Mile Point	Overall Cond. Rating	2008-2010 New E80 Cooper Rating		Controlling Member & Location				Time Table max Equip Load lbs	Demand for Permitted Car from Graph/Table (cooper)	Does Normal Rating (Capacity) meets Demand?	Load rating for Actual Equipment		Axle load for Actual Equipment (Kip)	Meets Safe Load capacity?	Comments
						Current	Norm	Max	Member	Moment or Shear	Track No./Span No.	Rating Span Length (ft.)				Norm	Max			
WATERBURY	WATERBURY	U	03723R	BRISTOL STREET #1	24.10	5	78	100	G1	Moment	1/1	42.36	263,000							
WATERBURY	WATERBURY	U	08285R	STREAM - STONE/CONCRETE CULVERT	24.34	5	--	--	N/A	N/A	N/A	N/A	263,000							
WATERBURY	WATERBURY	U	04232R	WASHINGTON AVENUE #1	26.18	5	74	109	G1	Moment	1/1	60.33	263,000							
WATERBURY	WATERBURY	U	04235R	BANK STREET #1	26.35	4	92	143	S3 & S4	Moment	1/1	74.00	263,000							
WATERBURY	WATERBURY	U	08286R	NAUGATUCK RIVER - STEEL GIRDER	26.42	6	62	81	G4	Moment	1/1	111.80	263,000							
WATERBURY	WATERBURY	U	08287R	JACKSON STREET	26.50	4	86	110	S3 & S4	Moment	1/1	24.17	263,000							
WATERBURY	WATERBURY	U	08288R	GAS CONDUIT	26.64															

APPENDIX 7A

METRO NORTH RAILROAD BRIDGE INSPECTION DAMAGE REPORT

METRO - NORTH RAILROAD

Track & Structures Department

BRIDGE INSPECTION DAMAGE REPORT

LINE: **CROSSING:** **MNR BRIDGE NUMBER:**
BRIDGE TYPE: **DECK TYPE:** **TOWN:**
NUMBER OF SPANS: **NUMBER OF TRACKS:** **LENGTH:**
TRACK ALIGNMENT: **UG:** **OH:**
DATE OF LAST INSPECTION: ____________________ **DATE OF THIS INSPECTION:**
HIGHWAY MINIMUM CLEARANCE: ____________________ **HIGHWAY LOAD LIMIT:** **TONS**
B.I.N. : ____________________

ITEMS: (Check Items -Indicate location of damage, measurements of damaged components,)

Action Under Load		
Track On Bridge		
Walkways		
Signage		
Abutments		
Wingwalls		
Barrel		
Parapet walls		
Piers		
Columns		
Cross girders		
Bracing		
Girders		
Floorbeams		
Stringers		
Laterals		
Lateral Plates		
Rivets or Bolts		
Bearings		
Stiffeners		

Date of Accident: ____________________
Time of Accident: ____________________ Time on Accident: __________
Police Case Number: ____________________ ST: __________
Vehicle on scene: ____________________ OT: __________

VEHICLE INFORMATION

Owner / Operator: ____________________
Address: ____________________
Plate Number: ____________________
US D.O.T. Number: ____________________
Vehicle Height:

DESCRIPTION OF ACCIDENT

IMPACT ON TRAIN SERVICE

Duration of interruption: ____________________
Restrictions placed: ____________________
Duration of restriction: ____________________

RECOMMENDED ACTION

BRIDGE INSPECTOR/ SUPERVISOR -

REPORT #

Version: 1.0 - February, 2012

APPENDIX 8

DRAFT SUMMARY OF SAFE LOAD CAPACITY OF OFF-SYSTEM RAILROAD BRIDGES

State of Connecticut - Department of Transportation - Office of Rail

Draft Safe Load Assesment list of Off-system Railroad Bridges - 6/13/11

BRIDGE NO.	M.P.	RAILROAD	TRACK CHART NAME	TOWN	LOCATION	Overall Cond. Rating	2008-2010 New E80 Cooper Rating		Controlling Member & Locations				Time Table Max Equip. Load (lbs)	Demand for Permitted Car from Graph/Table (Cooper)	Does Normal Rating (Capacity) meets Demand?	Load rating for Actual Equipment		Axle load for Actual Equipment (kip)	Meets Safe Load capacity?	Comments
						Current	Normal	Max	Member	Moment or Shear	Track No./Span No.	Rating Span Length (ft.)				Normal	Max			
00430R	32.25	RAILS TO TRAILS*	AVON SECONDARY	FARMINGTON	FARMINGTON AVENUE															
00479R	3.20	PROV & WORCESTER	WETHERSFIELD SEC.	HARTFORD	AIRPORT ROAD (SR 530)	6	78	144	G1 & G2	Shear	1/1	70.00	263,000							
00522R	21.18	PROV & WORCESTER	MIDDLETOWN SEC.	MIDDLETOWN	ROUTE 66	7	83	113	All FB's	Moment	1/1	19.85	263,000							
00600R	24.16	BOSTON & MAINE	TORRINGTON SEC.	WATERBURY	WEST MAIN STREET (SR 847)	3	62	92					263,000							
00639R	0.19	PROV & WORCESTER	PORTLAND IND. TRK.	MIDDLETOWN	RT. 9 & CONNECTICUT RIVER	4	50	75					263,000							
00863R	16.01	PROV & WORCESTER	CROMWELL IND. TRACK	MIDDLETOWN	HARTFORD AVENUE	4	71	118	G2	Moment	1/1	65.67	263,000							
01373R	16.92	PROV & WORCESTER	MIDDLETOWN SEC.	MIDDLEFIELD	RTE 147 (BAILEYVILLE ROAD)	5	77	117	G1 & G2	Moment	1/1	80.50	263,000							
01624R	36.65	RAILS TO TRAILS*	AVON SECONDARY	AVON	ARCH ROAD															
01849R	22.55	PROV & WORCESTER	WILLIMANTIC BRANCH	WINDHAM	ABANDONED RD/PEDESTRIAN	5	63	93	G2/FB's 1-5	Moment	1/1	48.60/12.60	263,000							
04234R	24.34	BOSTON & MAINE	TORRINGTON SEC.	WATERBURY	FREIGHT STREET	5	63	118					263,000							
04242R	4.68	INACTIVE	NEW BRITAIN SEC.	NEW BRITAIN	ROUTE 9 **(BUSWAY)**	6	--	--	N/A	N/A	N/A	N/A	263,000							
09000R	15.26	PROV & WORCESTER	CROMWELL IND. TRACK	MIDDLETOWN	SEBETHE RIVER	4	69	102	G1 & G2	Moment	1/1	24.10	263,000							
09001R	0.79	PROV & WORCESTER	EAST BERLIN IND. TRACK	MIDDLETOWN	COGINCHAUG RIVER	4	59	88	G1 & G2	Moment	1/1	46.17	263,000							
09002R	0.19	PROV & WORCESTER	LAUREL IND. TRACK	MIDDLETOWN	GREEN STREET	5	89	131	G3, G4, G5, & G6	Moment	1/1	??	263,000							
09003R	0.79	PROV & WORCESTER	LAUREL IND. TRACK	MIDDLETOWN	SUMNER BROOK	4	70	107	G1	Moment	1/2	51.20	263,000							
09004R	1.20	PROV & WORCESTER	LAUREL IND. TRACK	MIDDLETOWN	EASTERN DRIVE	5	86	126	G1-G6	Moment	1/1	21.66	263,000							
09005R	1.99	PROV & WORCESTER	LAUREL IND. TRACK	MIDDLETOWN	RESERVOIR BROOK	5	72	126	G2	Shear	1/1	28.70	263,000							
09006R	2.32	PROV & WORCESTER	LAUREL IND. TRACK	MIDDLETOWN	INDIAN HILL BROOK	4	67	99	G1	Moment	1/1	27.33	263,000							
09007R	2.97	PROV & WORCESTER	LAUREL IND. TRACK	MIDDLETOWN	FOREST CREEK	4	168	247	Concrete Encased Girder	Moment	1/?	??	263,000							
09008R	3.23	PROV & WORCESTER	LAUREL IND. TRACK	MIDDLETOWN	ASYLUM CREEK	4	84	126	G1	Shear	1/1	22.50	263,000							
09009R	3.70	PROV & WORCESTER	LAUREL IND. TRACK	MIDDLETOWN	MAROMAS CREEK	5	92	139	G2	Shear	1/1	18.50	263,000							
09010R	16.75	PROV & WORCESTER	MIDDLETOWN SEC.	MIDDLEFIELD	CATTLE PASS	5	68	100	G1 & G2	Moment	1/1	10.50	263,000							
09011R	17.86	PROV & WORCESTER	MIDDLETOWN SEC.	MIDDLEFIELD	COGINCHAUG RIVER	5	75	117	G1 & G2	Shear	1/1	52.00	263,000							
09012R	18.76	PROV & WORCESTER	MIDDLETOWN SEC.	MIDDLEFIELD	FARMWAY	4	69	104	M11 & M12/T1 & T2	Moment	1/2	113.25	263,000							
09014R	19.93	PROV & WORCESTER	MIDDLETOWN SEC.	MIDDLETOWN	COGINCHAUG RIVER	4	68	104	L12 & M11 (T1 & T2)	Moment	1/1	118.12	263,000							
09015R	20.58	PROV & WORCESTER	MIDDLETOWN SEC.	MIDDLETOWN	UNKNOWN STREAM	7	--	--	N/A	N/A	N/A	N/A	263,000							
09100R	24.20	BOSTON & MAINE	TORRINGTON SEC.	WATERBURY	CRANE STREET	4	96	141					263,000							
09101R	0.12	BOSTON & MAINE	TORRINGTON SEC.	WATERBURY	CONC. BOX/PIPE CULVERT	5	--	--	N/A	N/A	N/A	N/A	263,000							
09104R	0.81	NAUGATUCK	TORRINGTON SEC.	WATERBURY	MAHAN CANAL	6	85	137	G1 & G2	Shear	1/1	20.40	263,000							
09105R	1.31	NAUGATUCK	TORRINGTON SEC.	WATERBURY	BROOK															
09106R	1.45	NAUGATUCK	TORRINGTON SEC.	WATERBURY	HANCOCK BROOK	4	77	116	G2	Moment	1/1 & 2	53.33	263,000							
09107R	2.16	NAUGATUCK	TORRINGTON SEC.	WATERBURY	AMERICAN PIN FOOTBRIDGE	6	--	--	N/A	N/A	N/A	N/A	263,000							
09108R	3.16	NAUGATUCK	TORRINGTON SEC.	WATERBURY	NAUGATUCK RIVER	4	90	135	G1 & G2	Moment	1/1-4	56.00	263,000							
09109R	3.98	NAUGATUCK	TORRINGTON SEC.	WATERTOWN	CULVERT	7							263,000							
09110R	5.41	NAUGATUCK	TORRINGTON SEC.	WATERTOWN	NAUGATUCK RIVER	5	62	93	G1 & G2	Moment	1/3	65.25	263,000							
09111R	9.05	NAUGATUCK	TORRINGTON SEC.	THOMASTON	BROOK	6							263,000							
09112R	9.11	NAUGATUCK	TORRINGTON SEC.	THOMASTON	RAILROAD STREET ANNEX	6	89	132	G1 & G2	Moment	1/1	18.00	263,000							
09113R	9.18	NAUGATUCK	TORRINGTON SEC.	THOMASTON	BROOK - CULVERT	5	--	--	N/A	N/A	N/A	N/A	263,000							
09114R	10.01	NAUGATUCK	TORRINGTON SEC.	THOMASTON	NAUGATUCK RIVER DAM SP.	6	65	100	FB0-FB28	Moment	1/1	20.42	263,000							
09115R	10.16	NAUGATUCK	TORRINGTON SEC.	THOMASTON	DAM CONTROL	7	--	--	N/A	N/A	N/A	N/A	263,000							
09116R	11.34	NAUGATUCK	TORRINGTON SEC.	LITCHFIELD	BROOK - CULVERT-CONC. PIP	6	--	--	N/A	N/A	N/A	N/A	263,000							
09117R	12.47	NAUGATUCK	TORRINGTON SEC.	LITCHFIELD	CULVERT	5	--	--	N/A	N/A	N/A	N/A	263,000							
09118R	12.90	NAUGATUCK	TORRINGTON SEC.	LITCHFIELD	BROOK	4	--	--	N/A	N/A	N/A	N/A	263,000							
09119R	13.12	NAUGATUCK	TORRINGTON SEC.	LITCHFIELD	CULVERT															
09120R	14.97	NAUGATUCK	TORRINGTON SEC.	LITCHFIELD	SPRUCE BROOK	6	86	136	G1 & G2	Moment	1/1	39.00	263,000							
09121R	17.57	NAUGATUCK	TORRINGTON SEC.	TORRINGTON	BROOK - CULVERT	3	--	--	N/A	N/A	N/A	N/A	263,000							
09122R	18.37	NAUGATUCK	TORRINGTON SEC.	TORRINGTON	GULF STREAM	5	81	119	G1	Moment	1/1	27.10	263,000							

Draft Safe Load Assesment list of Off-system Railroad Bridges - 6/13/11

BRIDGE NO.	M.P.	RAILROAD	TRACK CHART NAME	TOWN	LOCATION	Overall Cond. Rating	2008-2010 New E80 Cooper Rating		Controlling Member & Locations					Demand for Permitted Car from Graph/Table (Cooper)	Does Normal Rating (Capacity) meets Demand?	Load rating for Actual Equipment		Axle load for Actual Equipment (kip)	Meets Safe Load capacity?	Comments
						Current	Normal	Max	Member	Moment or Shear	Track No./Span No.	Rating Span Length (ft.)	Time Table Max Equip. Load (lbs)			Normal	Max			
09123R	18.98	NAUGATUCK	TORRINGTON SEC.	TORRINGTON	SUMMER STREET	4	99	147	G3	Moment	1/1	37.10	263,000							
09124R	19.04	NAUGATUCK	TORRINGTON SEC.	TORRINGTON	PASSWAY	5	78	132	G3 & G4	Shear	1/1	17.50	263,000							
09125R	19.10	NAUGATUCK	TORRINGTON SEC.	TORRINGTON	NAUGATUCK RIVER	4	65	98	G1 & G2	Moment	1/3	46.50	263,000							
09200R	15.00	HOUSATONIC	NEW MILFORD SEC.	NEW MILFORD	STREAM - STONE CULVERT	3	--	--	N/A	N/A	N/A	N/A	286,000							
09201R	16.20	HOUSATONIC	NEW MILFORD SEC.	NEW MILFORD	BROOK - STONE CULVERT	6	--	--	N/A	N/A	N/A	N/A	286,000							
09202R	16.70	HOUSATONIC	NEW MILFORD SEC.	NEW MILFORD	BROOK - CULVERT	5	--	--	N/A	N/A	N/A	N/A	286,000							
09203R	18.90	HOUSATONIC	NEW MILFORD SEC.	NEW MILFORD	BROOK - CULVERT	6	--	--	N/A	N/A	N/A	N/A	286,000							
09204R	54.88	HOUSATONIC	NEW MILFORD SEC.	KENT	SWAMP (CULVERT)	4	--	--	N/A	N/A	N/A	N/A	286,000							
09206R	25.80	HOUSATONIC	NEW MILFORD SEC.	KENT	COBBLE BROOK	3	--	--	N/A	N/A	N/A	N/A	286,000							
09207R	26.80	HOUSATONIC	NEW MILFORD SEC.	KENT	MAUWEE BROOK	5	--	--	N/A	N/A	N/A	N/A	286,000							
09208R	28.20	HOUSATONIC	NEW MILFORD SEC.	KENT	KENT FALLS BROOK-CULVER	6	--	--	N/A	N/A	N/A	N/A	286,000							
09209R	28.8	HOUSATONIC	NEW MILFORD SEC.	KENT	CULVERT-DBL 4' CULVERTS															
09210R	29.50	HOUSATONIC	NEW MILFORD SEC.	CORNWALL	DEEP BROOK	5	--	--	N/A	N/A	N/A	N/A	286,000							
09211R	30.10	HOUSATONIC	NEW MILFORD SEC.	CORNWALL	MILLARD BROOK	6	--	--	N/A	N/A	N/A	N/A	286,000							
09212R	31.20	HOUSATONIC	NEW MILFORD SEC.	CORNWALL	GUNN BROOK	4	--	--	N/A	N/A	N/A	N/A	286,000							
09213R	32.20	HOUSATONIC	NEW MILFORD SEC.	CORNWALL	BONNEY BROOK	6	--	--	N/A	N/A	N/A	N/A	286,000							
09214R	32.60	HOUSATONIC	NEW MILFORD SEC.	CORNWALL	FURNACE BROOK	4	70	105	G2	Moment	1/1	29.29	286,000							
09215R	32.80	HOUSATONIC	NEW MILFORD SEC.	CORNWALL	BROOK	5	--	--	N/A	N/A	N/A	N/A	286,000							
09217R	36.60	HOUSATONIC	NEW MILFORD SEC.	CORNWALL	MILL BROOK	5	93	137	G3 & G4	Moment	1/1	23.50	286,000							
09218R	40.10	HOUSATONIC	NEW MILFORD SEC.	CORNWALL	STREAM	6	92	135	S1-S6	Moment	1/1	15.50	286,000							
09219R	41.50	HOUSATONIC	NEW MILFORD SEC.	CANAAN	CHILD POND BROOK	5	--	--	N/A	N/A	N/A	N/A	286,000							
09220R	41.70	HOUSATONIC	NEW MILFORD SEC.	CANAAN	BROOK - STONE SLAB	5	--	--	N/A	N/A	N/A	N/A	286,000							
09221R	42.80	HOUSATONIC	NEW MILFORD SEC.	CANAAN	WATER STREET	5	84	124	G1	Moment	1/1	26.08	286,000							
09222R	43.90	HOUSATONIC	NEW MILFORD SEC.	CANAAN	BRANCH HOUSATONIC RIVER	6	121	179	All Girders	Moment	1/1	51.50	286,000							
09223R	44.50	HOUSATONIC	NEW MILFORD SEC.	CANAAN	HOLLENBECK RIVER	4	34	45					286,000							
09224R	48.30	HOUSATONIC	NEW MILFORD SEC.	NORTH CANAAN	BLACKBERRY RIVER	5	88	131	G1	Shear	1/1	45.40	286,000							
09225R	49.10	HOUSATONIC	NEW MILFORD SEC.	NORTH CANAAN	NORTH BLACKBERRY RIVER	6	--	--	N/A	N/A	N/A	N/A	286,000							
09300R	1.10	RAILS TO TRAILS*	KENDALL'S IND. TRACK	WINDHAM	NATCHAUG RIVER															
09301R	15.23	PROV & WORCESTER	WILLIMANTIC BRANCH	SPRAGUE	WALDO BROOK	5	--	--	N/A	N/A	N/A	N/A	263,000							
09302R	15.93	PROV & WORCESTER	WILLIMANTIC BRANCH	SCOTLAND	MERRICK BROOK	6	69	115	G1 & G2	Moment	1/1	54.58	263,000							
09303R	17.36	PROV & WORCESTER	WILLIMANTIC BRANCH	WINDHAM	FROG BROOK	6	--	--	N/A	N/A	N/A	N/A	263,000							
09304R	20.93	PROV & WORCESTER	WILLIMANTIC BRANCH	WINDHAM	SHETUCKET RIVER	5	107	160	G1 & G2	Moment	1/All	57.83	263,000							
09305R	21.28	PROV & WORCESTER	WILLIMANTIC BRANCH	WINDHAM	PLAINS ROAD	5	76	114	G1 & G2	Moment	1/1	33.71	263,000							
09306R	22.76	PROV & WORCESTER	WILLIMANTIC BRANCH	WINDHAM	WILLIMANTIC RIVER	5	70	105					263,000							
09307R	22.89	PROV & WORCESTER	WILLIMANTIC BRANCH	WINDHAM	STATION FOOTBRIDGE	4	--	--	N/A	N/A	N/A	N/A	263,000							
09800R	28.97	RAILS TO TRAILS*	AVON SECONDARY	FARMINGTON	SCOTT SWAMP BROOK															
09802R	32.00	RAILS TO TRAILS*	AVON SECONDARY	FARMINGTON	FARMINGTON RIVER															
09803R	34.05	RAILS TO TRAILS*	AVON SECONDARY	AVON	THOMPSON BROOK															
09804R	37.79	RAILS TO TRAILS*	AVON SECONDARY	AVON	NOD BROOK															
09805R	37.81	RAILS TO TRAILS*	AVON SECONDARY	AVON	ROSEWOOD ROAD															
09806R	41.38	RAILS TO TRAILS*	AVON SECONDARY	SIMSBURY	HOP BROOK															
09807R	44.91	RAILS TO TRAILS*	AVON SECONDARY	SIMSBURY	ROBERT'S CATTLE PASS															
09808R	46.25	RAILS TO TRAILS*	AVON SECONDARY	EAST GRANBY	FARMINGTON CANAL															
09809R	46.44	RAILS TO TRAILS*	AVON SECONDARY	EAST GRANBY	SALMON RIVER															
09810R	49.46	RAILS TO TRAILS*	AVON SECONDARY	EAST GRANBY	GRIFFIN'S BROOK															
09811R	50.06	RAILS TO TRAILS*	AVON SECONDARY	SUFFIELD	MUDDY RIVER-CONC. ARCH															
09812R	51.07	RAILS TO TRAILS*	AVON SECONDARY	SUFFIELD	FARMINGTON CANAL															
09813R	51.27	RAILS TO TRAILS*	AVON SECONDARY	SUFFIELD	STREAM															

State of Connecticut - Department of Transportation - Office of Rail

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BRIDGE NO.	M.P.	RAILROAD	TRACK CHART NAME	TOWN	LOCATION	Overall Cond. Rating	2008-2010 New E80 Cooper Rating		Controlling Member & Locations					Demand for Permitted Car from Graph/Table (Cooper)	Does Normal Rating (Capacity) meets Demand?	Load rating for Actual Equipment		Axle load for Actual Equipment (kip)	Meets Safe Load capacity?	Comments
						Current	Normal	Max	Member	Moment or Shear	Track No./Span No.	Rating Span Length (ft.)	Time Table Max Equip. Load (lbs)			Normal	Max			
09814R	10.81	CENTRAL NEW ENGLAND	E. LONGMEADOW SEC.	SOUTH WINDSOR	DRY BROOK	5	84	124	G1 - G8	Moment	1/1	22.10	263,000							
09815R	12.26	CENTRAL NEW ENGLAND	E. LONGMEADOW SEC.	EAST WINDSOR	KETCH BROOK	4	--	--	N/A	N/A	N/A	N/A	263,000							
09816R	15.81	CENTRAL NEW ENGLAND	E. LONGMEADOW SEC.	EAST WINDSOR	BROAD BROOK AND PRIV. RD	5	80	119	G1	Moment	1/1&2	40.17	263,000							
09817R	15.91	CENTRAL NEW ENGLAND	E. LONGMEADOW SEC.	EAST WINDSOR	CULVERT	4	--	--	N/A	N/A	N/A	N/A	263,000							
09818R	19.44	CENTRAL NEW ENGLAND	E. LONGMEADOW SEC.	ENFIELD	SCANTIC RIVER	5	N/A	N/A	N/A	N/A	N/A	N/A	263,000							
09819R	19.45	CENTRAL NEW ENGLAND	E. LONGMEADOW SEC.	ENFIELD	WATER STREET	4	88	133	G2	Moment	1/1	63.17	263,000							
09820R	19.70	CENTRAL NEW ENGLAND	E. LONGMEADOW SEC.	ENFIELD	TERRY BRK-2 CULVERTS	5	--	--	N/A	N/A	N/A	N/A	263,000							
09821R	21.04	CENTRAL NEW ENGLAND	E. LONGMEADOW SEC.	ENFIELD	STREAM	4	--	--	N/A	N/A	N/A	N/A	263,000							
09823R	0.00	CENTRAL NEW ENGLAND	GRIFFIN'S INDUST. TRK.	HARTFORD	CULVERT															
09824R	2.56	CENTRAL NEW ENGLAND	GRIFFIN'S INDUST. TRK.	HARTFORD	STREAM	5	--	--	N/A	N/A	N/A	N/A	263,000							
09825R	6.81	CENTRAL NEW ENGLAND	GRIFFIN'S INDUST. TRK.	BLOOMFIELD	STREAM (WASH BROOK)	4	--	--	N/A	N/A	N/A	N/A	263,000							
09826R	5.59	INACTIVE	NEW BRITAIN SEC.	NEW BRITAIN	CEMETERY UNDERPASS**(BW)**	4	--	--	N/A	N/A	N/A	N/A	263,000							
09827R	5.82	INACTIVE	NEW BRITAIN SEC.	NEW BRITAIN	PIPER BROOK **(BUSWAY)**	7	--	--	N/A	N/A	N/A	N/A	263,000							
09828R	14.30	PROV & WORCESTER	WETHERSFIELD SEC.	CROMWELL	SOUTH STREET	5	78	115	G6	Moment	1/1	22.00	263,000							
09829R	12.70	PROV & WORCESTER	WETHERSFIELD SEC.	CROMWELL	NOOKS HILL ROAD	6	85	125	S1-S6	Moment	1/1	22.21	263,000							
09830R	9.60	PROV & WORCESTER	WETHERSFIELD SEC.	ROCKY HILL	EVAN'S ROAD	5	97	142	G1, G2, G4	Moment	1/1	15.50	263,000							
09831R	7.10	PROV & WORCESTER	WETHERSFIELD SEC.	ROCKY HILL	GOFF'S BROOK	6	--	--	N/A	N/A	N/A	N/A	263,000							
09832R	5.20	PROV & WORCESTER	WETHERSFIELD SEC.	WETHERSFIELD	BEAVER BROOK-CULVERT															
09833R	3.80	PROV & WORCESTER	WETHERSFIELD SEC.	HARTFORD	FOLLY BROOK-CULVERT	4	--	--	N/A	N/A	N/A	N/A	263,000							
09834R	42.85	PROV & WORCESTER	WETHERSFIELD SEC.	HARTFORD	THRASHER'S CROSSING	5	86	128	G1-G6	Moment	1/1	21.91	263,000							
09835R	35.71	PROV & WORCESTER	WETHERSFIELD SEC.	CROMWELL	FIRE ACCESS ROAD	5	97	142	G1-G4	Moment	1/1	13.20	263,000							
09836R	10.50	PROV & WORCESTER	WETHERSFIELD SEC.	ROCKY HILL	DIVIDEND BROOK	6	--	--	N/A	N/A	N/A	N/A	263,000							
09901R	30.39	ABANDONED	AIRLINE VL MAP 54-64/29	EAST HAMPTON	MINE BROOK-STONE CULV.	5	--	--	N/A	N/A	N/A	N/A	263,000							
09902R	31.53	ABANDONED	AIRLINE VL MAP 54-64/30	EAST HAMPTON	PINE BROOK	6	--	--												
09903R	32.20	ABANDONED	AIRLINE VL MAP 54-64/31	EAST HAMPTON	MUDDY GUTTER BROOK	6	--	--	N/A	N/A	N/A	N/A	263,000							
09904R	33.09	ABANDONED	AIRLINE VL MAP 54-64/32	EAST HAMPTON	MAIN STREET	7	--	--	N/A	N/A	N/A	N/A	263,000							
09905R	33.17	ABANDONED	AIRLINE VL MAP 54-64/32	EAST HAMPTON	BROOK	5	--	--	N/A	N/A	N/A	N/A	263,000							
09908R	32.54	ABANDONED	MOOSUP V MAP 54-67/13	PLAINFIELD	MOOSUP RIVER	2	--	--	N/A	N/A	N/A	N/A	263,000							
09909R	31.53	ABANDONED	MOOSUP V MAP 54-67/15	PLAINFIELD	HORSE BROOK															
09911R	32.81	RAILS TO TRAILS*	FARMINGTON VALLEY GREE	FARMINGTON	HYDE BROOK-STONE ARCH															
09912R	33.09	RAILS TO TRAILS*	VAL MAP 56-60/4	FARMINGTON	OLD BROOK-ARCH CULVERT															
09913R	33.17	RAILS TO TRAILS*	VAL MAP 56-60/8	CANTON	FARMINGTON RIVER															
09914R	33.19	RAILS TO TRAILS*	VAL MAP 56-60/8	CANTON	FARMINGTON CANAL															
09916R	53.61	INACTIVE	VAL. MAP 57-72/54	WINCHESTER	STILL RIVER	5	--	--	N/A	N/A	N/A	N/A	263,000							
09921R	5.61	RAILS TO TRAILS*	VAL MAP 56-60/6	BURLINGTON	BARNES BROOK - DEP															
09922R	6.14	RAILS TO TRAILS*	VAL MAP 56-60/7	BURLINGTON	CEDAR BROOK - DEP															
09923R	6.37	RAILS TO TRAILS*	VAL MAP 56-60/7	BURLINGTON	BROOK - DEP															

APPENDIX 9
EQUIVALENT COOPER LOAD CHARTS, SEPTEMBER 2011

Connecticut Railroad Equipment

Equivalent Cooper Load Charts

Prepared for:

Connecticut Department of Transportation
Office of Rail

September, 2011

Prepared by:

LOCHNER

H.W. Lochner, Inc
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Rocky Hill, CT 06067

CONNDOT OFFICE OF RAIL

CONNECTICUT RAILROAD EQUIPMENT ● EQUIVALENT COOPER LOAD CHARTS

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EXECUTIVE SUMMARY

As requested by the Connecticut Department of Transportation, H.W. Lochner has developed Axle Loading Diagrams for actual equipment known to operate over the railroad bridges in Connecticut; and for Association of American Railroads (AAR) freight car standard configurations for unrestricted interchange (See Appendix for AAR standards). The AAR freight car is the standard used by ConnDOT for classifying the live load capacity of rail lines in the state and the most conservative (highest load effect) axle configurations were used to develop load diagrams for freight cars loaded to gross weights of 220 kips, 263 kips and 286 kips. Load charts were developed for the railroad equipment with moments and shear effects for span lengths of 5' to 100' equated to the theoretical Cooper live load series as defined by the American Railway Engineering and Maintenance-of-Way Association (AREMA).

These charts were developed using the load generating capabilities of the STAAD (STructural Analysis And Design) computer program to develop influence lines for each type of equipment, as well as for the Cooper E 80 loading. From these charts, the maximum moments and shears were obtained for the various span lengths. The equivalent Cooper E rating for each type of equipment was then calculated by using the following equation:

Equivalent Cooper E Rating (equipment) = [(M or V) (equipment) ÷ (M or V) (Cooper E80)] × 80 ,

where M or V correspond to the maximum moment or shear effect produced by the particular load for the various span lengths analyzed.

Based on these calculations, the Axle Load Diagrams showing Span vs. Equivalent Cooper E Rating were plotted for the following equipment:

- Alco RS-3 Locomotive
- Amtrak AMD-103(Genesis) Locomotive
- Bombardier Acela Power Car
- Bombardier HHP-8 Locomotive
- Brookville BL20GH Locomotive
- Electric Motive Division AEM-7 Locomotive
- Electric Motive Division FL9m Locomotive
- Electric Motive Division FL9AC Locomotive
- Electric Motive Division GP8 Locomotive
- Electric Motive Division GP9 Locomotive
- Electric Motive Division GP35 Locomotive
- Electric Motive Division GP40 Locomotive
- Electric Motive Division GP40-2 Locomotive
- General Electric P32AC (Genesis) Locomotive
- General Electric P40DC/P42DC (Genesis) Locomotive
- General Electric U23-B Locomotive
- General Electric B40-8 Locomotive
- Metro-North M-2 Coaches
- Metro-North M-4 Coaches
- Metro-North M-6 Coaches
- Metro-North M-8 Coaches
- 220 Kip Hopper Car
- 220 Kip AAR Freight Car
- 263 Kip AAR Freight Car
- 286 Kip AAR Freight Car
- 263 Kip Triple Hopper Ballast Service Car
- 286 Kip Triple Hopper Ballast Service Car

It is the intent that these charts provide a means of screening bridges that have moderate *Cooper load ratings in order to determine whether additional analysis is required.*

The following should be considered when using these charts.

1. They were developed based on the analysis of simple spans. As such, they are strictly applicable to simple span longitudinal girder bridges, or to simple span stringers which are part of a girder (or truss) / floorbeam / stringer structural system.

2. They may be used for an approximate evaluation of simple span girders which are part of a girder / floorbeam / stringer structural system. Engineering judgment is required to determine the applicability of the charts under these conditions.

3. They cannot be used under any circumstances for the evaluation of floorbeams.

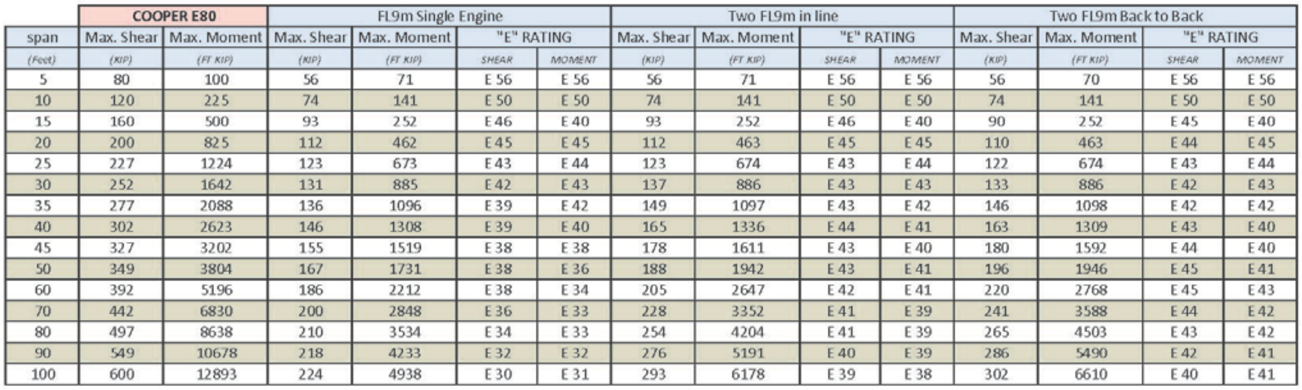
4. Variations to the impact factor and centrifugal forces produced by the different types of equipment analyzed were not considered in the development of these charts.

5. The charts only consider the coupling of similar equipment. There may be cases where the coupling of different types of equipment may produce higher equivalent Cooper E ratings than those shown.

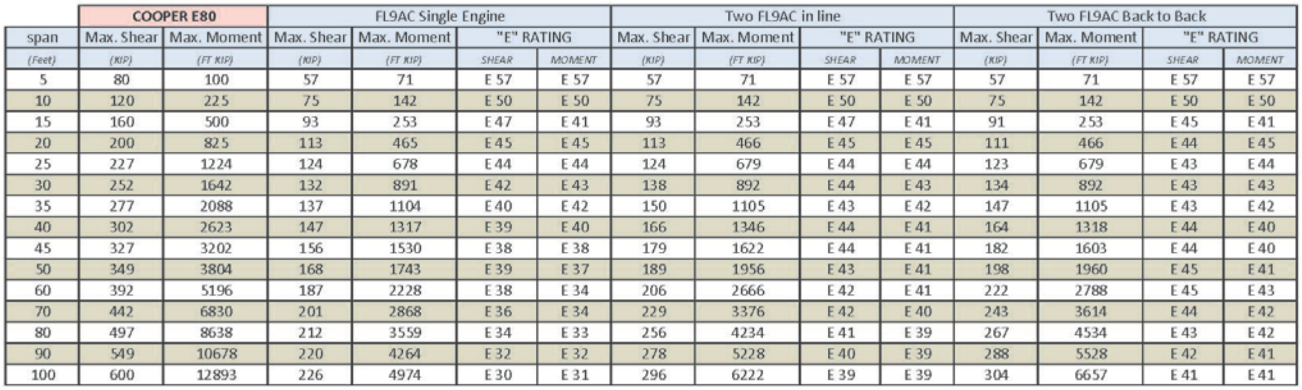
CONNECTICUT RAILROAD EQUIPMENT

TABLE A

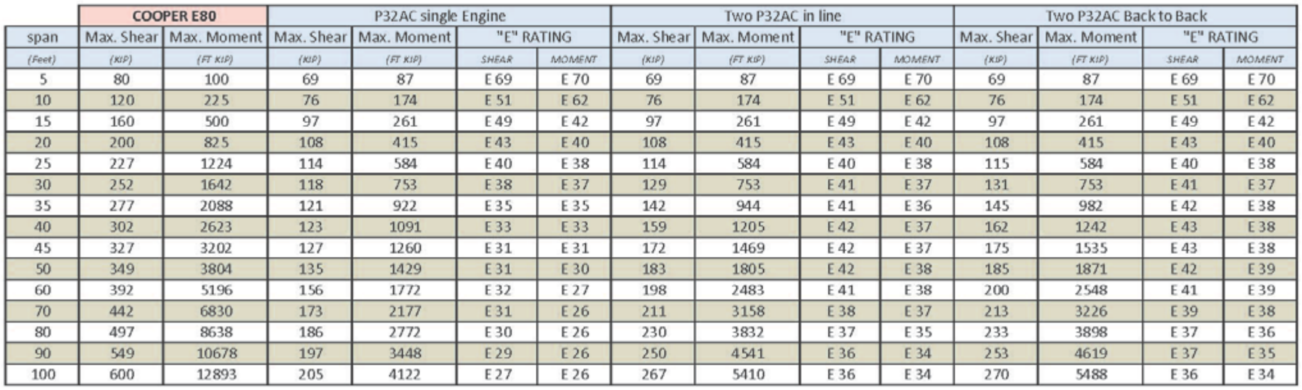
EQUIVALENT COOPER LOADING SUMMARY



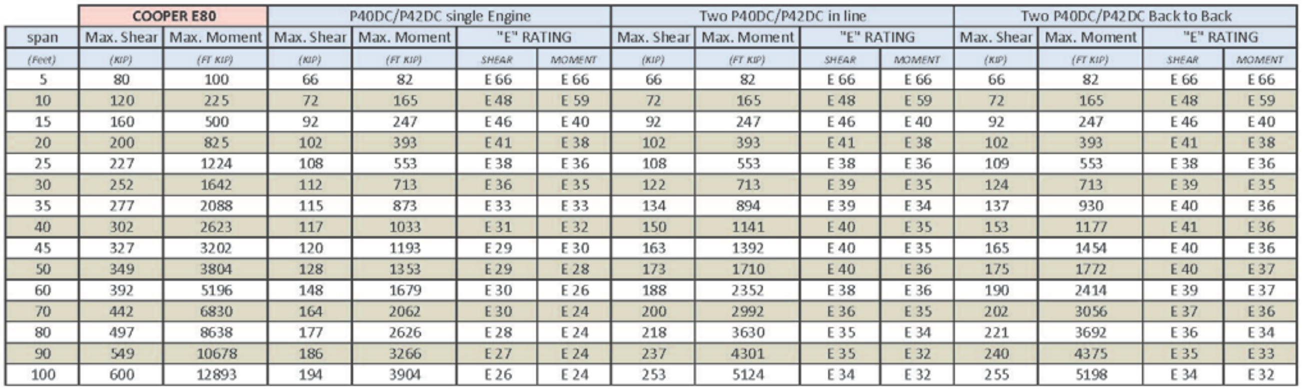
	COOPER E80		FL9m Single Engine				Two FL9m in line				Two FL9m Back to Back			
span	Max. Shear	Max. Moment	Max. Shear	Max. Moment	"E" RATING		Max. Shear	Max. Moment	"E" RATING		Max. Shear	Max. Moment	"E" RATING	
(Feet)	(KIP)	(FT KIP)	(KIP)	(FT KIP)	SHEAR	MOMENT	(KIP)	(FT KIP)	SHEAR	MOMENT	(KIP)	(FT KIP)	SHEAR	MOMENT
5	80	100	56	71	E 56	E 56	56	71	E 56	E 56	56	70	E 56	E 56
10	120	225	74	141	E 50	E 50	74	141	E 50	E 50	74	141	E 50	E 50
15	160	500	93	252	E 46	E 40	93	252	E 46	E 40	90	252	E 45	E 40
20	200	825	112	462	E 45	E 45	112	463	E 45	E 45	110	463	E 44	E 45
25	227	1224	123	673	E 43	E 44	123	674	E 43	E 44	122	674	E 43	E 44
30	252	1642	131	885	E 42	E 43	137	886	E 43	E 43	133	886	E 42	E 43
35	277	2088	136	1096	E 39	E 42	149	1097	E 43	E 42	146	1098	E 42	E 42
40	302	2623	146	1308	E 39	E 40	165	1336	E 44	E 41	163	1309	E 43	E 40
45	327	3202	155	1519	E 38	E 38	178	1611	E 43	E 40	180	1592	E 44	E 40
50	349	3804	167	1731	E 38	E 36	188	1942	E 43	E 41	196	1946	E 45	E 41
60	392	5196	186	2212	E 38	E 34	205	2647	E 42	E 41	220	2768	E 45	E 43
70	442	6830	200	2848	E 36	E 33	228	3352	E 41	E 39	241	3588	E 44	E 42
80	497	8638	210	3534	E 34	E 33	254	4204	E 41	E 39	265	4503	E 43	E 42
90	549	10678	218	4233	E 32	E 32	276	5191	E 40	E 39	286	5490	E 42	E 41
100	600	12893	224	4938	E 30	E 31	293	6178	E 39	E 38	302	6610	E 40	E 41



	COOPER E80		FL9AC Single Engine				Two FL9AC in line				Two FL9AC Back to Back			
span	Max. Shear	Max. Moment	Max. Shear	Max. Moment	"E" RATING		Max. Shear	Max. Moment	"E" RATING		Max. Shear	Max. Moment	"E" RATING	
(Feet)	(KIP)	(FT KIP)	(KIP)	(FT KIP)	SHEAR	MOMENT	(KIP)	(FT KIP)	SHEAR	MOMENT	(KIP)	(FT KIP)	SHEAR	MOMENT
5	80	100	57	71	E 57	E 57	57	71	E 57	E 57	57	71	E 57	E 57
10	120	225	75	142	E 50	E 50	75	142	E 50	E 50	75	142	E 50	E 50
15	160	500	93	253	E 47	E 41	93	253	E 47	E 41	91	253	E 45	E 41
20	200	825	113	465	E 45	E 45	113	466	E 45	E 45	111	466	E 44	E 45
25	227	1224	124	678	E 44	E 44	124	679	E 44	E 44	123	679	E 43	E 44
30	252	1642	132	891	E 42	E 43	138	892	E 44	E 43	134	892	E 43	E 43
35	277	2088	137	1104	E 40	E 42	150	1105	E 43	E 42	147	1105	E 43	E 42
40	302	2623	147	1317	E 39	E 40	166	1346	E 44	E 41	164	1318	E 44	E 40
45	327	3202	156	1530	E 38	E 38	179	1622	E 44	E 41	182	1603	E 44	E 40
50	349	3804	168	1743	E 39	E 37	189	1956	E 43	E 41	198	1960	E 45	E 41
60	392	5196	187	2228	E 38	E 34	206	2666	E 42	E 41	222	2788	E 45	E 43
70	442	6830	201	2868	E 36	E 34	229	3376	E 42	E 40	243	3614	E 44	E 42
80	497	8638	212	3559	E 34	E 33	256	4234	E 41	E 39	267	4534	E 43	E 42
90	549	10678	220	4264	E 32	E 32	278	5228	E 40	E 39	288	5528	E 42	E 41
100	600	12893	226	4974	E 30	E 31	296	6222	E 39	E 39	304	6657	E 41	E 41



	COOPER E80		P32AC single Engine				Two P32AC in line				Two P32AC Back to Back			
span	Max. Shear	Max. Moment	Max. Shear	Max. Moment	"E" RATING		Max. Shear	Max. Moment	"E" RATING		Max. Shear	Max. Moment	"E" RATING	
(Feet)	(KIP)	(FT KIP)	(KIP)	(FT KIP)	SHEAR	MOMENT	(KIP)	(FT KIP)	SHEAR	MOMENT	(KIP)	(FT KIP)	SHEAR	MOMENT
5	80	100	69	87	E 69	E 70	69	87	E 69	E 70	69	87	E 69	E 70
10	120	225	76	174	E 51	E 62	76	174	E 51	E 62	76	174	E 51	E 62
15	160	500	97	261	E 49	E 42	97	261	E 49	E 42	97	261	E 49	E 42
20	200	825	108	415	E 43	E 40	108	415	E 43	E 40	108	415	E 43	E 40
25	227	1224	114	584	E 40	E 38	114	584	E 40	E 38	115	584	E 40	E 38
30	252	1642	118	753	E 38	E 37	129	753	E 41	E 37	131	753	E 41	E 37
35	277	2088	121	922	E 35	E 35	142	944	E 41	E 36	145	982	E 42	E 38
40	302	2623	123	1091	E 33	E 33	159	1205	E 42	E 37	162	1242	E 43	E 38
45	327	3202	127	1260	E 31	E 31	172	1469	E 42	E 37	175	1535	E 43	E 38
50	349	3804	135	1429	E 31	E 30	183	1805	E 42	E 38	185	1871	E 42	E 39
60	392	5196	156	1772	E 32	E 27	198	2483	E 41	E 38	200	2548	E 41	E 39
70	442	6830	173	2177	E 31	E 26	211	3158	E 38	E 37	213	3226	E 39	E 38
80	497	8638	186	2772	E 30	E 26	230	3832	E 37	E 35	233	3898	E 37	E 36
90	549	10678	197	3448	E 29	E 26	250	4541	E 36	E 34	253	4619	E 37	E 35
100	600	12893	205	4122	E 27	E 26	267	5410	E 36	E 34	270	5488	E 36	E 34



	COOPER E80		P40DC/P42DC single Engine				Two P40DC/P42DC in line				Two P40DC/P42DC Back to Back			
span	Max. Shear	Max. Moment	Max. Shear	Max. Moment	"E" RATING		Max. Shear	Max. Moment	"E" RATING		Max. Shear	Max. Moment	"E" RATING	
(Feet)	(KIP)	(FT KIP)	(KIP)	(FT KIP)	SHEAR	MOMENT	(KIP)	(FT KIP)	SHEAR	MOMENT	(KIP)	(FT KIP)	SHEAR	MOMENT
5	80	100	66	82	E 66	E 66	66	82	E 66	E 66	66	82	E 66	E 66
10	120	225	72	165	E 48	E 59	72	165	E 48	E 59	72	165	E 48	E 59
15	160	500	92	247	E 46	E 40	92	247	E 46	E 40	92	247	E 46	E 40
20	200	825	102	393	E 41	E 38	102	393	E 41	E 38	102	393	E 41	E 38
25	227	1224	108	553	E 38	E 36	108	553	E 38	E 36	109	553	E 38	E 36
30	252	1642	112	713	E 36	E 35	122	713	E 39	E 35	124	713	E 39	E 35
35	277	2088	115	873	E 33	E 33	134	894	E 39	E 34	137	930	E 40	E 36
40	302	2623	117	1033	E 31	E 32	150	1141	E 40	E 35	153	1177	E 41	E 36
45	327	3202	120	1193	E 29	E 30	163	1392	E 40	E 35	165	1454	E 40	E 36
50	349	3804	128	1353	E 29	E 28	173	1710	E 40	E 36	175	1772	E 40	E 37
60	392	5196	148	1679	E 30	E 26	188	2352	E 38	E 36	190	2414	E 39	E 37
70	442	6830	164	2062	E 30	E 24	200	2992	E 36	E 35	202	3056	E 37	E 36
80	497	8638	177	2626	E 28	E 24	218	3630	E 35	E 34	221	3692	E 36	E 34
90	549	10678	186	3266	E 27	E 24	237	4301	E 35	E 32	240	4375	E 35	E 33
100	600	12893	194	3904	E 26	E 24	253	5124	E 34	E 32	255	5198	E 34	E 32

Load chart values are applicable to specific structural members. For limitations, see Executive Summary.

CONNECTICUT RAILROAD EQUIPMENT

TABLE A(CONT)

EQUIVALENT COOPER LOADING SUMMARY

	COOPER E80		M-2 Single Car				M-2 Two Cars				M-4 Single Car			
span	Max. Shear	Max. Moment	Max. Shear	Max. Moment	"E" RATING		Max. Shear	Max. Moment	"E" RATING		Max. Shear	Max. Moment	"E" RATING	
(Feet)	(KIP)	(FT KIP)	(KIP)	(FT KIP)	SHEAR	MOMENT	(KIP)	(FT KIP)	SHEAR	MOMENT	(KIP)	(FT KIP)	SHEAR	MOMENT
5	80	100	34	42	E 34	E 34	34	42	E 34	E 34	33	42	E 33	E 33
10	120	225	39	85	E 26	E 30	39	85	E 26	E 30	39	84	E 26	E 30
15	160	500	49	130	E 24	E 21	49	130	E 24	E 21	48	128	E 24	E 21
20	200	825	54	210	E 21	E 20	54	210	E 21	E 20	53	207	E 21	E 20
25	227	1224	56	292	E 20	E 19	56	293	E 20	E 19	56	288	E 20	E 19
30	252	1642	58	375	E 19	E 18	63	375	E 20	E 18	58	370	E 18	E 18
35	277	2088	60	458	E 17	E 18	70	458	E 20	E 18	59	451	E 17	E 17
40	302	2623	61	540	E 16	E 16	78	584	E 21	E 18	60	532	E 16	E 16
45	327	3202	62	623	E 15	E 16	84	713	E 21	E 18	61	614	E 15	E 15
50	349	3804	62	705	E 14	E 15	90	878	E 21	E 18	61	695	E 14	E 15
60	392	5196	63	875	E 13	E 13	97	1209	E 20	E 19	63	863	E 13	E 13
70	442	6830	70	1045	E 13	E 12	103	1539	E 19	E 18	69	1030	E 12	E 12
80	497	8638	78	1215	E 13	E 11	107	1869	E 17	E 17	77	1198	E 12	E 11
90	549	10678	85	1385	E 12	E 10	112	2201	E 16	E 16	83	1365	E 12	E 10
100	600	12893	90	1587	E 12	E 10	120	2531	E 16	E 16	88	1564	E 12	E 10

	COOPER E80		M-4 Two Cars				M-6 Single Car				M-6 Two Cars			
span	Max. Shear	Max. Moment	Max. Shear	Max. Moment	"E" RATING		Max. Shear	Max. Moment	"E" RATING		Max. Shear	Max. Moment	"E" RATING	
(Feet)	(KIP)	(FT KIP)	(KIP)	(FT KIP)	SHEAR	MOMENT	(KIP)	(FT KIP)	SHEAR	MOMENT	(KIP)	(FT KIP)	SHEAR	MOMENT
5	80	100	33	42	E 33	E 33	33	42	E 33	E 33	33	42	E 33	E 33
10	120	225	39	84	E 26	E 30	39	84	E 26	E 30	39	84	E 26	E 30
15	160	500	48	128	E 24	E 21	48	128	E 24	E 21	48	128	E 24	E 21
20	200	825	53	207	E 21	E 20	53	207	E 21	E 20	53	207	E 21	E 20
25	227	1224	56	288	E 20	E 19	56	288	E 20	E 19	56	288	E 20	E 19
30	252	1642	62	370	E 20	E 18	58	370	E 18	E 18	62	370	E 20	E 18
35	277	2088	69	451	E 20	E 17	59	451	E 17	E 17	69	451	E 20	E 17
40	302	2623	77	576	E 20	E 18	60	532	E 16	E 16	77	576	E 20	E 18
45	327	3202	83	703	E 20	E 18	61	614	E 15	E 15	83	703	E 20	E 18
50	349	3804	88	865	E 20	E 18	61	695	E 14	E 15	88	865	E 20	E 18
60	392	5196	96	1191	E 20	E 18	63	863	E 13	E 13	96	1191	E 20	E 18
70	442	6830	101	1517	E 18	E 18	69	1030	E 12	E 12	101	1517	E 18	E 18
80	497	8638	105	1842	E 17	E 17	77	1198	E 12	E 11	105	1842	E 17	E 17
90	549	10678	110	2168	E 16	E 16	83	1365	E 12	E 10	110	2168	E 16	E 16
100	600	12893	118	2494	E 16	E 15	88	1564	E 12	E 10	118	2494	E 16	E 15

	COOPER E80		M-8 Single Car				M-8 Two Cars				BL20-GH Single Engine			
span	Max. Shear	Max. Moment	Max. Shear	Max. Moment	"E" RATING		Max. Shear	Max. Moment	"E" RATING		Max. Shear	Max. Moment	"E" RATING	
(Feet)	(KIP)	(FT KIP)	(KIP)	(FT KIP)	SHEAR	MOMENT	(KIP)	(FT KIP)	SHEAR	MOMENT	(KIP)	(FT KIP)	SHEAR	MOMENT
5	80	100	36	45	E 36	E 36	36	45	E 36	E 36	66	82	E 66	E 66
10	120	225	41	90	E 28	E 32	41	90	E 28	E 32	73	165	E 48	E 59
15	160	500	52	138	E 26	E 22	52	138	E 26	E 22	92	247	E 46	E 40
20	200	825	57	222	E 23	E 22	57	222	E 23	E 22	102	393	E 41	E 38
25	227	1224	60	309	E 21	E 20	60	309	E 21	E 20	108	553	E 38	E 36
30	252	1642	62	398	E 20	E 19	67	398	E 21	E 19	112	715	E 36	E 35
35	277	2088	63	485	E 18	E 19	74	487	E 21	E 19	117	874	E 34	E 34
40	302	2623	64	572	E 17	E 17	83	622	E 22	E 19	127	1034	E 34	E 32
45	327	3202	65	661	E 16	E 17	90	760	E 22	E 19	138	1196	E 34	E 30
50	349	3804	66	748	E 15	E 16	95	934	E 22	E 20	150	1369	E 34	E 29
60	392	5196	67	928	E 14	E 14	103	1286	E 21	E 20	169	1881	E 35	E 29
70	442	6830	74	1109	E 13	E 13	109	1634	E 20	E 19	183	2519	E 33	E 30
80	497	8638	83	1289	E 13	E 12	114	1986	E 18	E 18	193	3163	E 31	E 29
90	549	10678	90	1469	E 13	E 11	119	2337	E 17	E 18	201	3806	E 29	E 29
100	600	12893	95	1683	E 13	E 10	127	2686	E 17	E 17	207	4444	E 28	E 28

	COOPER E80		Two BL20-GH in line				GP35 Single Engine				Two GP35 in line			
span	Max. Shear	Max. Moment	Max. Shear	Max. Moment	"E" RATING		Max. Shear	Max. Moment	"E" RATING		Max. Shear	Max. Moment	"E" RATING	
(Feet)	(KIP)	(FT KIP)	(KIP)	(FT KIP)	SHEAR	MOMENT	(KIP)	(FT KIP)	SHEAR	MOMENT	(KIP)	(FT KIP)	SHEAR	MOMENT
5	80	100	66	83	E 66	E 66	65	82	E 65	E 65	65	82	E 65	E 66
10	120	225	73	165	E 48	E 59	72	164	E 48	E 58	72	164	E 48	E 58
15	160	500	92	248	E 46	E 40	92	246	E 46	E 39	92	246	E 46	E 39
20	200	825	102	394	E 41	E 38	102	390	E 41	E 38	102	391	E 41	E 38
25	227	1224	108	555	E 38	E 36	107	549	E 38	E 36	107	550	E 38	E 36
30	252	1642	123	715	E 39	E 35	111	710	E 35	E 35	122	710	E 39	E 35
35	277	2088	135	902	E 39	E 35	116	868	E 34	E 33	134	895	E 39	E 34
40	302	2623	151	1149	E 40	E 35	126	1026	E 33	E 31	150	1141	E 40	E 35
45	327	3202	164	1404	E 40	E 35	137	1187	E 33	E 30	163	1394	E 40	E 35
50	349	3804	174	1725	E 40	E 36	149	1359	E 34	E 29	172	1712	E 40	E 36
60	392	5196	190	2367	E 39	E 36	168	1867	E 34	E 29	188	2349	E 38	E 36
70	442	6830	212	3007	E 38	E 35	182	2500	E 33	E 29	210	2984	E 38	E 35
80	497	8638	235	3817	E 38	E 35	192	3139	E 31	E 29	233	3788	E 37	E 35
90	549	10678	253	4708	E 37	E 35	199	3777	E 29	E 28	251	4672	E 37	E 35
100	600	12893	267	5698	E 36	E 35	206	4410	E 27	E 27	265	5655	E 35	E 35

Load chart values are applicable to specific structural members. For limitations, see Executive Summary.

CONNECTICUT RAILROAD EQUIPMENT

TABLE A$^{(CONT)}$

EQUIVALENT COOPER LOADING SUMMARY

	COOPER E80		GP9 Single Engine				Two GP9 in line				GP8 Single Engine			
span	Max. Shear	Max. Moment	Max. Shear	Max. Moment	"E" RATING		Max. Shear	Max. Moment	"E" RATING		Max. Shear	Max. Moment	"E" RATING	
(Feet)	*(KIP)*	*(FT KIP)*	*(KIP)*	*(FT KIP)*	*SHEAR*	*MOMENT*	*(KIP)*	*(FT KIP)*	*SHEAR*	*MOMENT*	*(KIP)*	*(FT KIP)*	*SHEAR*	*MOMENT*
5	80	100	63	78	E 63	E 63	63	78	E 63	E 63	62	78	E 62	E 62
10	120	225	69	157	E 46	E 56	69	157	E 46	E 56	68	156	E 46	E 55
15	160	500	88	235	E 44	E 38	88	235	E 44	E 38	87	233	E 44	E 37
20	200	825	97	374	E 39	E 36	97	375	E 39	E 36	96	371	E 39	E 36
25	227	1224	103	526	E 36	E 34	103	527	E 36	E 34	102	521	E 36	E 34
30	252	1642	107	680	E 34	E 33	117	680	E 37	E 33	106	674	E 34	E 33
35	277	2088	117	831	E 34	E 32	129	865	E 37	E 33	116	825	E 33	E 32
40	302	2623	126	983	E 33	E 30	145	1101	E 38	E 34	125	975	E 33	E 30
45	327	3202	139	1154	E 34	E 29	156	1348	E 38	E 34	138	1145	E 34	E 29
50	349	3804	151	1381	E 35	E 29	166	1653	E 38	E 35	149	1370	E 34	E 29
60	392	5196	167	1945	E 34	E 30	184	2263	E 38	E 35	166	1930	E 34	E 30
70	442	6830	179	2552	E 32	E 30	207	2954	E 38	E 35	178	2531	E 32	E 30
80	497	8638	188	3164	E 30	E 29	229	3739	E 37	E 35	187	3138	E 30	E 29
90	549	10678	195	3775	E 28	E 28	245	4680	E 36	E 35	194	3745	E 28	E 28
100	600	12893	201	4382	E 27	E 27	261	5718	E 35	E 35	199	4347	E 27	E 27

	COOPER E80		Two GP8 in line				220k Single Hopper Car				220k Hopper Cars in line			
span	Max. Shear	Max. Moment	Max. Shear	Max. Moment	"E" RATING		Max. Shear	Max. Moment	"E" RATING		Max. Shear	Max. Moment	"E" RATING	
(Feet)	*(KIP)*	*(FT KIP)*	*(KIP)*	*(FT KIP)*	*SHEAR*	*MOMENT*	*(KIP)*	*(FT KIP)*	*SHEAR*	*MOMENT*	*(KIP)*	*(FT KIP)*	*SHEAR*	*MOMENT*
5	80	100	62	78	E 62	E 62	55	69	E 55	E 55	55	69	E 55	E 55
10	120	225	68	156	E 46	E 55	78	138	E 52	E 49	78	138	E 52	E 49
15	160	500	87	233	E 44	E 37	89	267	E 44	E 43	94	267	E 47	E 43
20	200	825	96	372	E 39	E 36	94	401	E 38	E 39	113	453	E 45	E 44
25	227	1224	102	523	E 36	E 34	97	535	E 34	E 35	135	663	E 47	E 43
30	252	1642	116	674	E 37	E 33	99	668	E 32	E 33	149	930	E 47	E 45
35	277	2088	128	859	E 37	E 33	105	802	E 30	E 31	159	1197	E 46	E 46
40	302	2623	143	1092	E 38	E 33	115	940	E 30	E 29	167	1465	E 44	E 45
45	327	3202	155	1337	E 38	E 33	127	1077	E 31	E 27	173	1732	E 42	E 43
50	349	3804	165	1640	E 38	E 34	136	1215	E 31	E 26	182	2005	E 42	E 42
60	392	5196	183	2245	E 37	E 35	150	1673	E 31	E 26	205	2555	E 42	E 39
70	442	6830	206	2931	E 37	E 34	160	2208	E 29	E 26	223	3184	E 40	E 37
80	497	8638	227	3709	E 36	E 34	168	2742	E 27	E 25	236	3986	E 38	E 37
90	549	10678	243	4643	E 35	E 35	173	3277	E 25	E 25	247	4878	E 36	E 37
100	600	12893	259	5672	E 35	E 35	178	3812	E 24	E 24	255	5954	E 34	E 37

	COOPER E80		ACELA Single Engine				Two ACELA in line				AEM-7 Single Engine			
span	Max. Shear	Max. Moment	Max. Shear	Max. Moment	"E" RATING		Max. Shear	Max. Moment	"E" RATING		Max. Shear	Max. Moment	"E" RATING	
(Feet)	*(KIP)*	*(FT KIP)*	*(KIP)*	*(FT KIP)*	*SHEAR*	*MOMENT*	*(KIP)*	*(FT KIP)*	*SHEAR*	*MOMENT*	*(KIP)*	*(FT KIP)*	*SHEAR*	*MOMENT*
5	80	100	50	63	E 50	E 50	50	63	E 50	E 50	50	63	E 50	E 51
10	120	225	53	125	E 36	E 44	53	125	E 36	E 44	56	126	E 37	E 45
15	160	500	69	188	E 34	E 30	69	188	E 34	E 30	71	189	E 35	E 30
20	200	825	77	291	E 31	E 28	77	292	E 31	E 28	78	302	E 31	E 29
25	227	1224	82	413	E 29	E 27	82	413	E 29	E 27	83	424	E 29	E 28
30	252	1642	93	535	E 30	E 26	93	535	E 30	E 26	93	547	E 30	E 27
35	277	2088	103	694	E 30	E 27	103	696	E 30	E 27	102	680	E 30	E 26
40	302	2623	115	881	E 30	E 27	115	883	E 30	E 27	115	869	E 30	E 27
45	327	3202	124	1079	E 30	E 27	124	1082	E 30	E 27	124	1058	E 30	E 26
50	349	3804	132	1325	E 30	E 28	132	1325	E 30	E 28	132	1301	E 30	E 27
60	392	5196	143	1808	E 29	E 28	144	1811	E 29	E 28	144	1793	E 29	E 28
70	442	6830	151	2296	E 27	E 27	161	2297	E 29	E 27	152	2284	E 28	E 27
80	497	8638	157	2783	E 25	E 26	178	2917	E 29	E 27	158	2774	E 25	E 26
90	549	10678	162	3267	E 24	E 24	196	3590	E 28	E 27	163	3266	E 24	E 24
100	600	12893	166	3767	E 22	E 23	215	4350	E 29	E 27	167	3758	E 22	E 23

	COOPER E80		Two AEM-7 in line				AMD-103 single Engine				Two AMD-103 in line			
span	Max. Shear	Max. Moment	Max. Shear	Max. Moment	"E" RATING		Max. Shear	Max. Moment	"E" RATING		Max. Shear	Max. Moment	"E" RATING	
(Feet)	*(KIP)*	*(FT KIP)*	*(KIP)*	*(FT KIP)*	*SHEAR*	*MOMENT*	*(KIP)*	*(FT KIP)*	*SHEAR*	*MOMENT*	*(KIP)*	*(FT KIP)*	*SHEAR*	*MOMENT*
5	80	100	50	63	E 50	E 51	68	85	E 68	E 68	68	85	E 68	E 68
10	120	225	56	126	E 37	E 45	75	170	E 50	E 60	75	170	E 50	E 60
15	160	500	71	189	E 35	E 30	95	255	E 48	E 41	95	255	E 48	E 41
20	200	825	78	302	E 31	E 29	105	406	E 42	E 39	105	406	E 42	E 39
25	227	1224	83	424	E 29	E 28	112	571	E 39	E 37	112	571	E 39	E 37
30	252	1642	95	547	E 30	E 27	116	737	E 37	E 36	125	737	E 40	E 36
35	277	2088	105	705	E 30	E 27	119	902	E 34	E 35	137	924	E 40	E 35
40	302	2623	117	894	E 31	E 27	121	1067	E 32	E 33	154	1179	E 41	E 36
45	327	3202	126	1101	E 31	E 28	124	1232	E 30	E 31	167	1437	E 41	E 36
50	349	3804	134	1348	E 31	E 28	132	1398	E 30	E 29	178	1766	E 41	E 37
60	392	5196	154	1902	E 31	E 29	153	1734	E 31	E 27	193	2429	E 39	E 37
70	442	6830	176	2546	E 32	E 30	170	2130	E 31	E 25	205	3090	E 37	E 36
80	497	8638	193	3304	E 31	E 31	182	2712	E 29	E 25	224	3749	E 36	E 35
90	549	10678	214	4158	E 31	E 31	192	3374	E 28	E 25	244	4443	E 36	E 33
100	600	12893	233	5042	E 31	E 31	200	4033	E 27	E 25	260	5293	E 35	E 33

Load chart values are applicable to specific structural members. For limitations, see Executive Summary.

CONNECTICUT RAILROAD EQUIPMENT

TABLE A$^{(CONT)}$

EQUIVALENT COOPER LOADING SUMMARY

	COOPER E80		Two AMD-103 Back to Back				HHP-8 single Engine				Two HHP-8 in line			
span	Max. Shear	Max. Moment	Max. Shear	Max. Moment	"E" RATING		Max. Shear	Max. Moment	"E" RATING		Max. Shear	Max. Moment	"E" RATING	
(Feet)	(KIP)	(FT KIP)	(KIP)	(FT KIP)	SHEAR	MOMENT	(KIP)	(FT KIP)	SHEAR	MOMENT	(KIP)	(FT KIP)	SHEAR	MOMENT
5	80	100	68	85	E 68	E 68	55	69	E 55	E 55	55	69	E 55	E 56
10	120	225	75	170	E 50	E 60	59	139	E 39	E 49	59	139	E 39	E 49
15	160	500	95	255	E 48	E 41	76	208	E 38	E 33	76	208	E 38	E 33
20	200	825	105	406	E 42	E 39	85	323	E 34	E 31	85	324	E 34	E 31
25	227	1224	113	571	E 40	E 37	90	459	E 32	E 30	90	459	E 32	E 30
30	252	1642	128	737	E 41	E 36	94	594	E 30	E 29	94	594	E 30	E 29
35	277	2088	143	975	E 41	E 37	96	728	E 28	E 28	101	728	E 29	E 28
40	302	2623	159	1230	E 42	E 38	104	863	E 28	E 26	109	863	E 29	E 26
45	327	3202	172	1522	E 42	E 38	111	998	E 27	E 25	120	998	E 29	E 25
50	349	3804	182	1851	E 42	E 39	122	1132	E 28	E 24	131	1201	E 30	E 25
60	392	5196	197	2514	E 40	E 39	139	1527	E 28	E 24	146	1677	E 30	E 26
70	442	6830	210	3175	E 38	E 37	151	2059	E 27	E 24	159	2218	E 29	E 26
80	497	8638	229	3834	E 37	E 36	160	2600	E 26	E 24	176	2803	E 28	E 26
90	549	10678	249	4545	E 36	E 34	167	3140	E 24	E 24	194	3510	E 28	E 26
100	600	12893	264	5396	E 35	E 33	172	3678	E 23	E 23	208	4343	E 28	E 27

	COOPER E80		GP40 single Engine				Two GP40 in line				GP40-2 single Engine			
span	Max. Shear	Max. Moment	Max. Shear	Max. Moment	"E" RATING		Max. Shear	Max. Moment	"E" RATING		Max. Shear	Max. Moment	"E" RATING	
(Feet)	(KIP)	(FT KIP)	(KIP)	(FT KIP)	SHEAR	MOMENT	(KIP)	(FT KIP)	SHEAR	MOMENT	(KIP)	(FT KIP)	SHEAR	MOMENT
5	80	100	70	87	E 70	E 70	70	88	E 70	E 70	64	80	E 64	E 64
10	120	225	77	175	E 51	E 62	77	175	E 51	E 62	70	160	E 47	E 57
15	160	500	98	262	E 49	E 42	98	263	E 49	E 42	90	240	E 45	E 38
20	200	825	108	417	E 43	E 40	108	418	E 43	E 41	99	381	E 40	E 37
25	227	1224	115	586	E 40	E 38	115	588	E 40	E 38	105	536	E 37	E 35
30	252	1642	119	758	E 38	E 37	130	758	E 41	E 37	109	693	E 35	E 34
35	277	2088	122	927	E 35	E 36	143	957	E 41	E 37	113	848	E 33	E 32
40	302	2623	129	1097	E 34	E 33	160	1219	E 42	E 37	123	1003	E 33	E 31
45	327	3202	138	1269	E 34	E 32	174	1489	E 42	E 37	134	1160	E 33	E 29
50	349	3804	150	1438	E 34	E 30	184	1830	E 42	E 38	146	1328	E 33	E 28
60	392	5196	172	1871	E 35	E 29	200	2510	E 41	E 39	164	1824	E 34	E 28
70	442	6830	187	2482	E 34	E 29	219	3189	E 40	E 37	177	2443	E 32	E 29
80	497	8638	199	3165	E 32	E 29	243	3935	E 39	E 36	187	3067	E 30	E 28
90	549	10678	208	3847	E 30	E 29	263	4810	E 38	E 36	195	3691	E 28	E 28
100	600	12893	215	4524	E 29	E 28	278	5823	E 37	E 36	201	4309	E 27	E 27

	COOPER E80		Two GP40-2 in line				RS-3 Single Engine				RS-3 in line			
span	Max. Shear	Max. Moment	Max. Shear	Max. Moment	"E" RATING		Max. Shear	Max. Moment	"E" RATING		Max. Shear	Max. Moment	"E" RATING	
(Feet)	(KIP)	(FT KIP)	(KIP)	(FT KIP)	SHEAR	MOMENT	(KIP)	(FT KIP)	SHEAR	MOMENT	(KIP)	(FT KIP)	SHEAR	MOMENT
5	80	100	64	80	E 64	E 64	57	72	E 57	E 57	57	72	E 57	E 57
10	120	225	70	160	E 47	E 57	61	143	E 41	E 51	61	143	E 41	E 51
15	160	500	90	240	E 45	E 38	79	215	E 39	E 34	79	215	E 39	E 34
20	200	825	99	382	E 40	E 37	88	334	E 35	E 32	88	334	E 35	E 32
25	227	1224	105	538	E 37	E 35	93	473	E 33	E 31	93	473	E 33	E 31
30	252	1642	119	693	E 38	E 34	97	612	E 31	E 30	104	612	E 33	E 30
35	277	2088	131	875	E 38	E 34	107	751	E 31	E 29	114	761	E 33	E 29
40	302	2623	147	1115	E 39	E 34	116	891	E 31	E 27	128	976	E 34	E 30
45	327	3202	159	1362	E 39	E 34	129	1074	E 32	E 27	139	1190	E 34	E 30
50	349	3804	169	1673	E 39	E 35	139	1288	E 32	E 27	148	1457	E 34	E 31
60	392	5196	184	2295	E 38	E 35	154	1819	E 31	E 28	166	2014	E 34	E 31
70	442	6830	205	2916	E 37	E 34	165	2376	E 30	E 28	187	2667	E 34	E 31
80	497	8638	227	3701	E 37	E 34	173	2932	E 28	E 27	206	3402	E 33	E 32
90	549	10678	245	4565	E 36	E 34	179	3489	E 26	E 26	222	4260	E 32	E 32
100	600	12893	259	5525	E 35	E 34	184	4046	E 25	E 25	240	5217	E 32	E 32

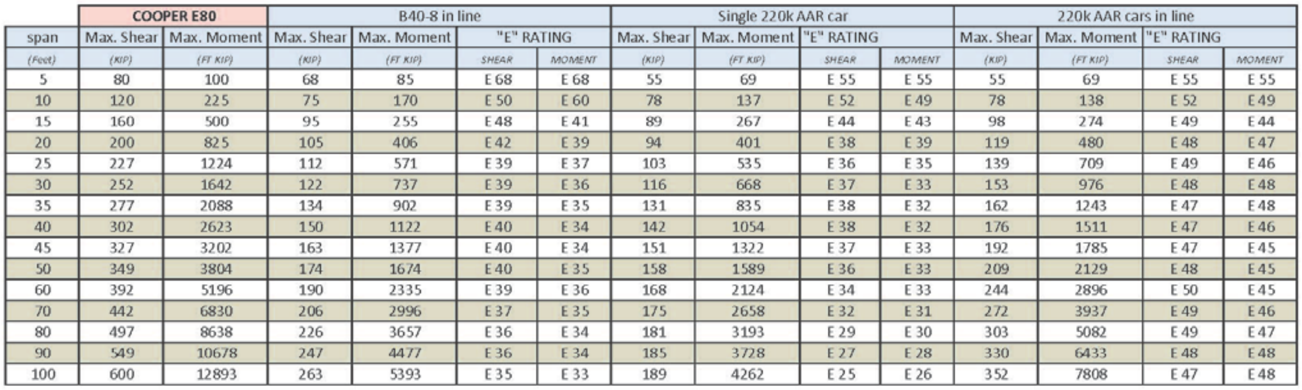
	COOPER E80		U23-B Single Engine				U23-B in line				B40-8 Single Engine			
span	Max. Shear	Max. Moment	Max. Shear	Max. Moment	"E" RATING		Max. Shear	Max. Moment	"E" RATING		Max. Shear	Max. Moment	"E" RATING	
(Feet)	(KIP)	(FT KIP)	(KIP)	(FT KIP)	SHEAR	MOMENT	(KIP)	(FT KIP)	SHEAR	MOMENT	(KIP)	(FT KIP)	SHEAR	MOMENT
5	80	100	60	76	E 60	E 61	60	76	E 60	E 61	68	85	E 68	E 68
10	120	225	65	151	E 43	E 54	67	151	E 45	E 54	75	170	E 50	E 60
15	160	500	83	227	E 42	E 36	85	227	E 43	E 36	95	255	E 48	E 41
20	200	825	93	353	E 37	E 34	99	363	E 40	E 35	105	406	E 42	E 39
25	227	1224	98	500	E 35	E 33	116	582	E 41	E 38	112	571	E 39	E 37
30	252	1642	102	647	E 32	E 32	131	809	E 42	E 39	116	737	E 37	E 36
35	277	2088	105	794	E 30	E 30	147	1044	E 42	E 40	119	902	E 34	E 35
40	302	2623	107	941	E 28	E 29	159	1339	E 42	E 41	122	1067	E 32	E 33
45	327	3202	113	1088	E 28	E 27	168	1633	E 41	E 41	131	1232	E 32	E 31
50	349	3804	119	1235	E 27	E 26	175	1927	E 40	E 41	141	1398	E 32	E 29
60	392	5196	139	1533	E 28	E 24	186	2526	E 38	E 39	162	1759	E 33	E 27
70	442	6830	153	1937	E 28	E 23	203	3131	E 37	E 37	178	2297	E 32	E 27
80	497	8638	164	2498	E 26	E 23	223	3736	E 36	E 35	190	2958	E 31	E 27
90	549	10678	173	3086	E 25	E 23	239	4434	E 35	E 33	199	3619	E 29	E 27
100	600	12893	180	3675	E 24	E 23	251	5280	E 33	E 33	206	4280	E 28	E 27

Load chart values are applicable to specific structural members. For limitations, see Executive Summary.

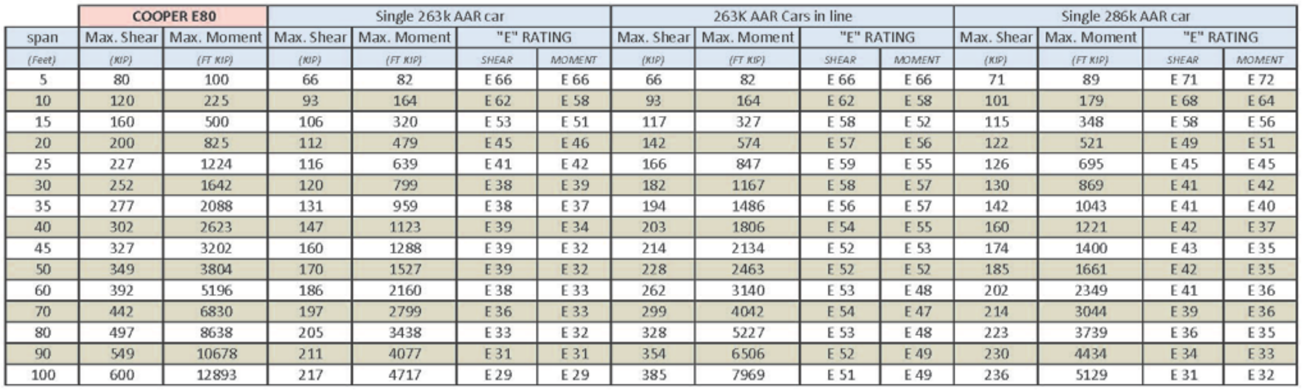
CONNECTICUT RAILROAD EQUIPMENT

TABLE A$^{(CONT)}$

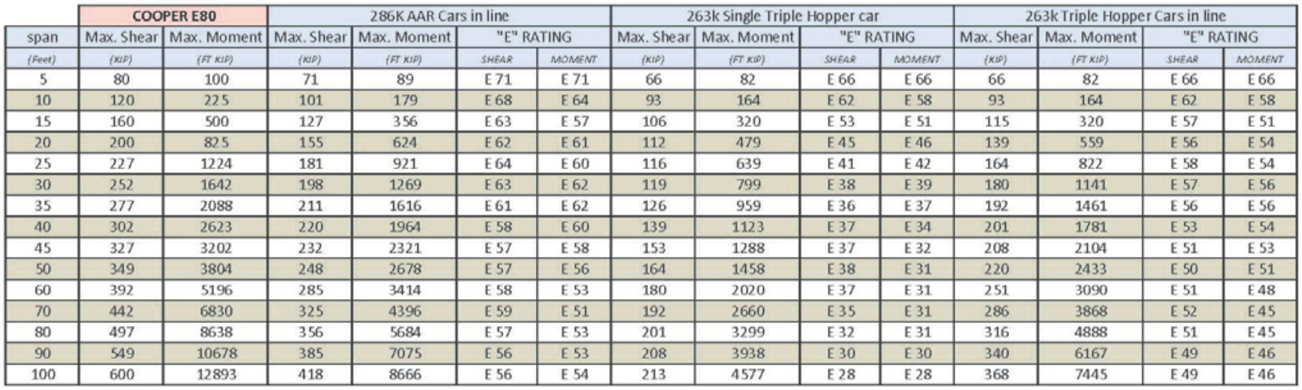
EQUIVALENT COOPER LOADING SUMMARY



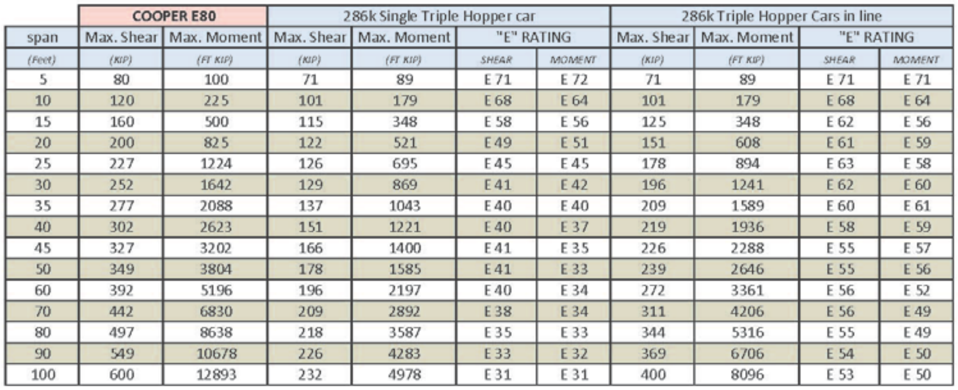
	COOPER E80		B40-8 in line				Single 220k AAR car				220k AAR cars in line			
span	Max. Shear	Max. Moment	Max. Shear	Max. Moment	"E" RATING		Max. Shear	Max. Moment	"E" RATING		Max. Shear	Max. Moment	"E" RATING	
(Feet)	(KIP)	(FT KIP)	(KIP)	(FT KIP)	SHEAR	MOMENT	(KIP)	(FT KIP)	SHEAR	MOMENT	(KIP)	(FT KIP)	SHEAR	MOMENT
5	80	100	68	85	E 68	E 68	55	69	E 55	E 55	55	69	E 55	E 55
10	120	225	75	170	E 50	E 60	78	137	E 52	E 49	78	138	E 52	E 49
15	160	500	95	255	E 48	E 41	89	267	E 44	E 43	98	274	E 49	E 44
20	200	825	105	406	E 42	E 39	94	401	E 38	E 39	119	480	E 48	E 47
25	227	1224	112	571	E 39	E 37	103	535	E 36	E 35	139	709	E 49	E 46
30	252	1642	122	737	E 39	E 36	116	668	E 37	E 33	153	976	E 48	E 48
35	277	2088	134	902	E 39	E 35	131	835	E 38	E 32	162	1243	E 47	E 48
40	302	2623	150	1122	E 40	E 34	142	1054	E 38	E 32	176	1511	E 47	E 46
45	327	3202	163	1377	E 40	E 34	151	1322	E 37	E 33	192	1785	E 47	E 45
50	349	3804	174	1674	E 40	E 35	158	1589	E 36	E 33	209	2129	E 48	E 45
60	392	5196	190	2335	E 39	E 36	168	2124	E 34	E 33	244	2896	E 50	E 45
70	442	6830	206	2996	E 37	E 35	175	2658	E 32	E 31	272	3937	E 49	E 46
80	497	8638	226	3657	E 36	E 34	181	3193	E 29	E 30	303	5082	E 49	E 47
90	549	10678	247	4477	E 36	E 34	185	3728	E 27	E 28	330	6433	E 48	E 48
100	600	12893	263	5393	E 35	E 33	189	4262	E 25	E 26	352	7808	E 47	E 48



	COOPER E80		Single 263k AAR car				263K AAR Cars in line				Single 286k AAR car			
span	Max. Shear	Max. Moment	Max. Shear	Max. Moment	"E" RATING		Max. Shear	Max. Moment	"E" RATING		Max. Shear	Max. Moment	"E" RATING	
(Feet)	(KIP)	(FT KIP)	(KIP)	(FT KIP)	SHEAR	MOMENT	(KIP)	(FT KIP)	SHEAR	MOMENT	(KIP)	(FT KIP)	SHEAR	MOMENT
5	80	100	66	82	E 66	E 66	66	82	E 66	E 66	71	89	E 71	E 72
10	120	225	93	164	E 62	E 58	93	164	E 62	E 58	101	179	E 68	E 64
15	160	500	106	320	E 53	E 51	117	327	E 58	E 52	115	348	E 58	E 56
20	200	825	112	479	E 45	E 46	142	574	E 57	E 56	122	521	E 49	E 51
25	227	1224	116	639	E 41	E 42	166	847	E 59	E 55	126	695	E 45	E 45
30	252	1642	120	799	E 38	E 39	182	1167	E 58	E 57	130	869	E 41	E 42
35	277	2088	131	959	E 38	E 37	194	1486	E 56	E 57	142	1043	E 41	E 40
40	302	2623	147	1123	E 39	E 34	203	1806	E 54	E 55	160	1221	E 42	E 37
45	327	3202	160	1288	E 39	E 32	214	2134	E 52	E 53	174	1400	E 43	E 35
50	349	3804	170	1527	E 39	E 32	228	2463	E 52	E 52	185	1661	E 42	E 35
60	392	5196	186	2160	E 38	E 33	262	3140	E 53	E 48	202	2349	E 41	E 36
70	442	6830	197	2799	E 36	E 33	299	4042	E 54	E 47	214	3044	E 39	E 36
80	497	8638	205	3438	E 33	E 32	328	5227	E 53	E 48	223	3739	E 36	E 35
90	549	10678	211	4077	E 31	E 31	354	6506	E 52	E 49	230	4434	E 34	E 33
100	600	12893	217	4717	E 29	E 29	385	7969	E 51	E 49	236	5129	E 31	E 32



	COOPER E80		286K AAR Cars in line				263k Single Triple Hopper car				263k Triple Hopper Cars in line			
span	Max. Shear	Max. Moment	Max. Shear	Max. Moment	"E" RATING		Max. Shear	Max. Moment	"E" RATING		Max. Shear	Max. Moment	"E" RATING	
(Feet)	(KIP)	(FT KIP)	(KIP)	(FT KIP)	SHEAR	MOMENT	(KIP)	(FT KIP)	SHEAR	MOMENT	(KIP)	(FT KIP)	SHEAR	MOMENT
5	80	100	71	89	E 71	E 71	66	82	E 66	E 66	66	82	E 66	E 66
10	120	225	101	179	E 68	E 64	93	164	E 62	E 58	93	164	E 62	E 58
15	160	500	127	356	E 63	E 57	106	320	E 53	E 51	115	320	E 57	E 51
20	200	825	155	624	E 62	E 61	112	479	E 45	E 46	139	559	E 56	E 54
25	227	1224	181	921	E 64	E 60	116	639	E 41	E 42	164	822	E 58	E 54
30	252	1642	198	1269	E 63	E 62	119	799	E 38	E 39	180	1141	E 57	E 56
35	277	2088	211	1616	E 61	E 62	126	959	E 36	E 37	192	1461	E 56	E 56
40	302	2623	220	1964	E 58	E 60	139	1123	E 37	E 34	201	1781	E 53	E 54
45	327	3202	232	2321	E 57	E 58	153	1288	E 37	E 32	208	2104	E 51	E 53
50	349	3804	248	2678	E 57	E 56	164	1458	E 38	E 31	220	2433	E 50	E 51
60	392	5196	285	3414	E 58	E 53	180	2020	E 37	E 31	251	3090	E 51	E 48
70	442	6830	325	4396	E 59	E 51	192	2660	E 35	E 31	286	3868	E 52	E 45
80	497	8638	356	5684	E 57	E 53	201	3299	E 32	E 31	316	4888	E 51	E 45
90	549	10678	385	7075	E 56	E 53	208	3938	E 30	E 30	340	6167	E 49	E 46
100	600	12893	418	8666	E 56	E 54	213	4577	E 28	E 28	368	7445	E 49	E 46



	COOPER E80		286k Single Triple Hopper car				286k Triple Hopper Cars in line			
span	Max. Shear	Max. Moment	Max. Shear	Max. Moment	"E" RATING		Max. Shear	Max. Moment	"E" RATING	
(Feet)	(KIP)	(FT KIP)	(KIP)	(FT KIP)	SHEAR	MOMENT	(KIP)	(FT KIP)	SHEAR	MOMENT
5	80	100	71	89	E 71	E 72	71	89	E 71	E 71
10	120	225	101	179	E 68	E 64	101	179	E 68	E 64
15	160	500	115	348	E 58	E 56	125	348	E 62	E 56
20	200	825	122	521	E 49	E 51	151	608	E 61	E 59
25	227	1224	126	695	E 45	E 45	178	894	E 63	E 58
30	252	1642	129	869	E 41	E 42	196	1241	E 62	E 60
35	277	2088	137	1043	E 40	E 40	209	1589	E 60	E 61
40	302	2623	151	1221	E 40	E 37	219	1936	E 58	E 59
45	327	3202	166	1400	E 41	E 35	226	2288	E 55	E 57
50	349	3804	178	1585	E 41	E 33	239	2646	E 55	E 56
60	392	5196	196	2197	E 40	E 34	272	3361	E 56	E 52
70	442	6830	209	2892	E 38	E 34	311	4206	E 56	E 49
80	497	8638	218	3587	E 35	E 33	344	5316	E 55	E 49
90	549	10678	226	4283	E 33	E 32	369	6706	E 54	E 50
100	600	12893	232	4978	E 31	E 31	400	8096	E 53	E 50

Load chart values are applicable to specific structural members. For limitations, see Executive Summary.

CONNECTICUT RAILROAD LINE TABLES

The Following Tables are a list the rail lines in Connecticut and their load restrictions.
The Load restriction is the restriction of the maximum weight allowed on the line.

CONNECTICUT RAILROAD LINES LOAD RESTRICTIONS		
Owner	Connecticut Rail Lines	Weight Limits (pounds)
CTDOT	New Haven Line	263,000
CTDOT	New Canaan Branch	263,000
CTDOT	Danbury Branch	263,000
CTDOT	Waterbury Branch – Lower	263,000
CTDOT	Waterbury Branch – Upper	263,000
Amtrak	Springfield Line (Hartford – Enfield)	263,000
Amtrak	Springfield Line (New Haven – Hartford)	263,000
Amtrak	Shore Line (Groton – Stonington)	286,000
Amtrak	Shore Line (New Haven – Groton)	286,000
CTDOT	Berkshire Line – North Section	286,000
HRRC	Berkshire Line – South Section	286,000
HRRC	Maybrook Line	286,000
CTDOT	Torrington Branch	263,000
CTDOT	Terryville Secondary – South Section	263,000
STRR	Terryville Secondary – North Section	263,000
CSX	Lower Middletown Secondary	263,000
CSX	Stratford Industrial Track	263,000
CSOR	Armory (East Windsor Sec.) – South Section	286,000*
CSOR	Manchester Secondary	286,000*
CSOR	Suffield Branch	286,000*

Table B: Load Restrictions as of June 2011

Weight Limits apply to maximum gross weight of a freight car with a configuration conforming to AAR standards for unrestricted interchange. Weight limits are not directly applicable for locomotives which require individual analysis.

* Requires bridge upgrades on adjacent rail lines

CONNECTICUT RAILROAD LINES LOAD RESTRICTIONS		
Owner	Connecticut Rail Lines	Weight Limits (pounds)
CTDOT	Bradley Spur	286,000*
PWRR	Middletown Secondary – Middle	263,000
CTDOT	Middletown Secondary – Upper	263,000
PWRR	Plainfield Secondary (Norwich)	286,000 Modified
CTDOT	Willimantic Secondary – West Section	263,000
PWRR	Willimantic Secondary – East Section	263,000
BSRR	Branford Line	263,000
CTDEP	Valley Line	263,000
NECR	Palmer Line	263,000
CTDOT	Armory (East Windsor Sec.) – North Section	286,000*
CTDOT	Griffins Industrial Track	286,000*

Table B cont.: Load Restrictions as of June 2011

Weight limits apply to maximum gross weight of a freight car with a configuration conforming to AAR standards for unrestricted interchange. Weight limits are not directly applicable for locomotives which require individual analysis.

* Requires bridge upgrades on adjacent rail lines

Railroad Owner - Abbreviation List

CTDOT	State of Connecticut Department of Transportation
AMTRAK	National Railroad Passenger Corporation
CSX	CSX Transportation
PWRR	Providence and Worcester Railroad Company
NECR	New England Central Railroad [1]
CSOR	Connecticut Southern Railroad [1]
HRRC	Housatonic Railroad Company
CNZR	Central New England Railroad
NRR	Naugatuck Railroad Company
STRR	Springfield Terminal Railway
BSRR	Branford Steam Railroad
CTDEP	State of Connecticut Department of Environmental Protection

1 RailAmerica Incorporated is a holding company that owns and operates freight railroads. They have two (2) subsidiaries that operate in Connecticut: CSOR and NECR.

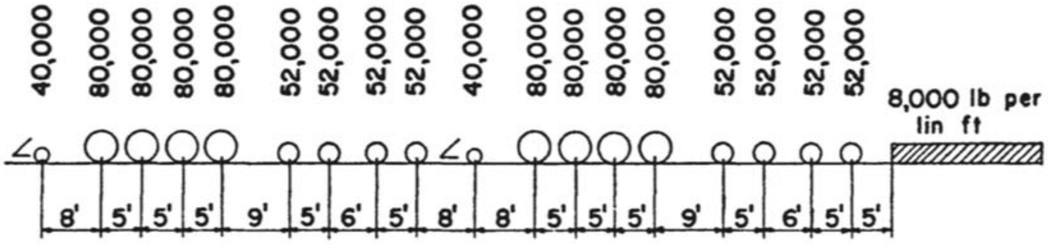


Figure 15-1-2. Cooper E 80 Load

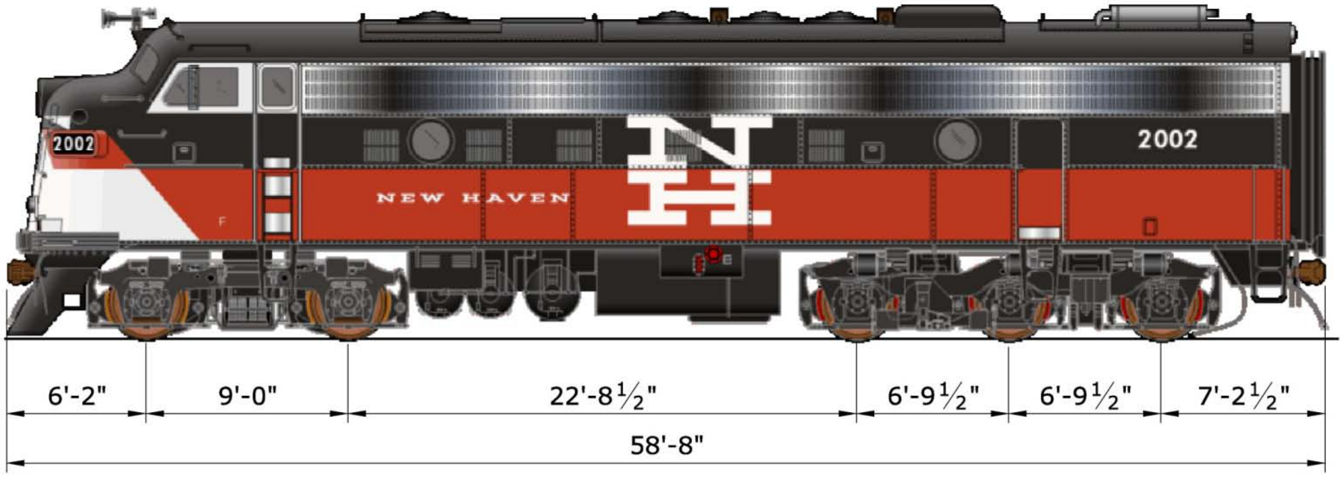
Table 15-1-15. Maximum Moments, Shears and Pier (or Floorbeam) Reactions for Cooper E 80 Live Load or Alternate Live Load

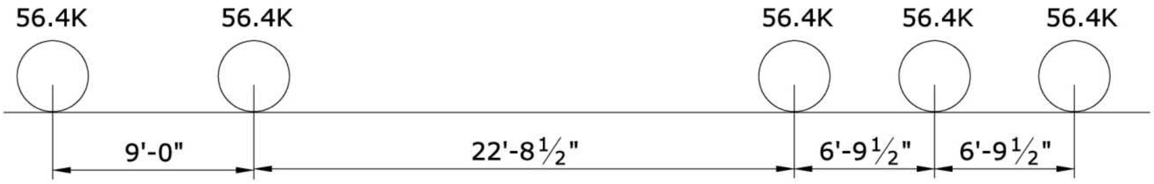
All Values are for one rail (one-half track load)

Span Length Ft	Maximum Moment Ft–Kips		Maximum Moment Quarter Point Ft–Kips		Maximum Shears Kips						Maximum Pier Reaction Kips (2)	
					At End		At Quarter Point		At Center			
	E-80	**Alt.**	**E-80**	**Alt.**	**E-80**	**Alt.**	**E-80**	**Alt.**	**E-80**	**Alt.**	**E-80**	**Alt.**
5	50.00	62.50	37.50	46.88	40.00	50.00			20.00	25.00	40.00	50.00
6	60.00	75.00	45.00	56.25	46.67	58.33	30.00	37.50	20.00	25.00	53.33	58.33
7	70.00	87.50	55.00	68.75	51.43	64.29	31.43	39.29	20.00	25.00	62.86	71.43
8	80.00	100.00	70.00	87.50	55.00	68.75	35.00	43.75	20.00	25.00	70.00	81.25
9	93.89	117.36	85.00	106.25	57.58	72.22	37.78	47.23	20.00	25.00	75.76	88.89
10	112.50	140.63	100.00	125.00	60.00	75.00	40.00	50.00	20.00	25.00	80.00	95.00
11	131.36	164.20	115.00	143.75	65.45	77.27	41.82	52.28	21.82	27.28	87.28	100.00
12	160.00	188.02	130.00	162.50	70.00	83.33	43.33	54.17	23.33	29.17	93.33	108.33
13	190.00	212.83	145.00	181.25	73.84	88.46	44.61	55.76	24.61	30.76	98.46	115.39
14	220.00	250.30	165.00	200.00	77.14	92.86	47.14	57.14	25.71	32.14	104.29	121.43
16	280.00	325.27	210.00	250.00	85.00	100.00	52.50	62.50	27.50	34.38	113.74	131.25
18	340.00	400.24	255.00	318.79	93.33	111.11	56.67	68.05	28.89	36.11	121.33	138.89
20	412.50	475.00	300.00	362.50	100.00	120.00	60.00	72.50	28.70	37.50	131.10	145.00
24	570.42	668.75	420.00	500.00	110.83	133.33	70.00	83.33	31.75	41.67	147.92	154.17
28	730.98	866.07	555.00	650.00	120.86	142.86	77.14	92.86	34.29	46.43	164.58	
32	910.85	1064.06	692.50	800.00	131.44	150.00	83.12	100.00	37.50	50.00	181.94	
36	1097.30	1262.50	851.50	950.00	141.12	155.56	88.90	105.56	41.10	55.56	199.06	
40	1311.3	1461.25	1010.50	1100.00	150.80	160.00	93.55	110.00	44.00	60.00	215.90	
45	1601.2	1710.00	1233.60	1287.48	163.38	164.44	100.27	114.45	45.90	64.45	237.25	
50	1901.80	1959.00	1473.00	1481.05	174.40		106.94	118.42	49.73	68.00	257.52	
55	2233.10		1732.30		185.31		113.58	120.91	52.74	70.91	280.67	
60	2597.80		2010.00		196.00		120.21	123.33	55.69	73.33	306.42	
70	3415.00		2608.20		221.04		131.89		61.45	77.14	354.08	
80	4318.90		3298.00		248.40		143.41		67.41	80.00	397.70	
90	5339.10		4158.00		274.46		157.47		73.48	82.22	437.15	
100	6446.30		5060.50		300.00		173.12		78.72	84.00	474.24	
120	9225.40		7098.00		347.35		202.19		88.92		544.14	
140	12406.00		9400.00		392.59		230.23		101.64		614.91	

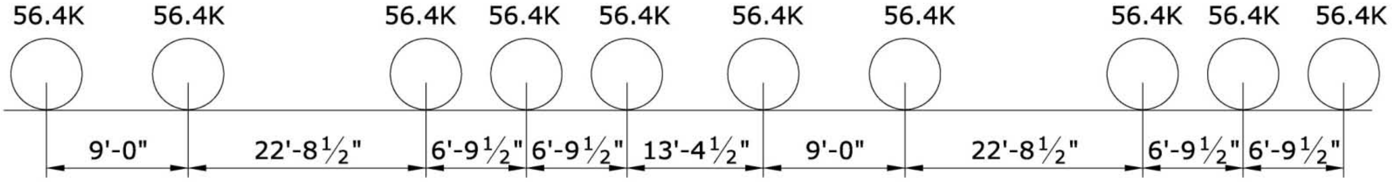
FL9m LOCOMOTIVE

WEIGHT: 282,000 LBS GROSS

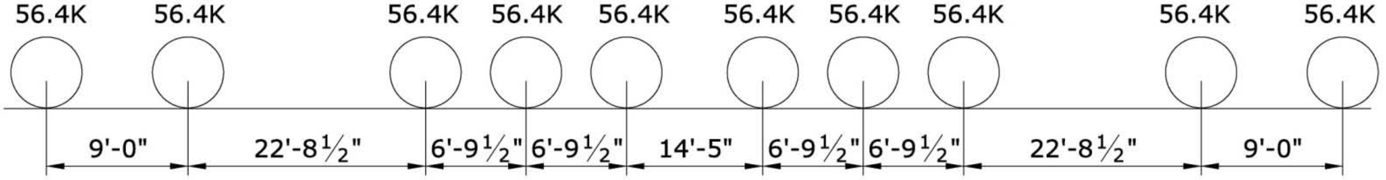




AXLE LOAD DIAGRAM (SINGLE ENGINE)



AXLE LOAD DIAGRAM (2 ENGINES SAME DIRECTION)



AXLE LOAD DIAGRAM (BACK TO BACK)

FIGURE NO. 1

FL9m Single Engine Equivalent Cooper Load

SPAN FT	SHEAR	MOMENT
5	E 56.39	E 56.40
10	E 49.66	E 50.13
15	E 46.29	E 40.26
20	E 44.69	E 44.78
25	E 43.43	E 44.00
30	E 41.55	E 43.11
35	E 39.38	E 42.00
40	E 38.59	E 39.89
45	E 37.82	E 37.96
50	E 38.28	E 36.40
60	E 37.99	E 34.06
70	E 36.17	E 33.36
80	E 33.82	E 32.73
90	E 31.78	E 31.72
100	E 29.93	E 30.64

Table No. 1A

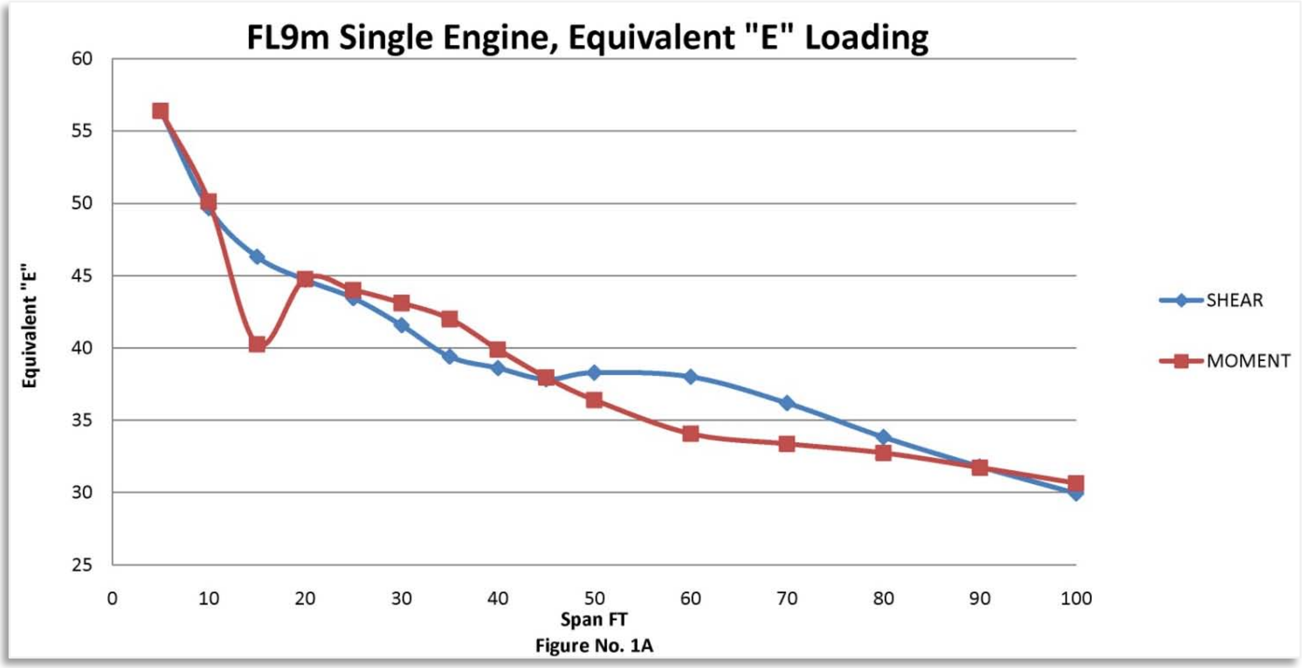
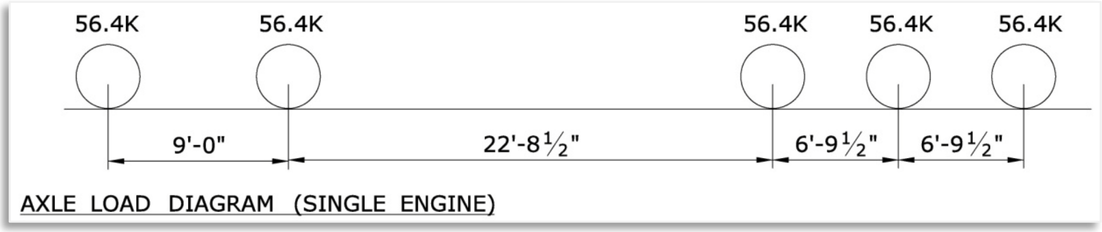


Figure No. 1A



Load chart values are applicable to specific structural members. For limitations, see Executive Summary.

Two FL9m in line Equivalent Cooper Load

SPAN FT	SHEAR	MOMENT
5	E 56.39	E 56.40
10	E 49.66	E 50.13
15	E 46.29	E 40.26
20	E 44.69	E 44.78
25	E 43.43	E 44.00
30	E 43.37	E 43.11
35	E 43.12	E 42.00
40	E 43.59	E 40.69
45	E 43.45	E 40.20
50	E 43.10	E 40.80
60	E 41.83	E 40.72
70	E 41.21	E 39.24
80	E 40.89	E 38.93
90	E 40.21	E 38.88
100	E 39.13	E 38.33

Table No. 1B

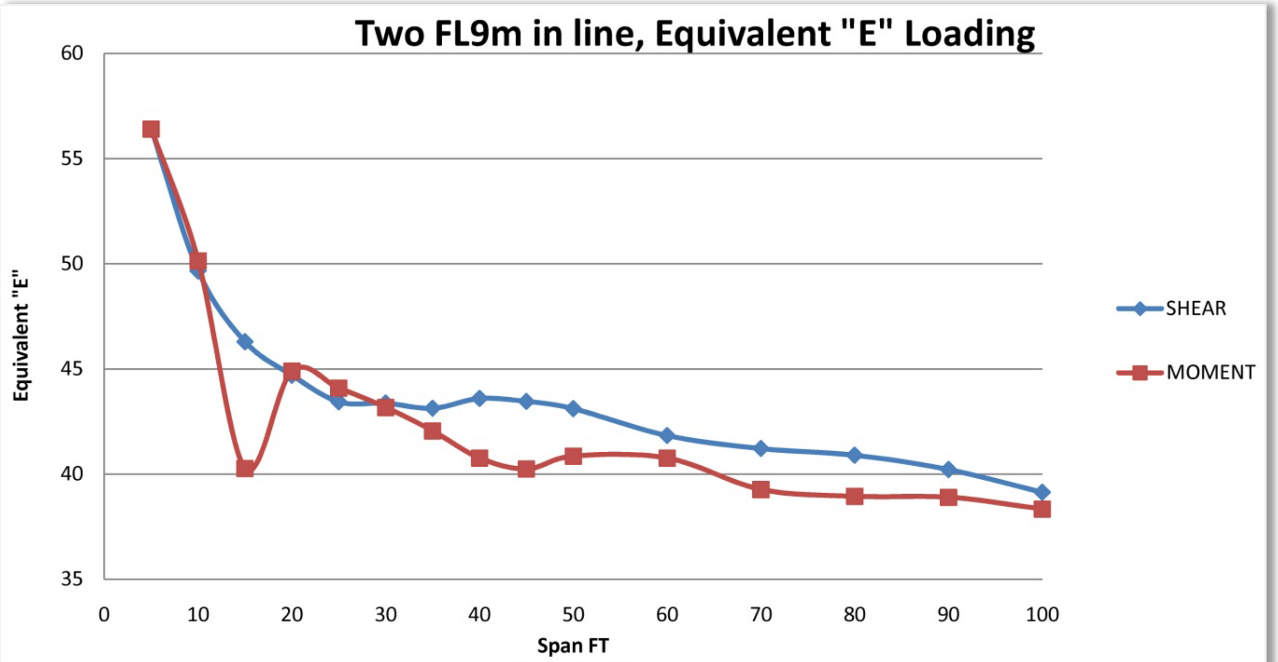
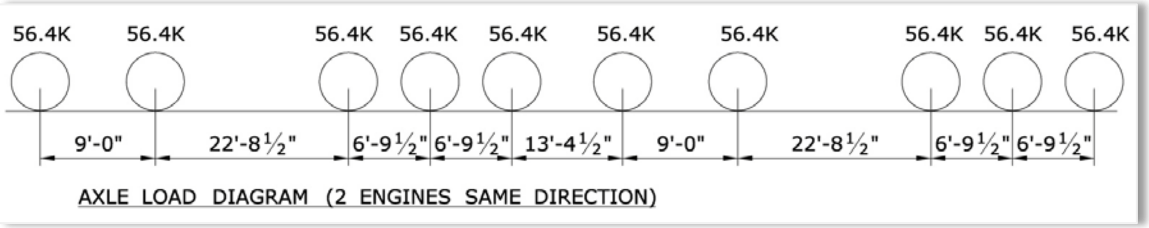


Figure No. 1B



Load chart values are applicable to specific structural members. For limitations, see Executive Summary.

Two FL9m Back to Back Equivalent Cooper Load

SPAN FT	SHEAR	MOMENT
5	E 56.39	E 56.40
10	E 49.66	E 50.13
15	E 45.12	E 40.26
20	E 43.99	E 44.89
25	E 42.94	E 44.08
30	E 42.25	E 43.16
35	E 42.26	E 42.05
40	E 43.25	E 39.92
45	E 44.15	E 39.78
50	E 44.99	E 40.92
60	E 44.89	E 42.62
70	E 43.68	E 42.03
80	E 42.67	E 41.70
90	E 41.64	E 41.13
100	E 40.31	E 41.02

Table No. 1C

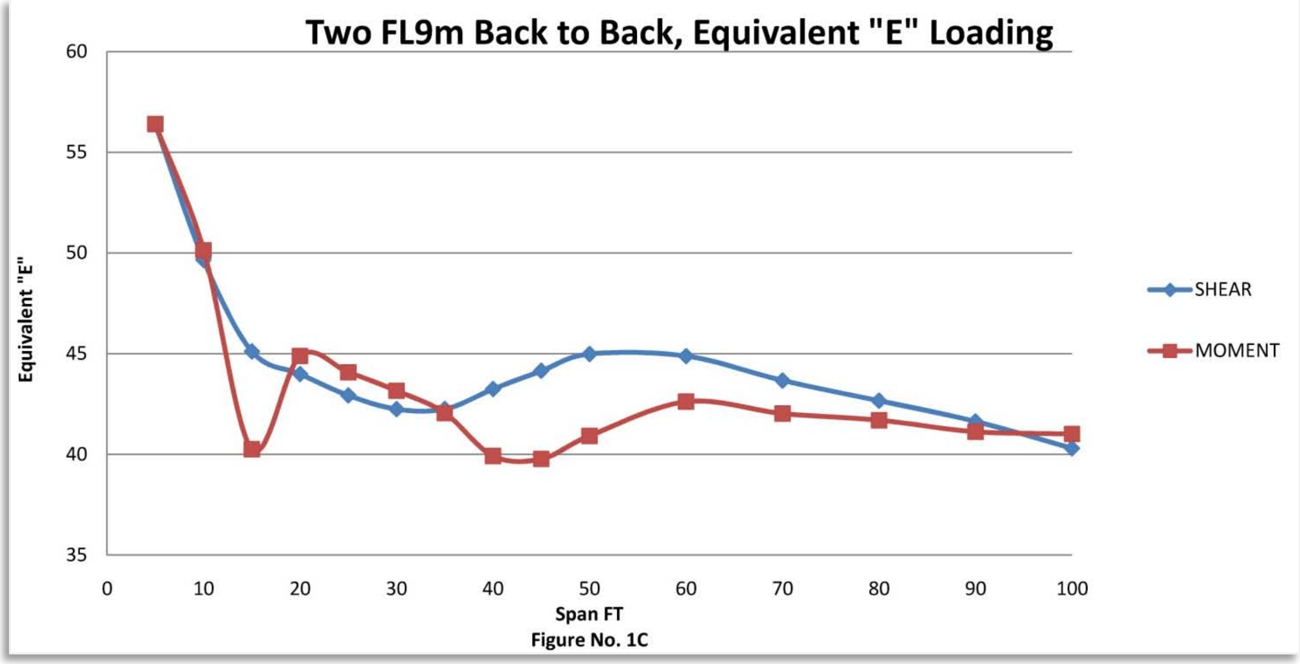
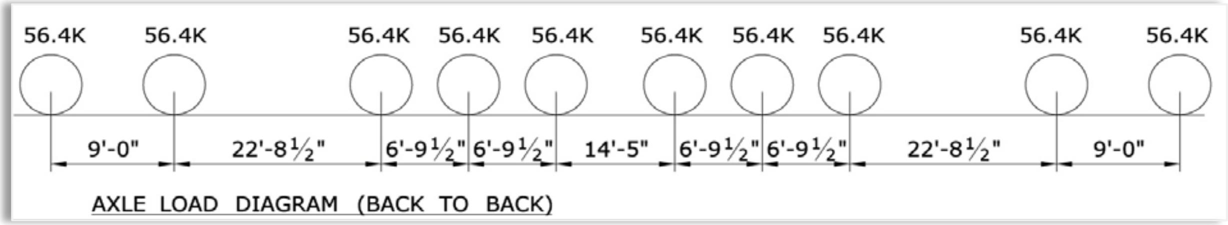


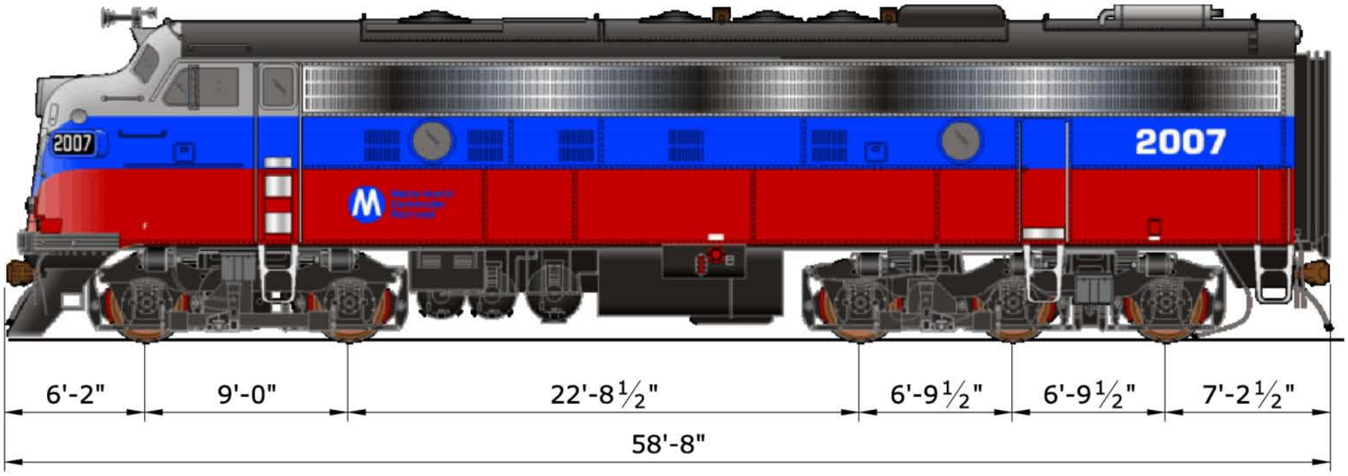
Figure No. 1C

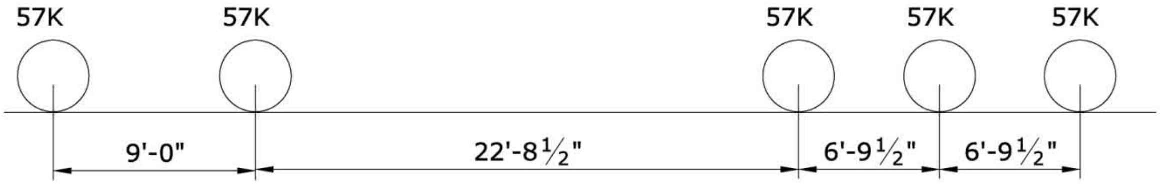


Load chart values are applicable to specific structural members. For limitations, see Executive Summary.

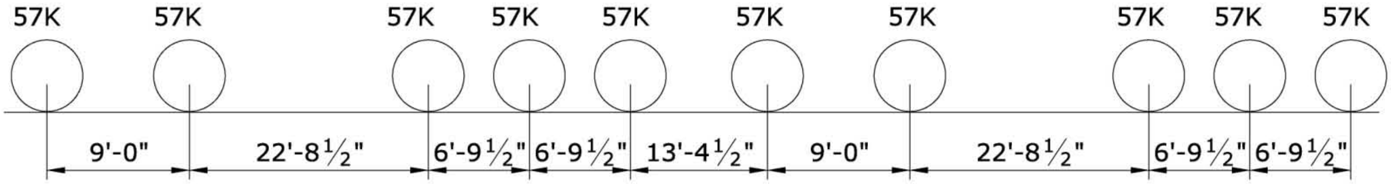
FL9 AC LOCOMOTIVE

WEIGHT: 284,000 LBS GROSS

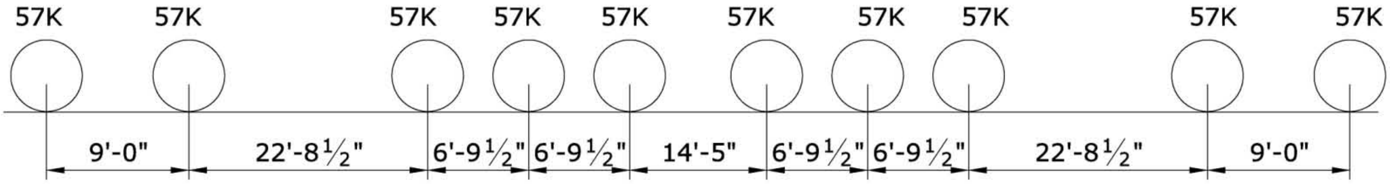




AXLE LOAD DIAGRAM (SINGLE ENGINE)



AXLE LOAD DIAGRAM (2 ENGINES SAME DIRECTION)



AXLE LOAD DIAGRAM (BACK TO BACK)

FIGURE NO. 2

FL9AC Single Engine Equivalent Cooper Load

SPAN FT	SHEAR	MOMENT
5	E 56.79	E 56.80
10	E 50.01	E 50.49
15	E 46.62	E 40.55
20	E 45.01	E 45.09
25	E 43.74	E 44.32
30	E 41.85	E 43.41
35	E 39.66	E 42.30
40	E 38.87	E 40.17
45	E 38.08	E 38.23
50	E 38.55	E 36.66
60	E 38.26	E 34.30
70	E 36.43	E 33.60
80	E 34.06	E 32.96
90	E 32.01	E 31.94
100	E 30.14	E 30.86

Table No. 2A

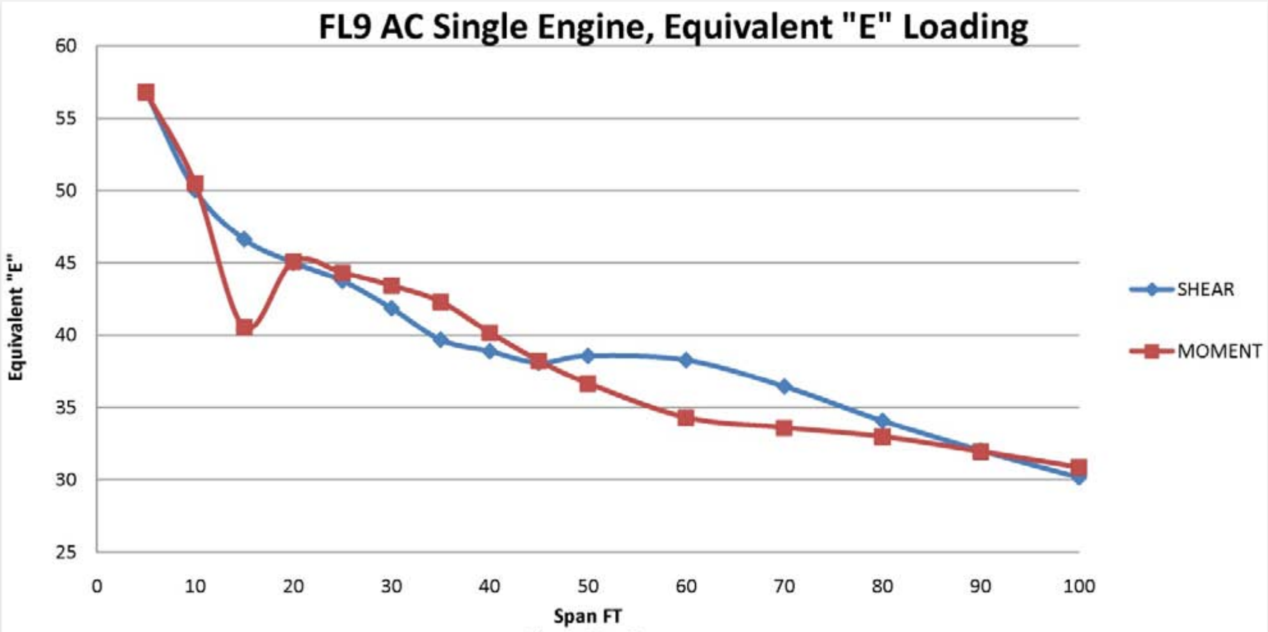
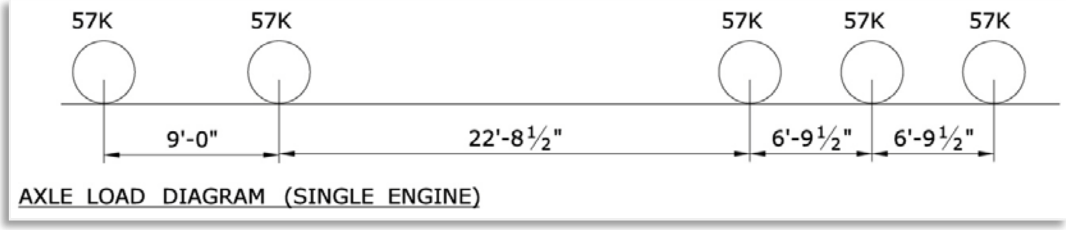


Figure No. 2A



Load chart values are applicable to specific structural members. For limitations, see Executive Summary.

Two FL9AC in line Equivalent Cooper Load

SPAN FT	SHEAR	MOMENT
5	E 56.79	E 56.80
10	E 50.01	E 50.49
15	E 46.62	E 40.55
20	E 45.01	E 45.10
25	E 43.74	E 44.32
30	E 43.67	E 43.41
35	E 43.43	E 42.30
40	E 43.90	E 40.97
45	E 43.76	E 40.48
50	E 43.41	E 41.09
60	E 42.12	E 41.01
70	E 41.50	E 39.52
80	E 41.18	E 39.20
90	E 40.49	E 39.16
100	E 39.41	E 38.60

Table No. 2B

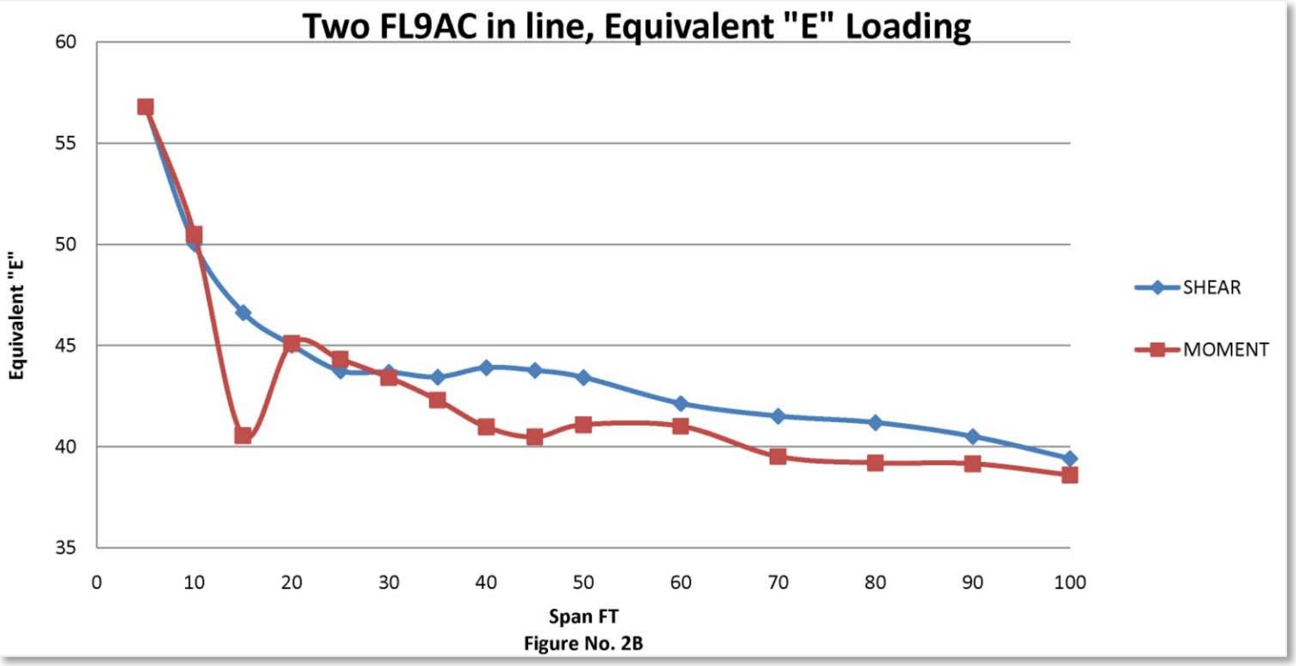
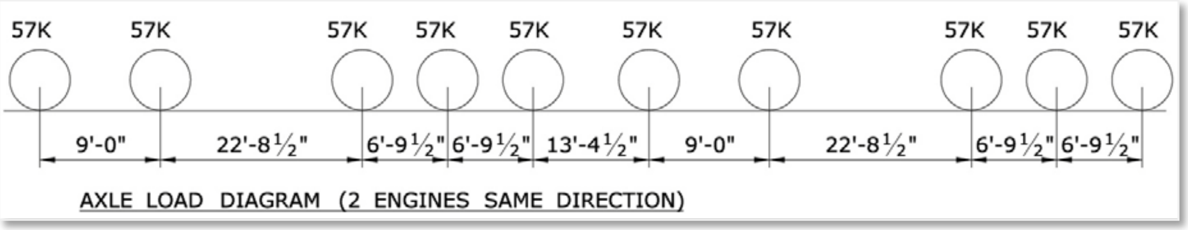


Figure No. 2B

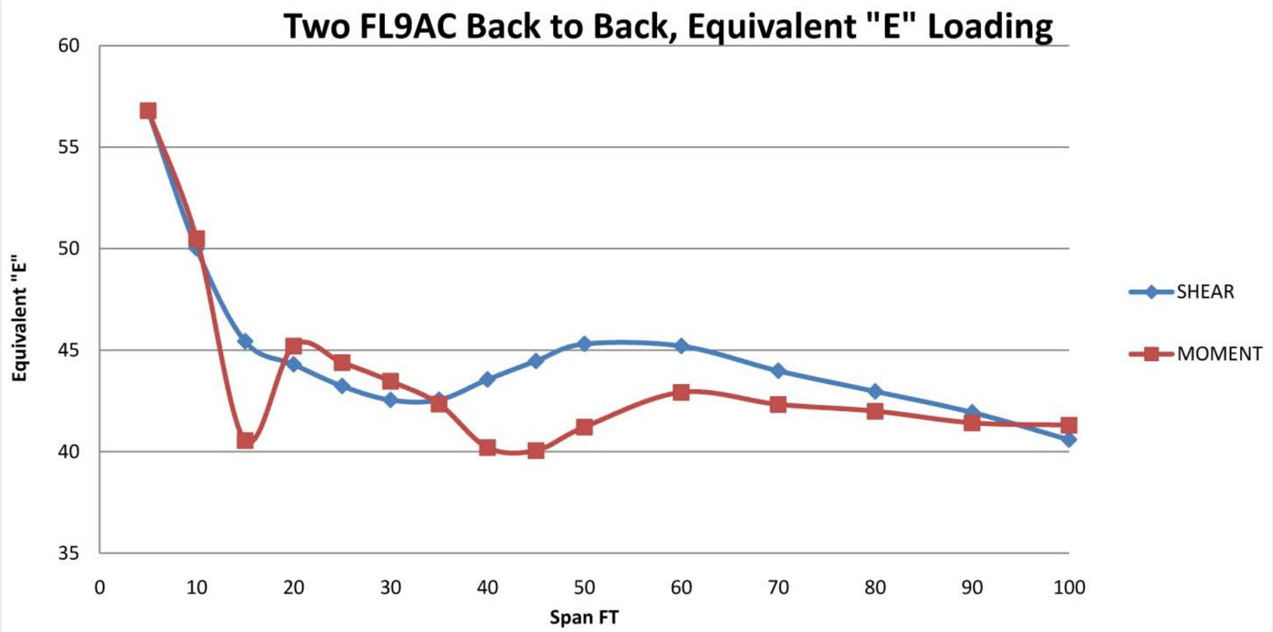


Load chart values are applicable to specific structural members. For limitations, see Executive Summary.

Two FL9AC Back to Back Equivalent Cooper Load

SPAN FT	SHEAR	MOMENT
5	E 56.79	E 56.80
10	E 50.01	E 50.49
15	E 45.44	E 40.55
20	E 44.31	E 45.21
25	E 43.24	E 44.39
30	E 42.55	E 43.47
35	E 42.56	E 42.35
40	E 43.56	E 40.20
45	E 44.47	E 40.06
50	E 45.31	E 41.21
60	E 45.21	E 42.92
70	E 43.99	E 42.33
80	E 42.97	E 42.00
90	E 41.94	E 41.42
100	E 40.59	E 41.31

Table No. 2C



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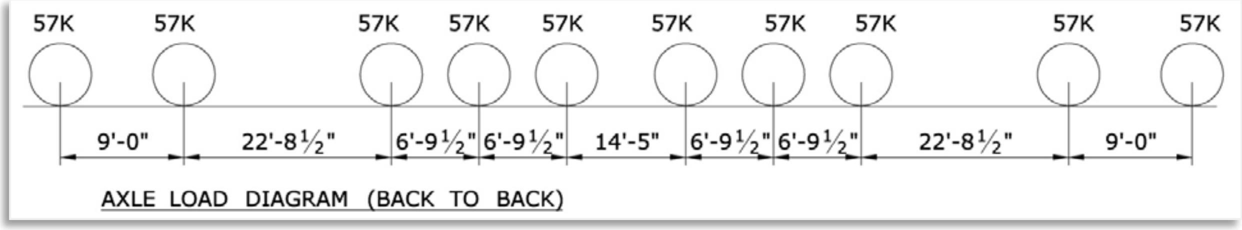
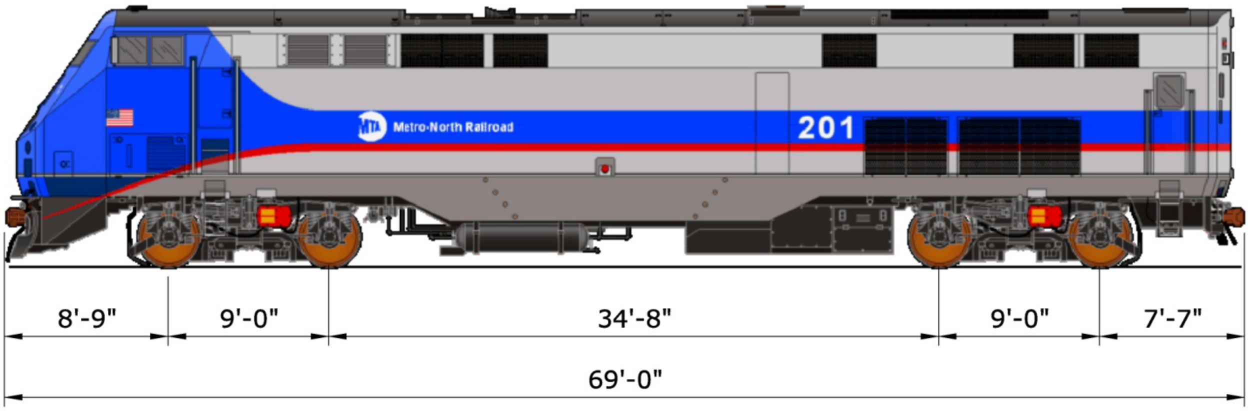
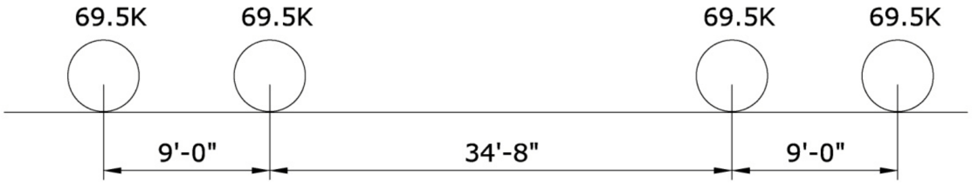


Load chart values are applicable to specific structural members. For limitations, see Executive Summary.

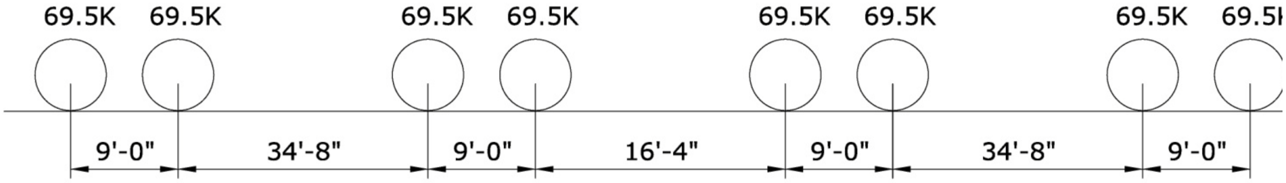
P32AC (GENESIS) LOCOMOTIVE

WEIGHT: 278,000 LBS GROSS

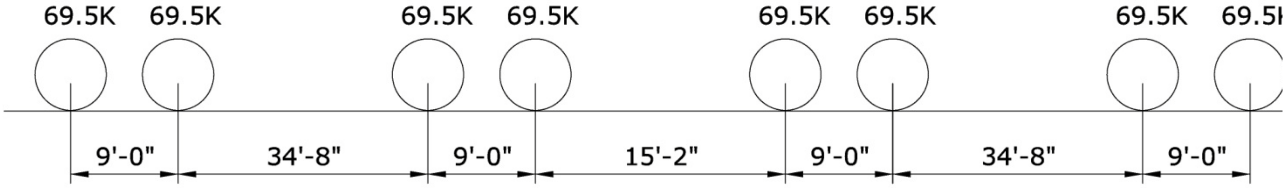




AXLE LOAD DIAGRAM (SINGLE ENGINE)



AXLE LOAD DIAGRAM (2 ENGINES SAME DIRECTION)



AXLE LOAD DIAGRAM (BACK TO BACK)

FIGURE NO. 3

P32AC single Engine Equivalent Cooper Load

SPAN FT	SHEAR	MOMENT
5	E 69.49	E 69.50
10	E 50.96	E 61.78
15	E 48.65	E 41.70
20	E 43.09	E 40.25
25	E 40.17	E 38.17
30	E 37.51	E 36.68
35	E 34.98	E 35.32
40	E 32.68	E 33.27
45	E 31.11	E 31.47
50	E 31.01	E 30.04
60	E 31.83	E 27.29
70	E 31.39	E 25.50
80	E 30.02	E 25.68
90	E 28.66	E 25.83
100	E 27.30	E 25.57

Table No. 3A

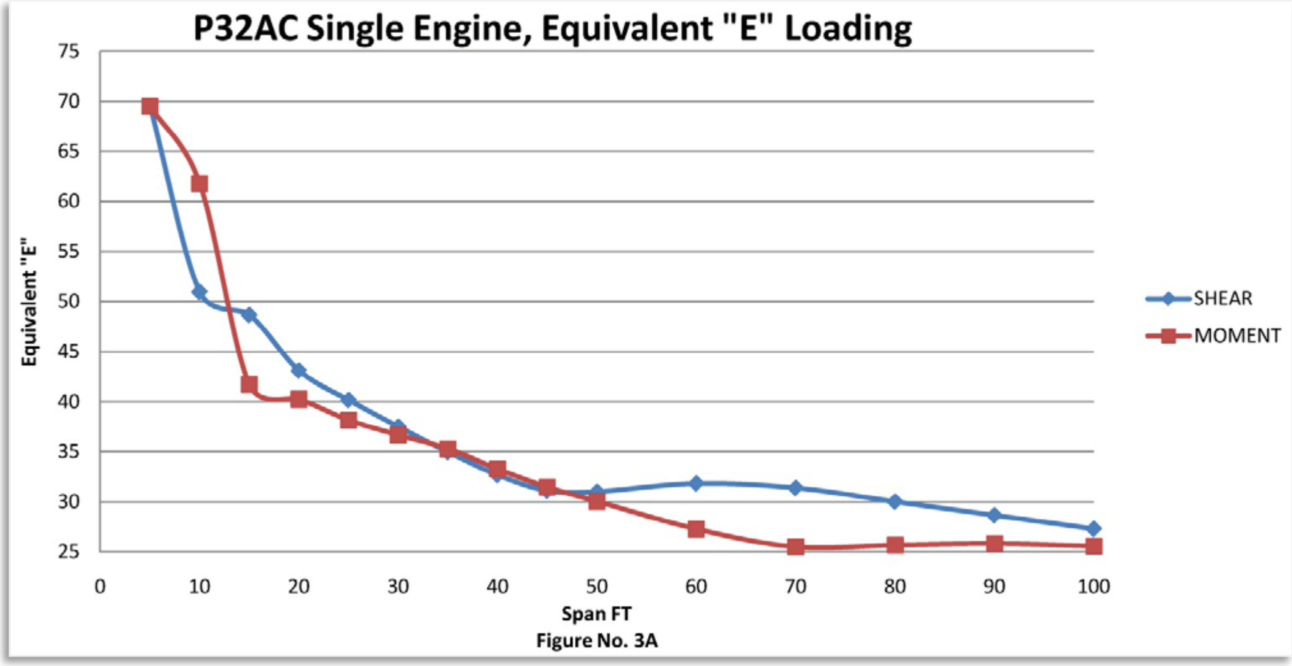
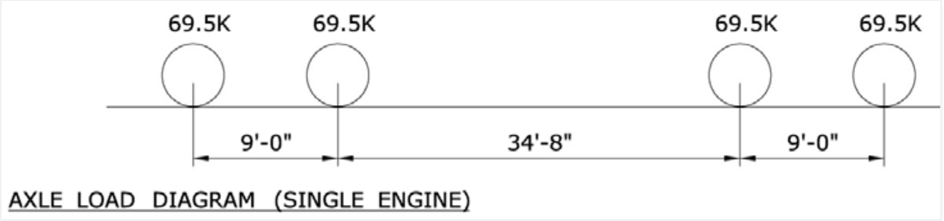


Figure No. 3A



Load chart values are applicable to specific structural members. For limitations, see Executive Summary.

Two P32AC in line Equivalent Cooper Load

SPAN FT	SHEAR	MOMENT
5	E 69.49	E 69.50
10	E 50.96	E 61.78
15	E 48.65	E 41.70
20	E 43.09	E 40.25
25	E 40.17	E 38.17
30	E 40.94	E 36.68
35	E 40.91	E 36.17
40	E 42.04	E 36.75
45	E 42.07	E 36.71
50	E 41.85	E 37.97
60	E 40.50	E 38.23
70	E 38.16	E 36.99
80	E 36.96	E 35.49
90	E 36.50	E 34.02
100	E 35.62	E 33.57

Table No. 3B

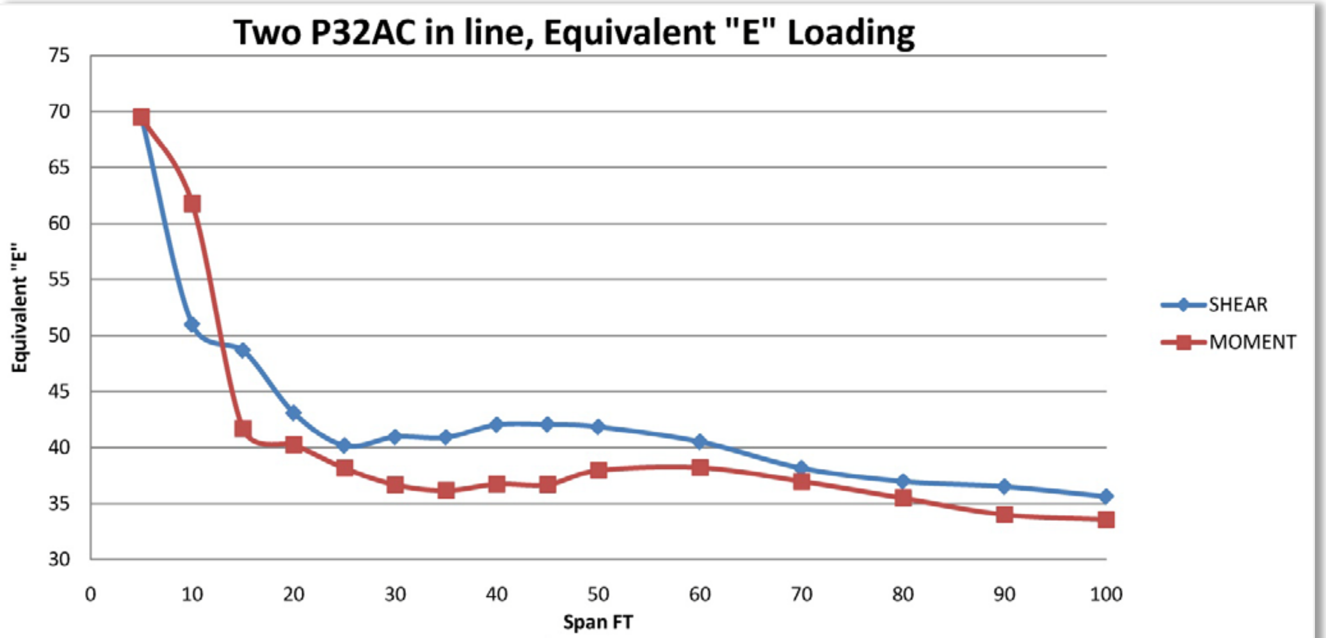
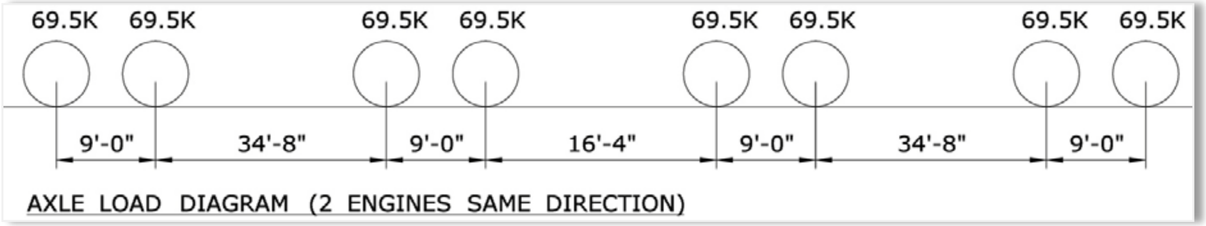


Figure No. 3B



Load chart values are applicable to specific structural members. For limitations, see Executive Summary.

Two P32AC Back to Back Equivalent Cooper Load

SPAN FT	SHEAR	MOMENT
5	E 69.49	E 69.50
10	E 50.96	E 61.78
15	E 48.65	E 41.70
20	E 43.09	E 40.25
25	E 40.50	E 38.17
30	E 41.43	E 36.68
35	E 41.87	E 37.61
40	E 42.81	E 37.89
45	E 42.70	E 38.35
50	E 42.38	E 39.34
60	E 40.90	E 39.24
70	E 38.64	E 37.79
80	E 37.48	E 36.10
90	E 36.91	E 34.60
100	E 35.95	E 34.05

Table No. 3C

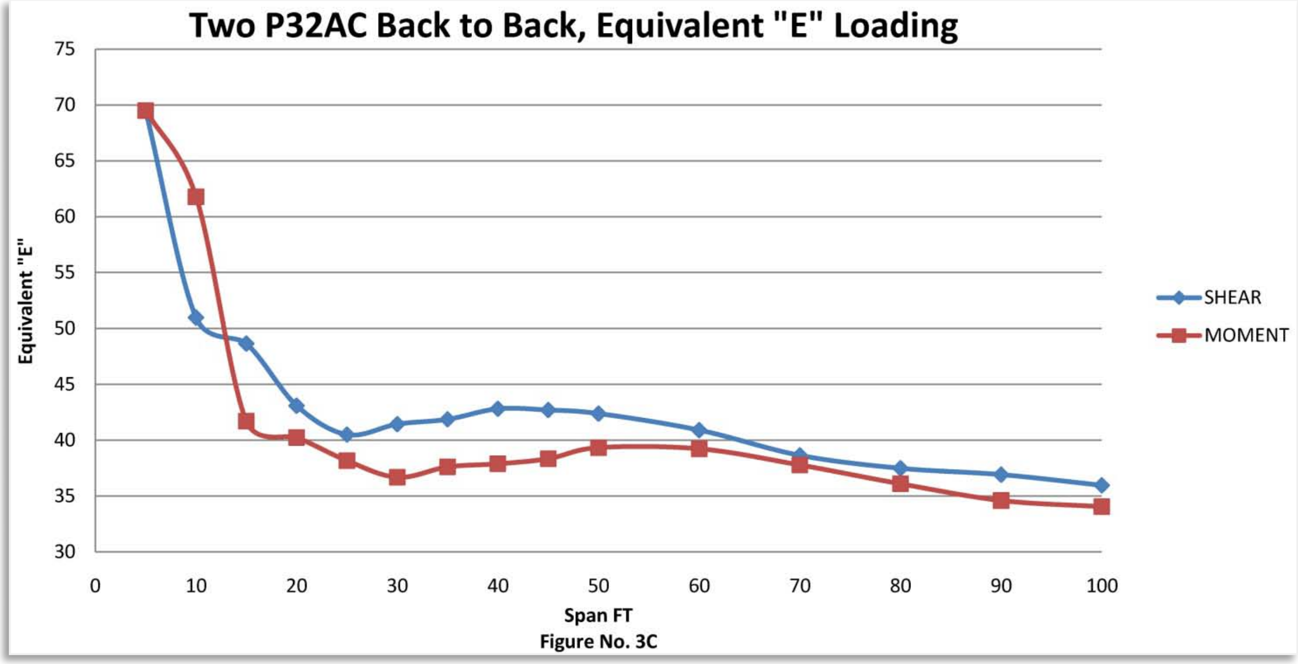
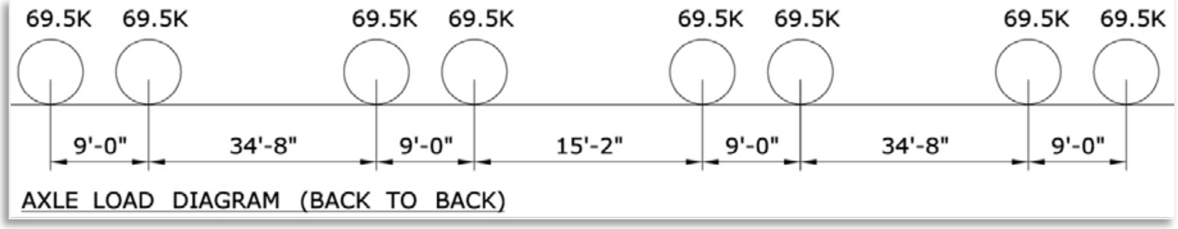


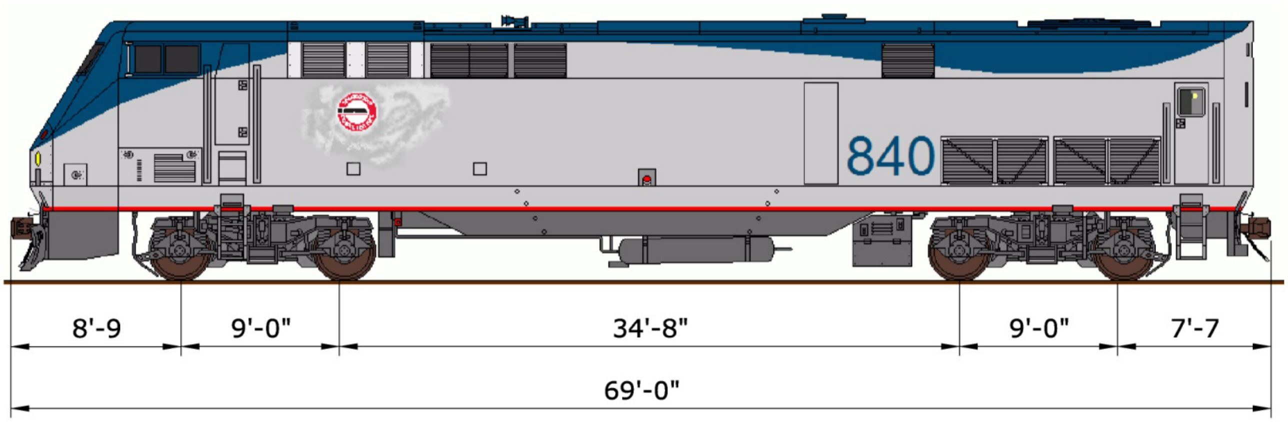
Figure No. 3C

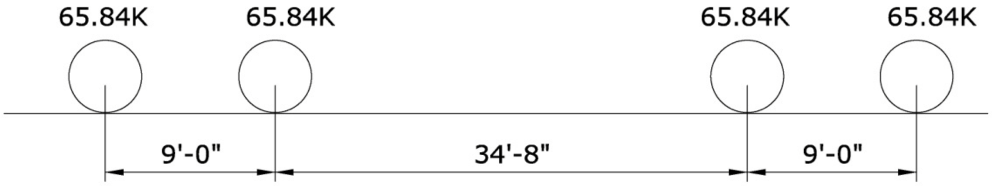


Load chart values are applicable to specific structural members. For limitations, see Executive Summary.

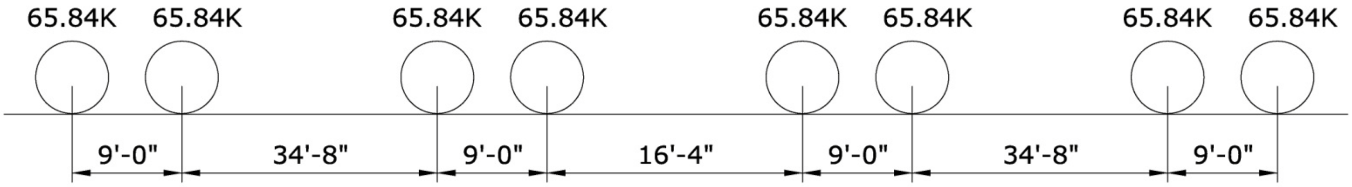
P40DC/P42DC (GENESIS) LOCOMOTIVE

WEIGHT: 263,340 LBS GROSS

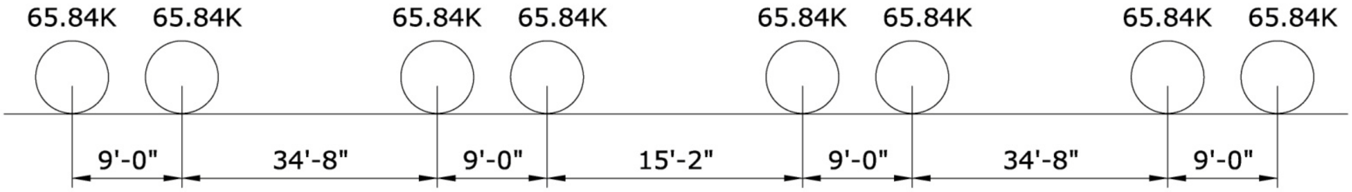




AXLE LOAD DIAGRAM (SINGLE ENGINE)



AXLE LOAD DIAGRAM (2 ENGINES SAME DIRECTION)



AXLE LOAD DIAGRAM (BACK TO BACK)

FIGURE NO. 4

P40DC/P42DC Single Engine Equivalent Cooper Load

SPAN FT	SHEAR	MOMENT
5	E 65.83	E 65.84
10	E 48.27	E 58.52
15	E 46.08	E 39.50
20	E 40.82	E 38.13
25	E 38.05	E 36.16
30	E 35.53	E 34.75
35	E 33.14	E 33.46
40	E 30.95	E 31.51
45	E 29.47	E 29.81
50	E 29.38	E 28.46
60	E 30.15	E 25.85
70	E 29.73	E 24.16
80	E 28.43	E 24.32
90	E 27.14	E 24.47
100	E 25.86	E 24.23

Table No. 4A

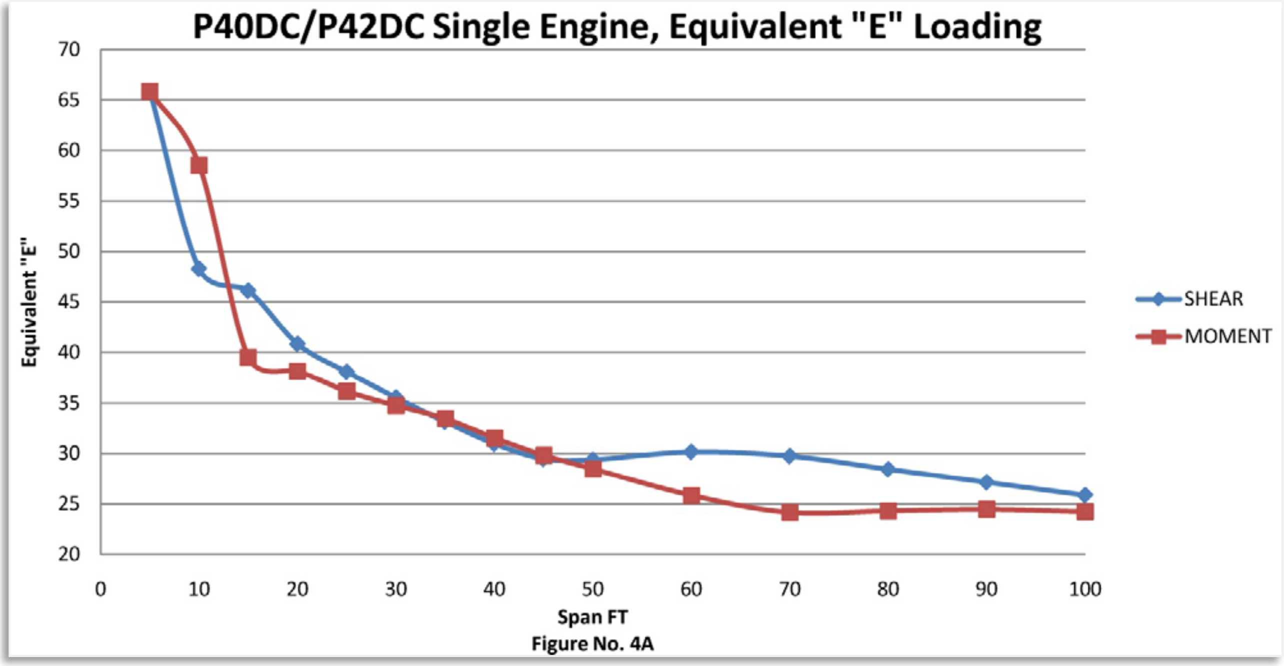
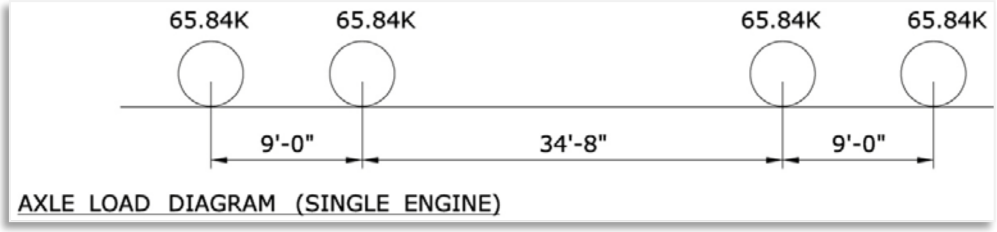


Figure No. 4A



Load chart values are applicable to specific structural members. For limitations, see Executive Summary.

Two P40DC/P42DC in line Equivalent Cooper Load

SPAN FT	SHEAR	MOMENT
5	E 65.83	E 65.84
10	E 48.27	E 58.52
15	E 46.08	E 39.50
20	E 40.82	E 38.13
25	E 38.05	E 36.16
30	E 38.78	E 34.75
35	E 38.75	E 34.27
40	E 39.82	E 34.81
45	E 39.85	E 34.77
50	E 39.64	E 35.96
60	E 38.37	E 36.21
70	E 36.15	E 35.04
80	E 35.02	E 33.62
90	E 34.57	E 32.23
100	E 33.74	E 31.80

Table No. 4B

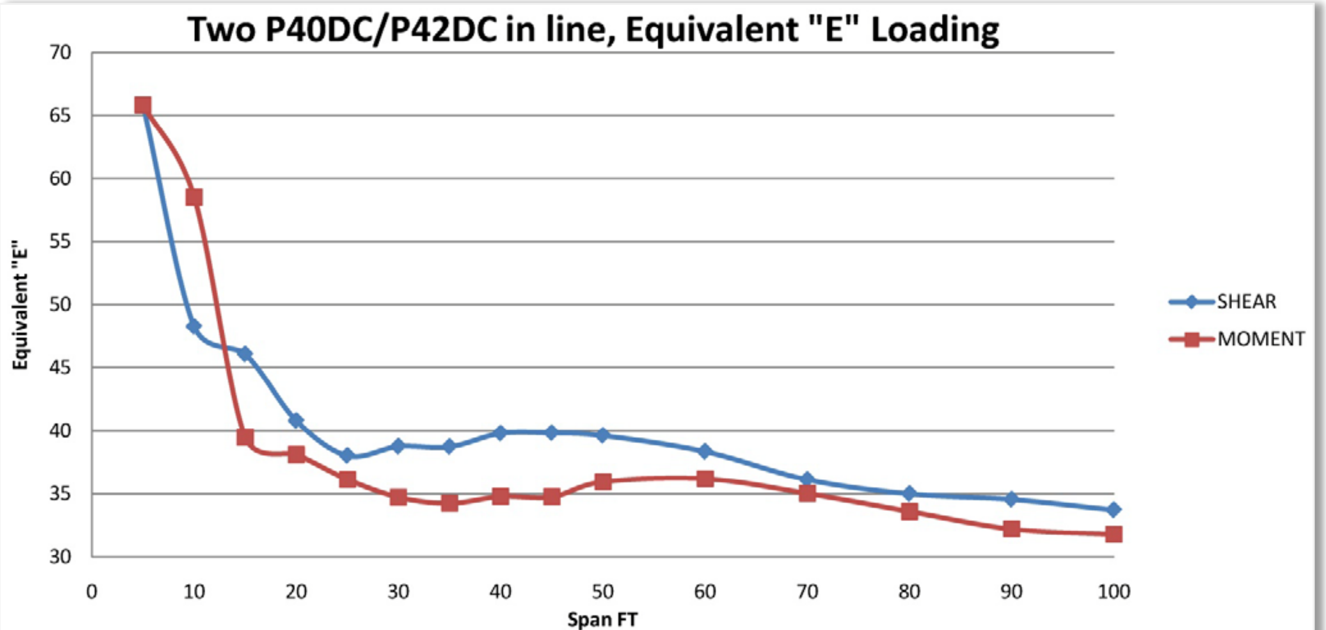
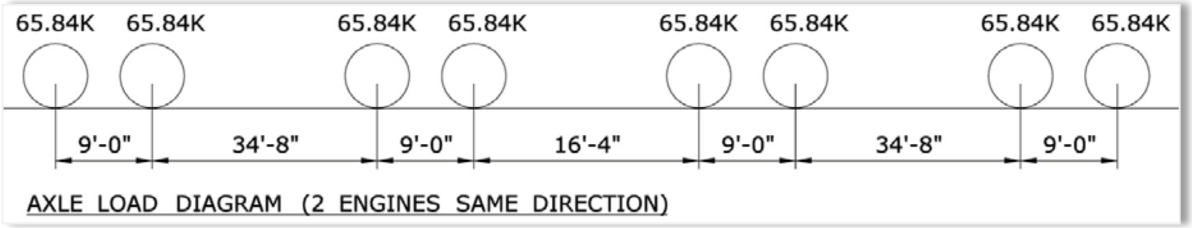


Figure No. 4B



Load chart values are applicable to specific structural members. For limitations, see Executive Summary.

Two P40DC/P42DC Back to Back Equivalent Cooper Load

SPAN FT	SHEAR	MOMENT
5	E 65.83	E 65.84
10	E 48.27	E 58.52
15	E 46.08	E 39.50
20	E 40.82	E 38.13
25	E 38.36	E 36.16
30	E 39.25	E 34.75
35	E 39.66	E 35.63
40	E 40.55	E 35.89
45	E 40.45	E 36.32
50	E 40.14	E 37.27
60	E 38.74	E 37.17
70	E 36.60	E 35.79
80	E 35.50	E 34.20
90	E 34.96	E 32.78
100	E 34.06	E 32.25

Table No. 4C

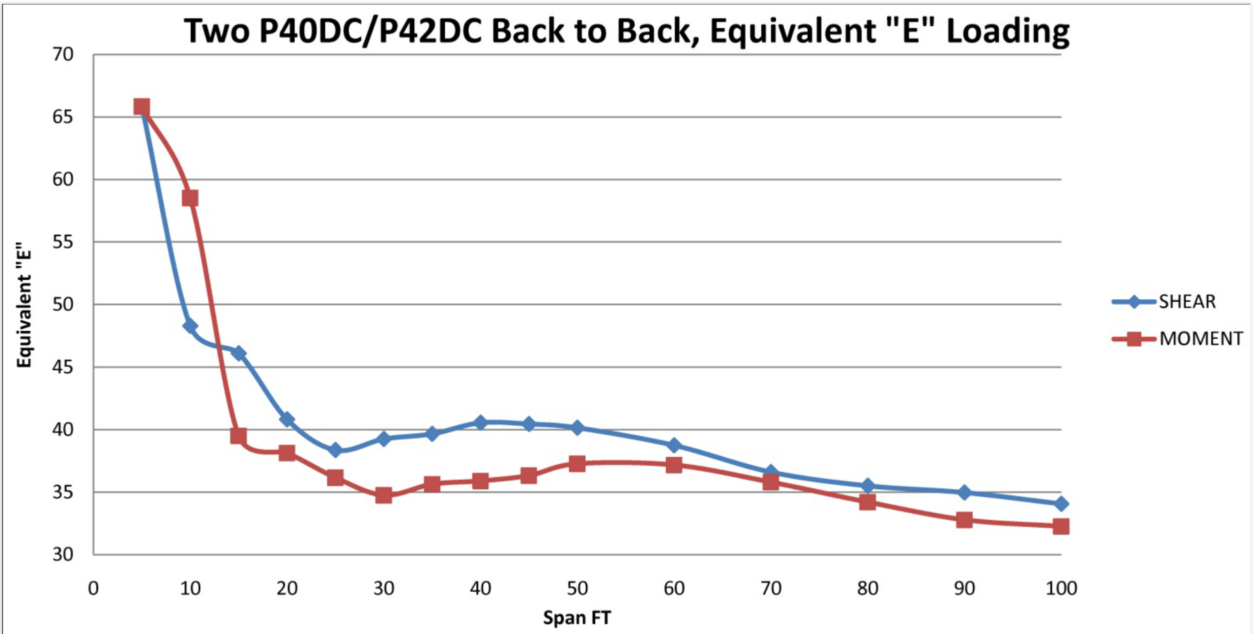
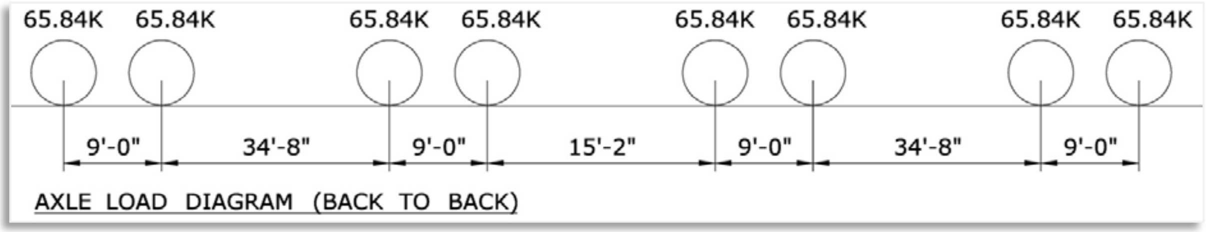


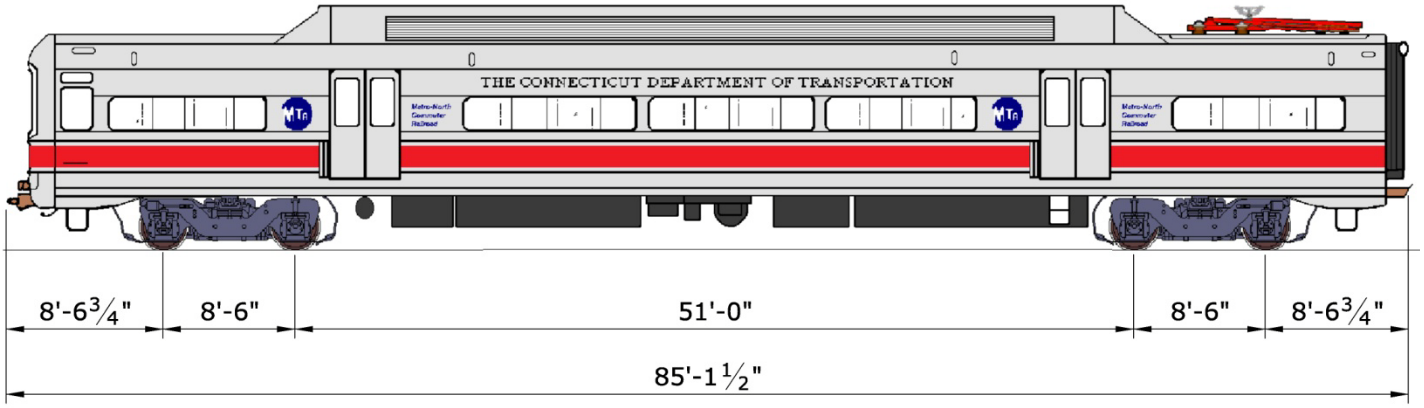
Figure No. 4C

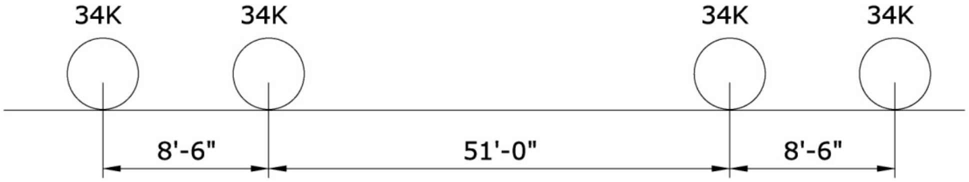


Load chart values are applicable to specific structural members. For limitations, see Executive Summary.

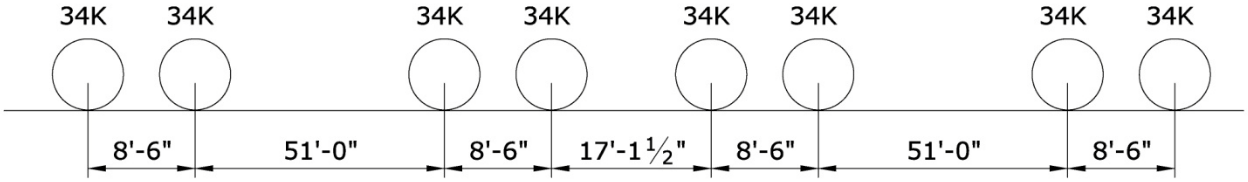
METRO-NORTH M-2 COACH

WEIGHT: 136,000 LBS GROSS (MAXIMUM)





AXLE LOAD DIAGRAM (SINGLE ENGINE)



AXLE LOAD DIAGRAM (2 CARS)

FIGURE NO. 5

M-2 Coach Single Car Equivalent Cooper Load

SPAN FT	SHEAR	MOMENT
5	E 34.00	E 34.00
10	E 26.06	E 30.22
15	E 24.36	E 20.85
20	E 21.42	E 20.33
25	E 19.89	E 19.07
30	E 18.53	E 18.29
35	E 17.25	E 17.53
40	E 16.10	E 16.46
45	E 15.06	E 15.57
50	E 14.26	E 14.84
60	E 12.95	E 13.48
70	E 12.66	E 12.25
80	E 12.59	E 11.26
90	E 12.33	E 10.38
100	E 11.97	E 9.85

Table No. 5A

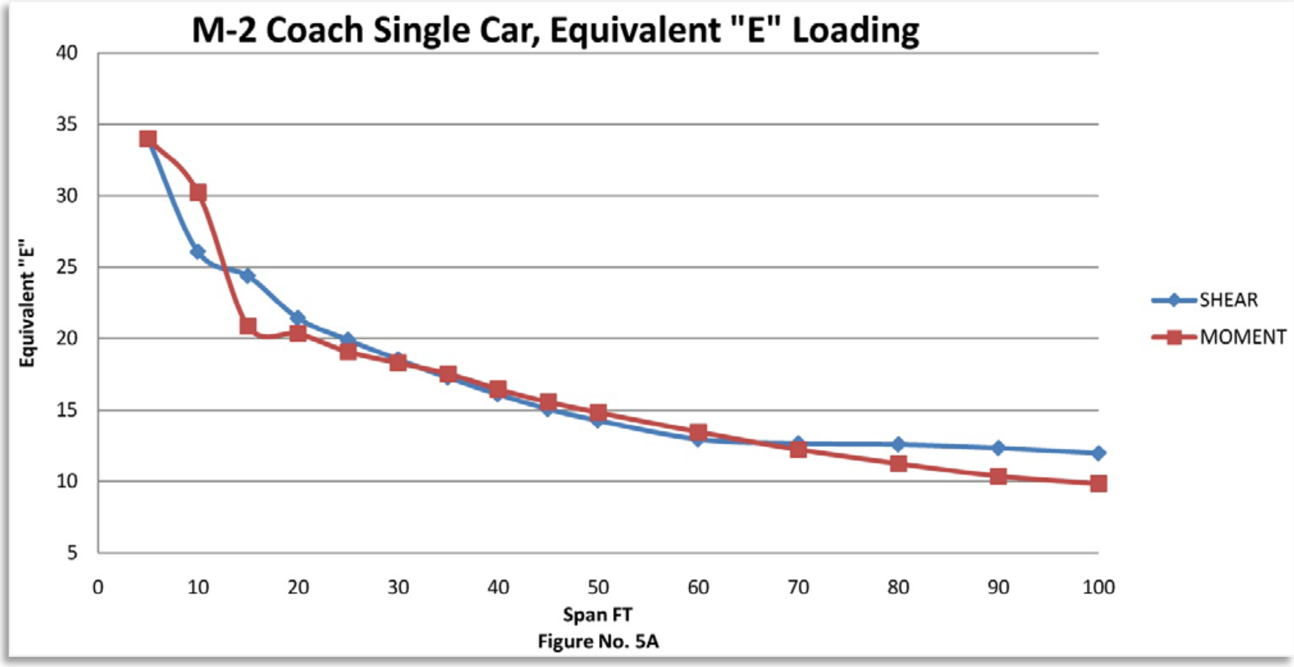
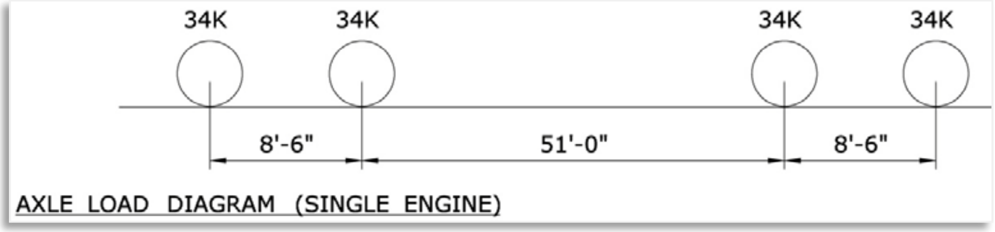


Figure No. 5A



Load chart values are applicable to specific structural members. For limitations, see Executive Summary.

M-2 Coach Two Cars Equivalent Cooper Load

SPAN FT	SHEAR	MOMENT
5	E 34.00	E 34.00
10	E 26.06	E 30.22
15	E 24.36	E 20.85
20	E 21.42	E 20.33
25	E 19.89	E 19.12
30	E 20.10	E 18.29
35	E 20.13	E 17.53
40	E 20.66	E 17.82
45	E 20.66	E 17.82
50	E 20.54	E 18.46
60	E 19.86	E 18.62
70	E 18.61	E 18.03
80	E 17.19	E 17.31
90	E 16.29	E 16.49
100	E 15.97	E 15.70

Table No. 5B

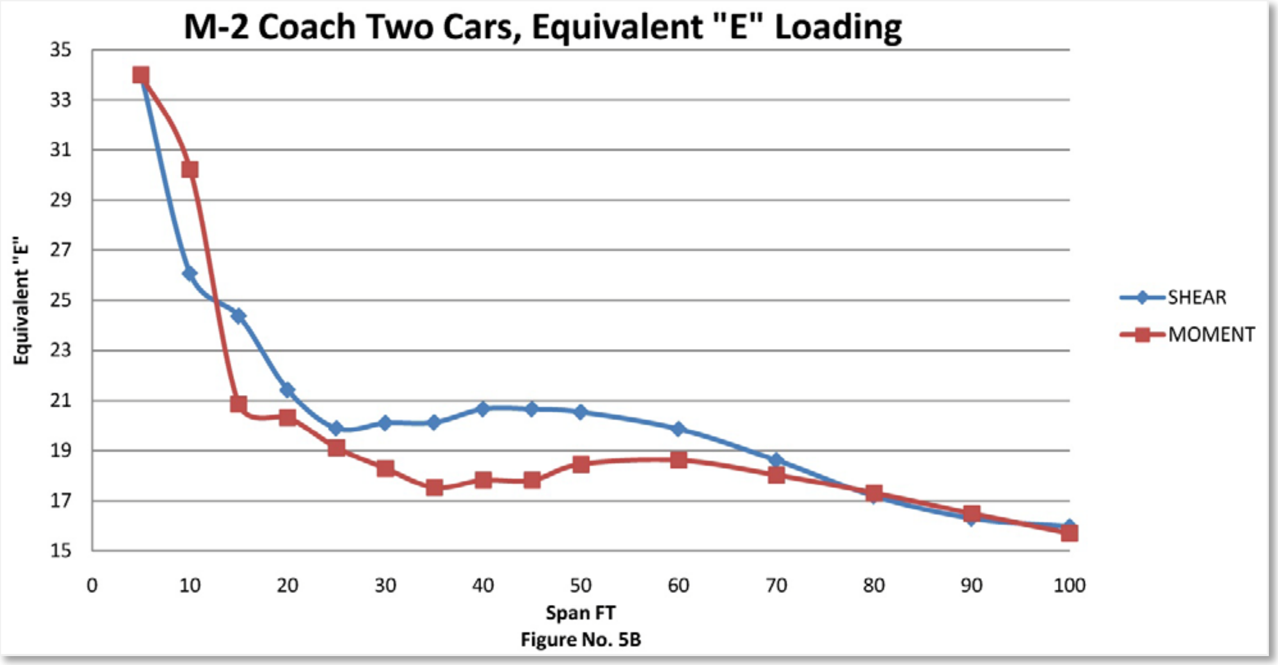
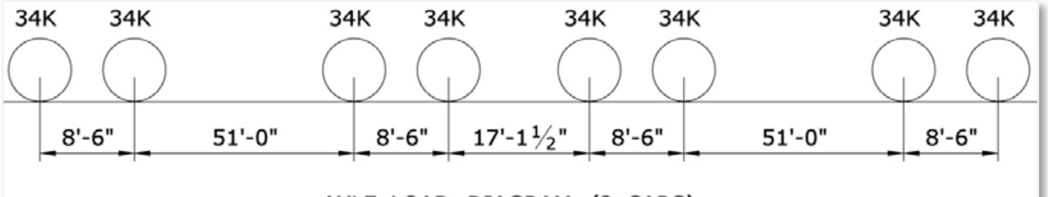


Figure No. 5B

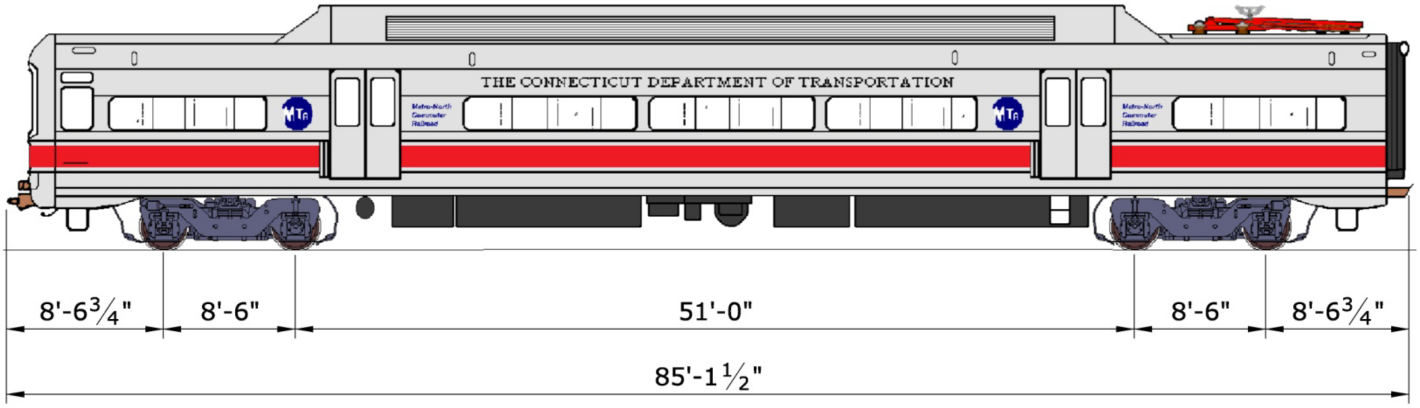


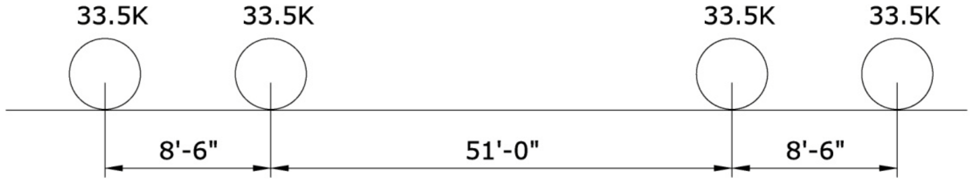
AXLE LOAD DIAGRAM (2 CARS)

Load chart values are applicable to specific structural members. For limitations, see Executive Summary.

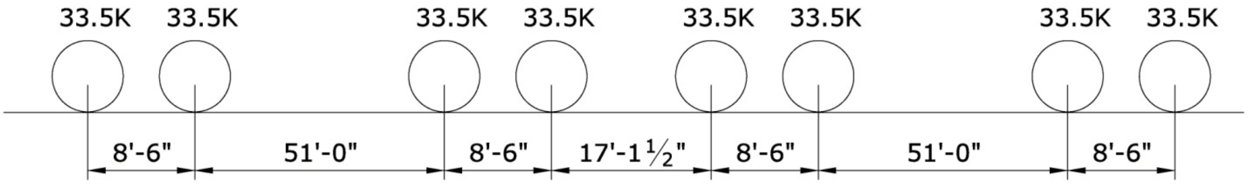
METRO-NORTH M-4 COACH

WEIGHT: 134,000 LBS GROSS (MAXIMUM)





AXLE LOAD DIAGRAM (SINGLE ENGINE)



AXLE LOAD DIAGRAM (2 CARS)

FIGURE NO. 6

M-4 Coach Single Car Equivalent Cooper Load

SPAN FT	SHEAR	MOMENT
5	E 33.50	E 33.50
10	E 25.68	E 29.78
15	E 24.01	E 20.55
20	E 21.10	E 20.03
25	E 19.60	E 18.79
30	E 18.26	E 18.02
35	E 17.00	E 17.27
40	E 15.86	E 16.22
45	E 14.84	E 15.34
50	E 14.05	E 14.62
60	E 12.76	E 13.28
70	E 12.47	E 12.07
80	E 12.40	E 11.09
90	E 12.15	E 10.23
100	E 11.79	E 9.70

Table No. 6A

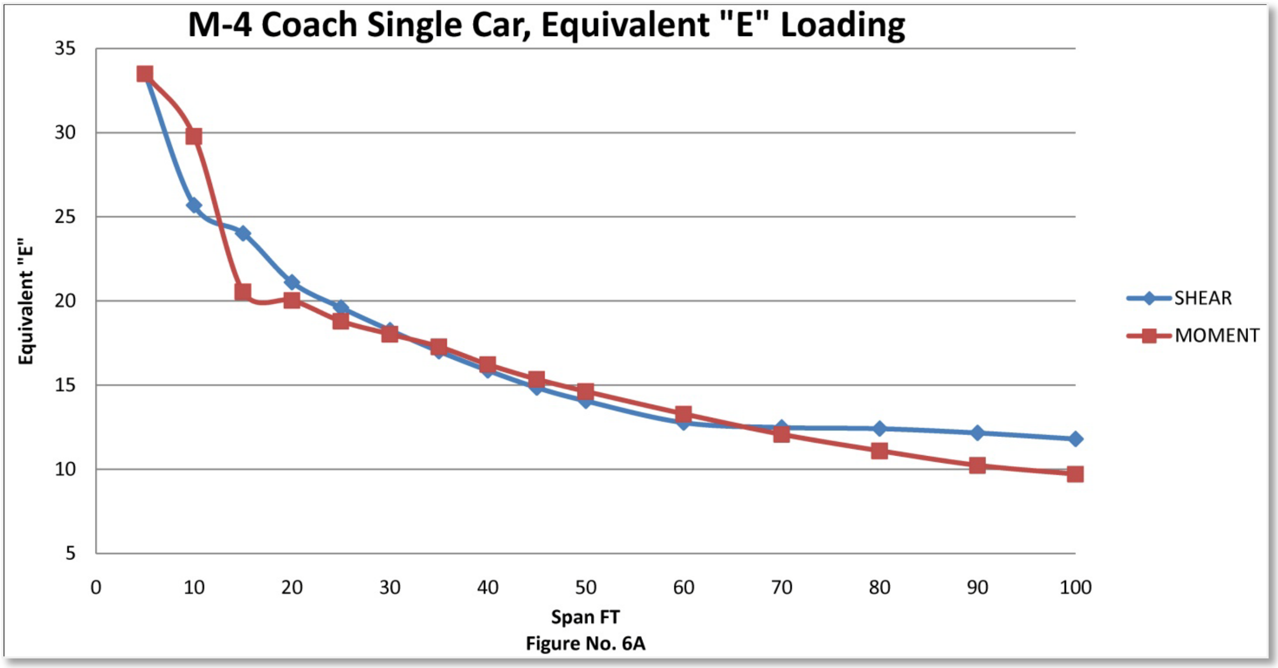
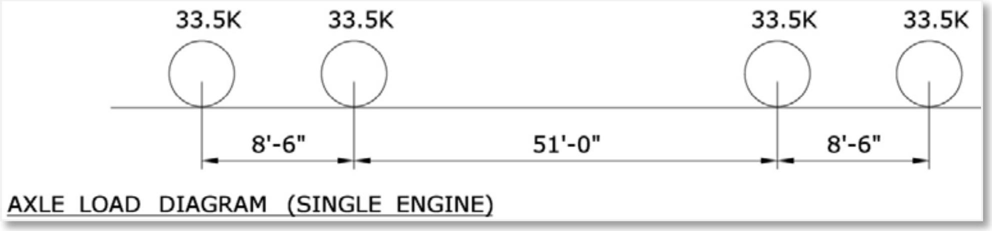


Figure No. 6A



Load chart values are applicable to specific structural members. For limitations, see Executive Summary.

M-4 Coach Two Cars Equivalent Cooper Load

SPAN FT	SHEAR	MOMENT
5	E 33.50	E 33.50
10	E 25.68	E 29.78
15	E 24.01	E 20.55
20	E 21.10	E 20.03
25	E 19.60	E 18.84
30	E 19.81	E 18.02
35	E 19.83	E 17.27
40	E 20.35	E 17.56
45	E 20.35	E 17.56
50	E 20.23	E 18.19
60	E 19.57	E 18.34
70	E 18.34	E 17.76
80	E 16.94	E 17.06
90	E 16.06	E 16.25
100	E 15.73	E 15.47

Table No. 6B

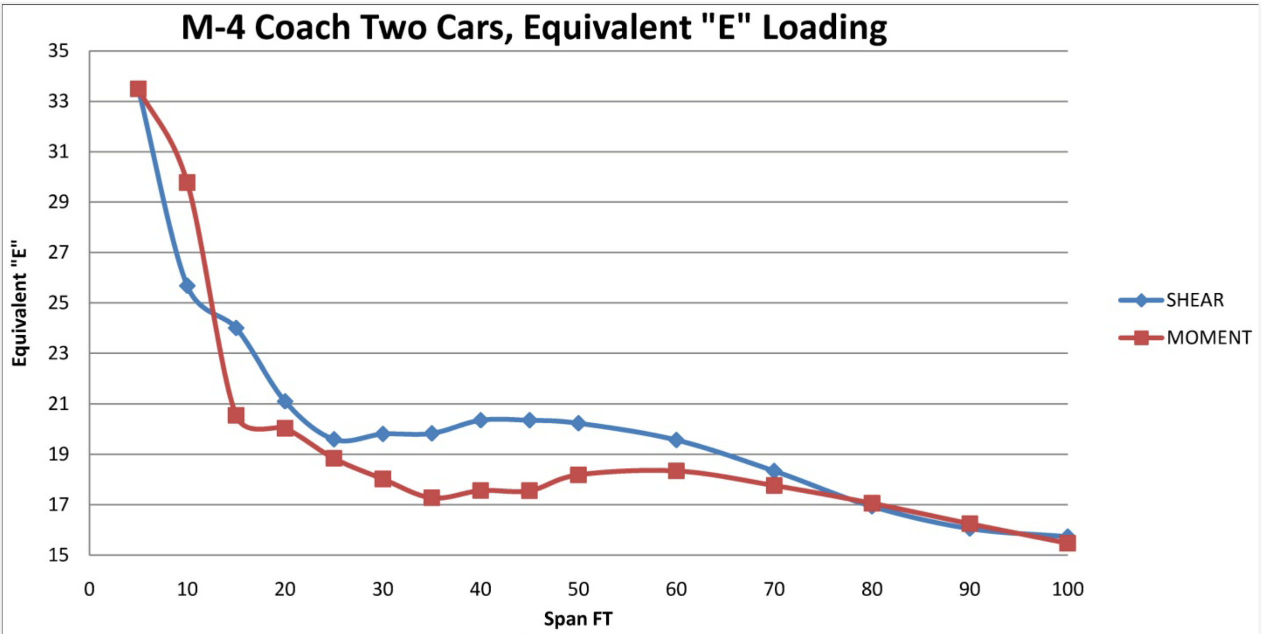
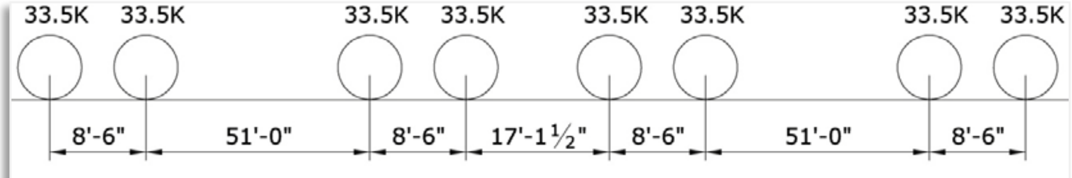

M-4 Coach Two Cars, Equivalent "E" Loading

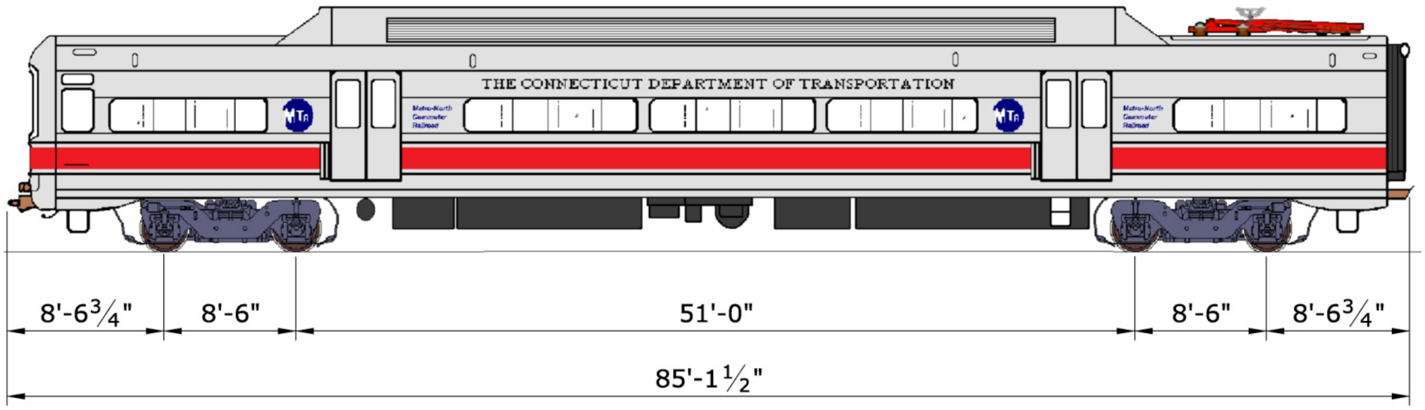
Figure No. 6B

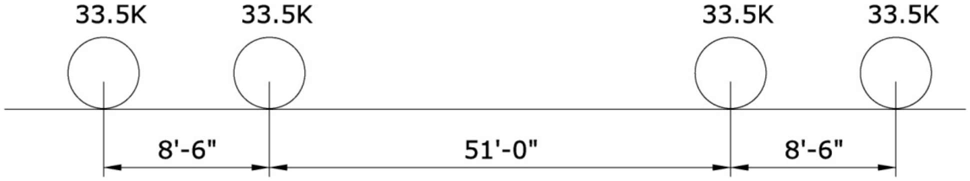


AXLE LOAD DIAGRAM (2 CARS)

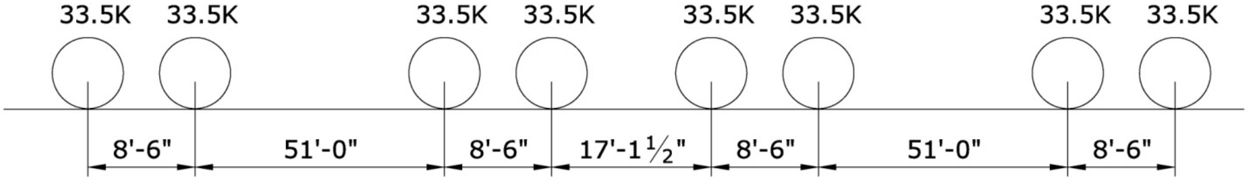
METRO-NORTH M-6 COACH

WEIGHT: 134,000 LBS GROSS (MAXIMUM)





AXLE LOAD DIAGRAM (SINGLE ENGINE)



AXLE LOAD DIAGRAM (2 CARS)

FIGURE NO. 7

M-6 Coach Single Car Equivalent Cooper Load

SPAN FT	SHEAR	MOMENT
5	E 33.50	E 33.50
10	E 25.68	E 29.78
15	E 24.01	E 20.55
20	E 21.10	E 20.03
25	E 19.60	E 18.79
30	E 18.26	E 18.02
35	E 17.00	E 17.27
40	E 15.86	E 16.22
45	E 14.84	E 15.34
50	E 14.05	E 14.62
60	E 12.76	E 13.28
70	E 12.47	E 12.07
80	E 12.40	E 11.09
90	E 12.15	E 10.23
100	E 11.79	E 9.70

Table No. 7A

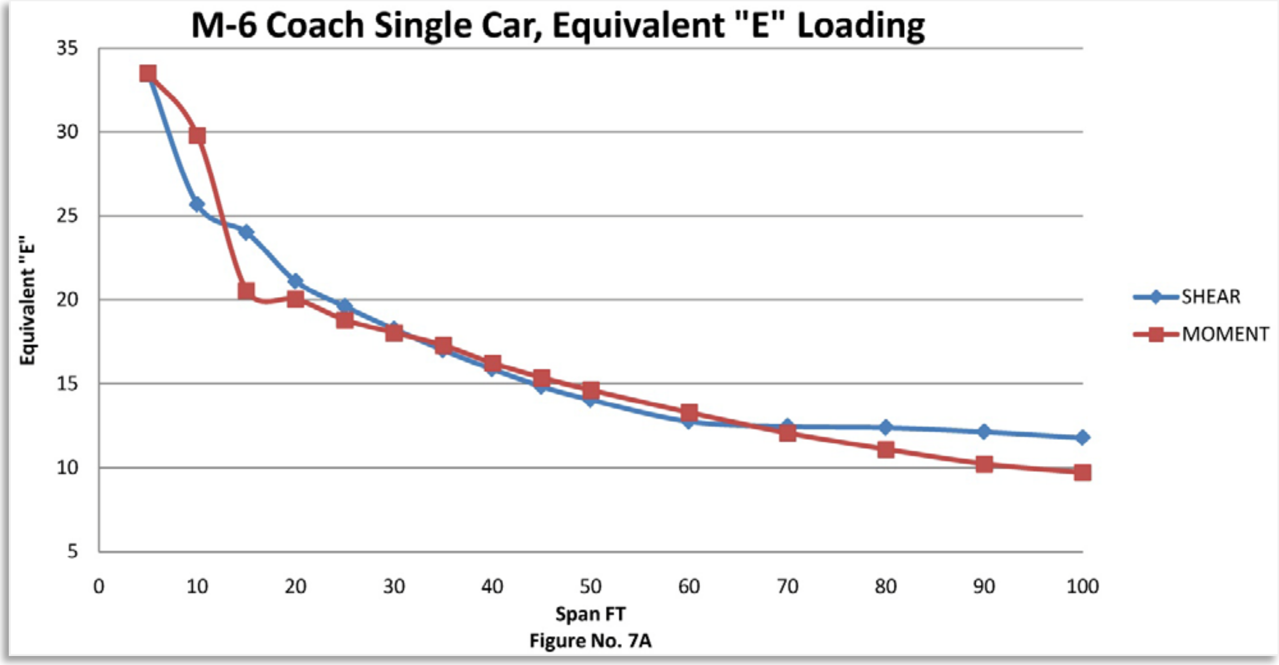
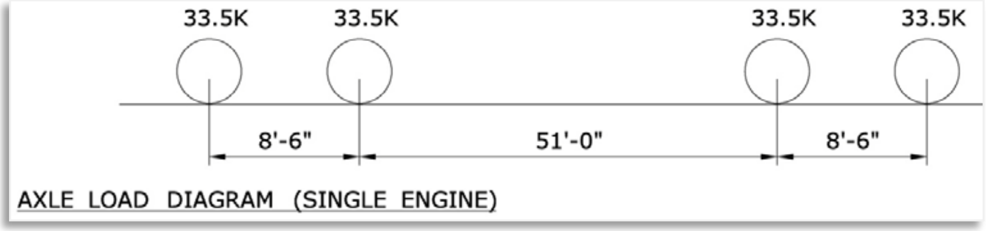


Figure No. 7A



Load chart values are applicable to specific structural members. For limitations, see Executive Summary.

M-6 Coach Two Cars Equivalent Cooper Load

SPAN FT	SHEAR	MOMENT
5	E 33.50	E 33.50
10	E 25.68	E 29.78
15	E 24.01	E 20.55
20	E 21.10	E 20.03
25	E 19.60	E 18.84
30	E 19.81	E 18.02
35	E 19.83	E 17.27
40	E 20.35	E 17.56
45	E 20.35	E 17.56
50	E 20.23	E 18.19
60	E 19.57	E 18.34
70	E 18.34	E 17.76
80	E 16.94	E 17.06
90	E 16.06	E 16.25
100	E 15.73	E 15.47

Table No. 7B

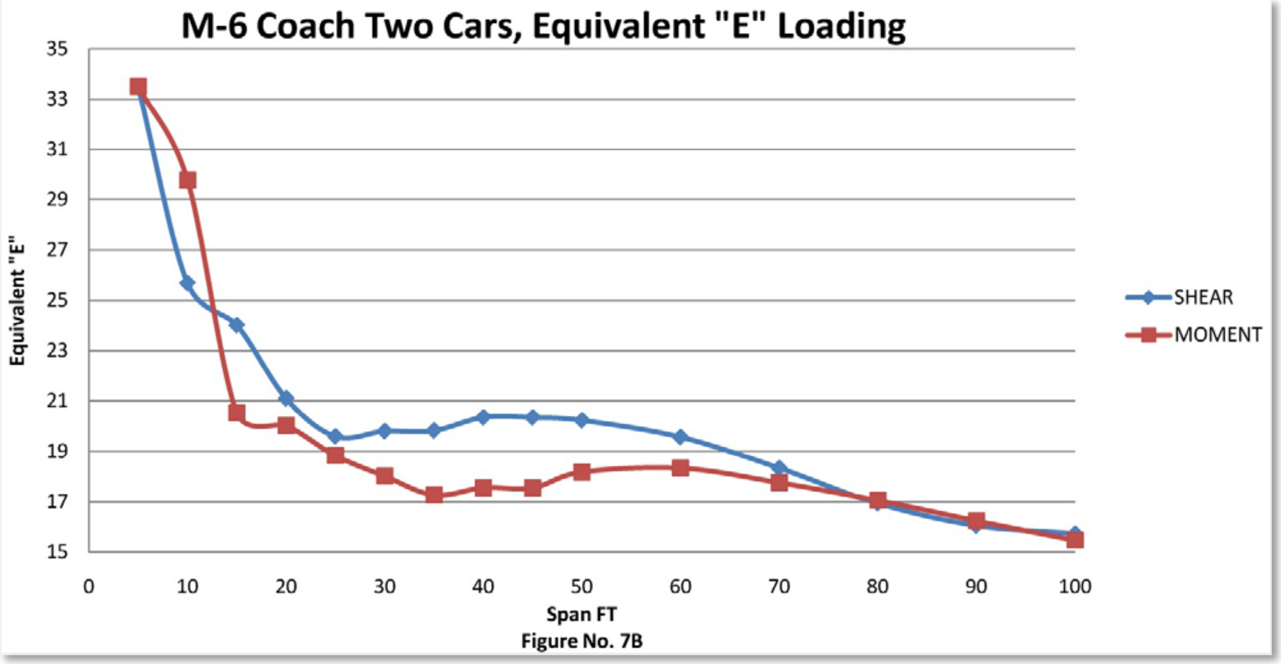
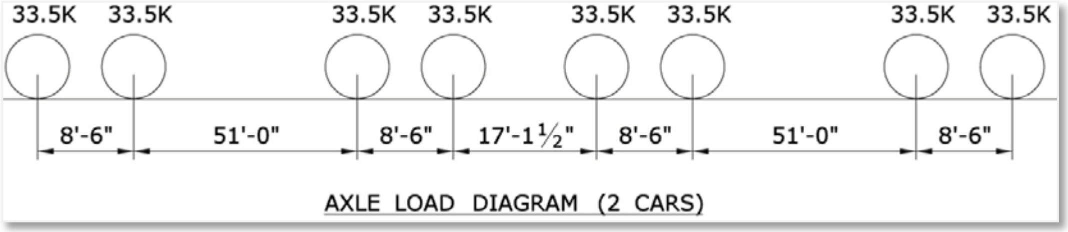


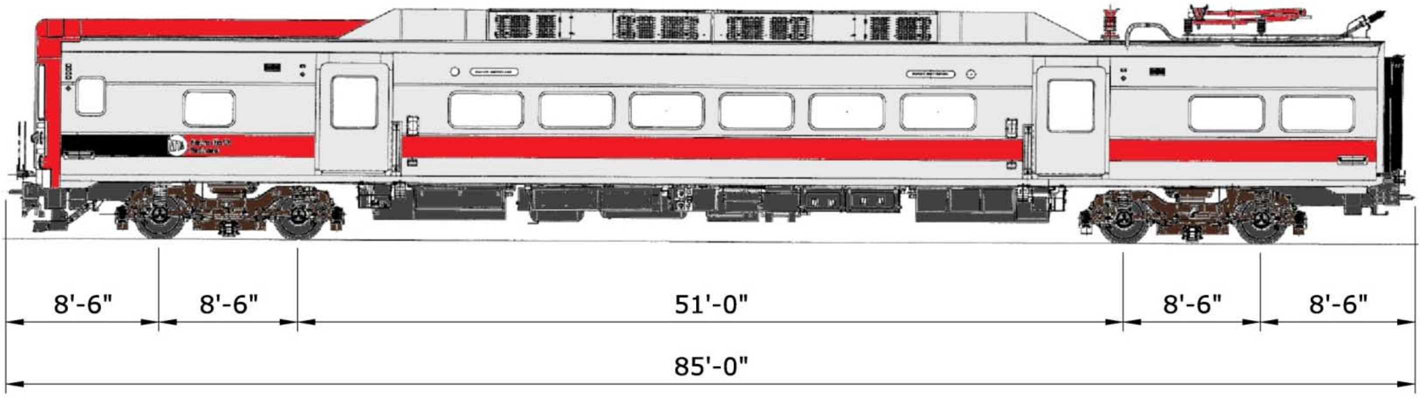
Figure No. 7B

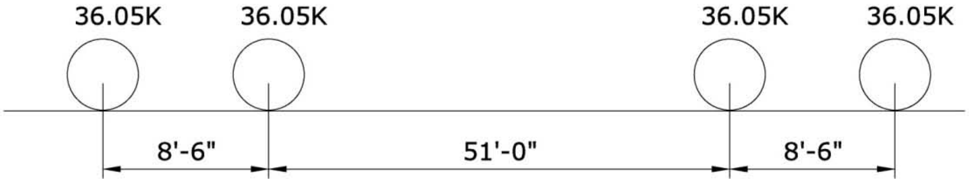


Load chart values are applicable to specific structural members. For limitations, see Executive Summary.

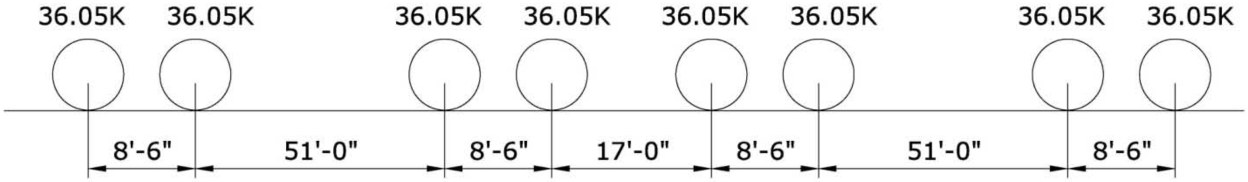
METRO-NORTH M-8 COACH

WEIGHT: 144,200 LBS GROSS (MAXIMUM)





AXLE LOAD DIAGRAM (SINGLE ENGINE)



AXLE LOAD DIAGRAM (2 CARS)

FIGURE NO. 8

M-8 Coach Single Car Equivalent Cooper Load

SPAN FT	SHEAR	MOMENT
5	E 36.05	E 36.05
10	E 27.64	E 32.04
15	E 25.83	E 22.11
20	E 22.71	E 21.56
25	E 21.09	E 20.22
30	E 19.65	E 19.39
35	E 18.29	E 18.59
40	E 17.07	E 17.45
45	E 15.97	E 16.51
50	E 15.12	E 15.73
60	E 13.73	E 14.29
70	E 13.42	E 12.98
80	E 13.35	E 11.94
90	E 13.07	E 11.01
100	E 12.69	E 10.44

Table No. 8A

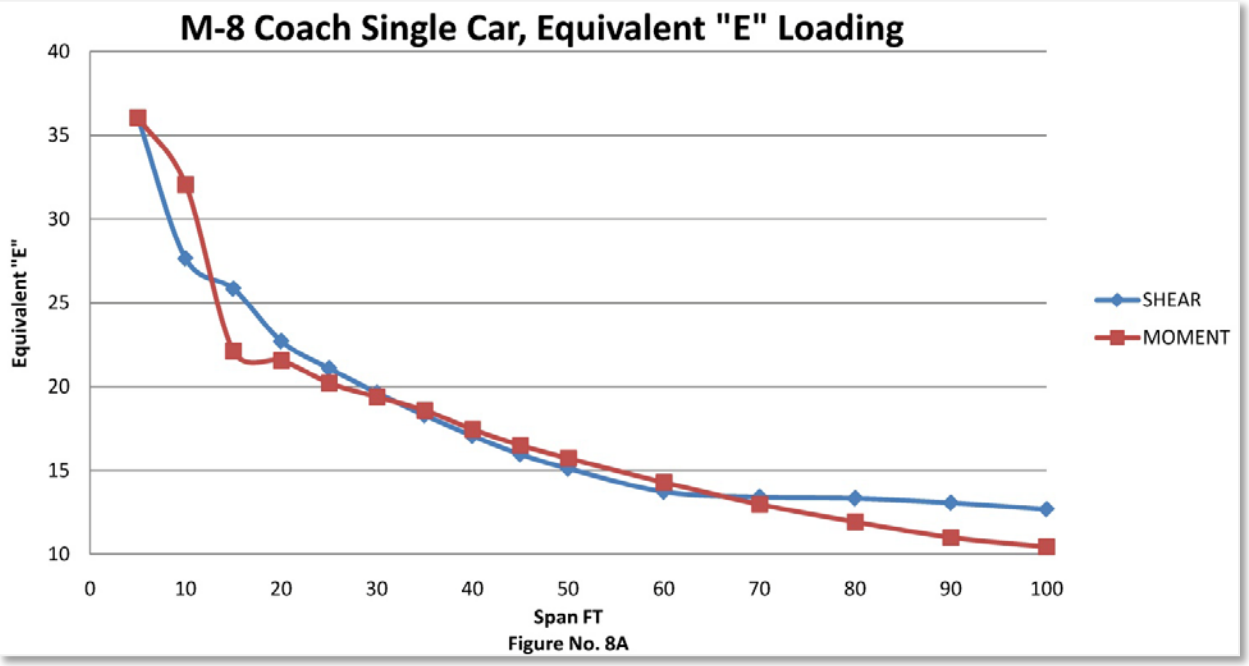
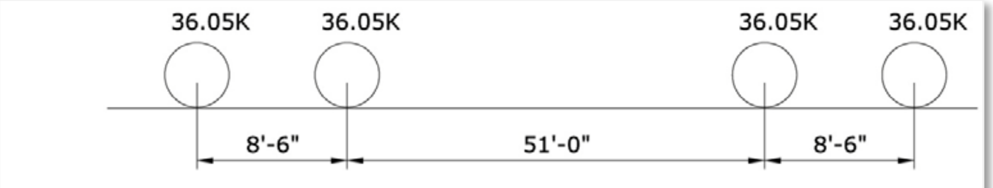


Figure No. 8A



AXLE LOAD DIAGRAM (SINGLE ENGINE)

M-8 Coach Two Cars Equivalent Cooper Load

SPAN FT	SHEAR	MOMENT
5	E 36.05	E 36.05
10	E 27.64	E 32.04
15	E 25.83	E 22.11
20	E 22.71	E 21.56
25	E 21.10	E 20.22
30	E 21.36	E 19.39
35	E 21.42	E 18.65
40	E 21.96	E 18.97
45	E 21.95	E 18.99
50	E 21.82	E 19.65
60	E 21.09	E 19.80
70	E 19.76	E 19.14
80	E 18.28	E 18.39
90	E 17.33	E 17.51
100	E 16.99	E 16.66

Table No. 8B

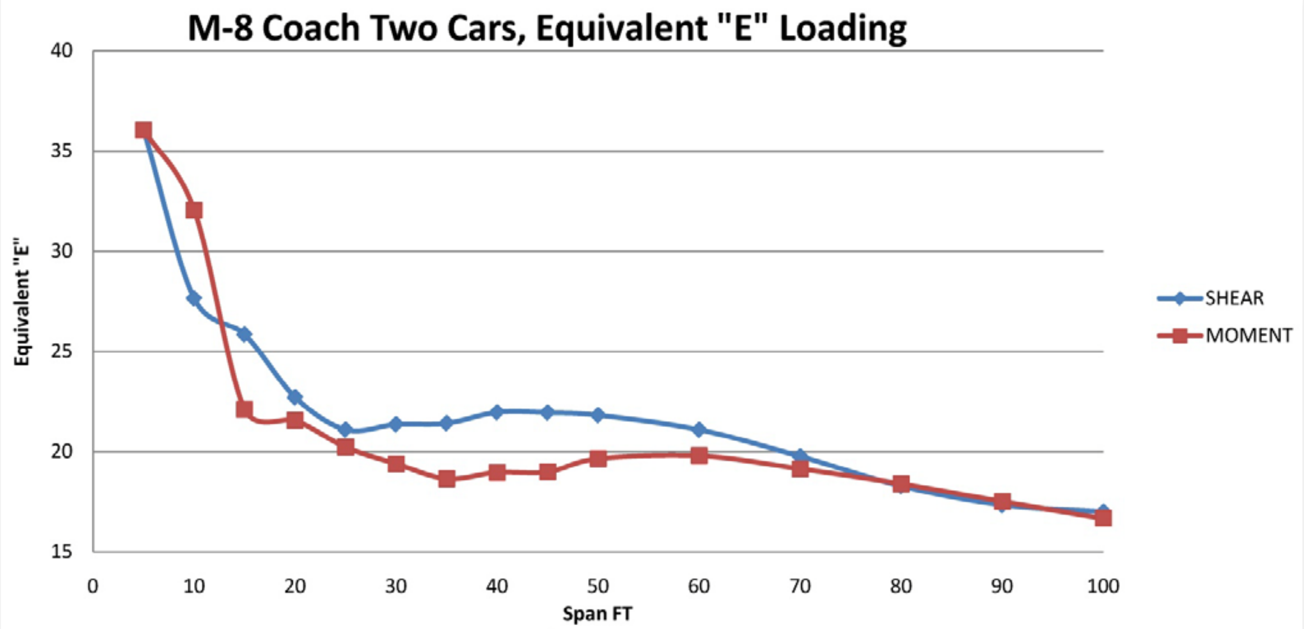
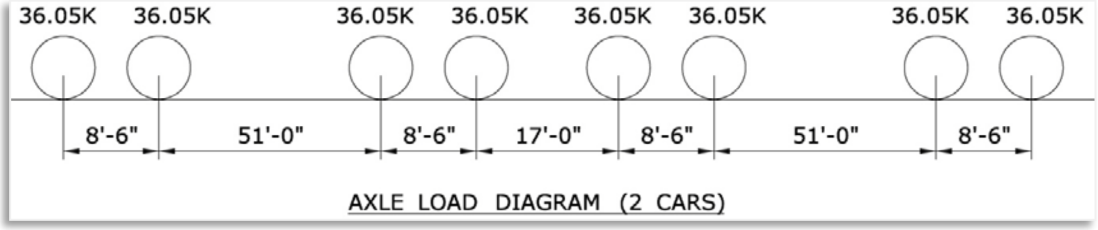


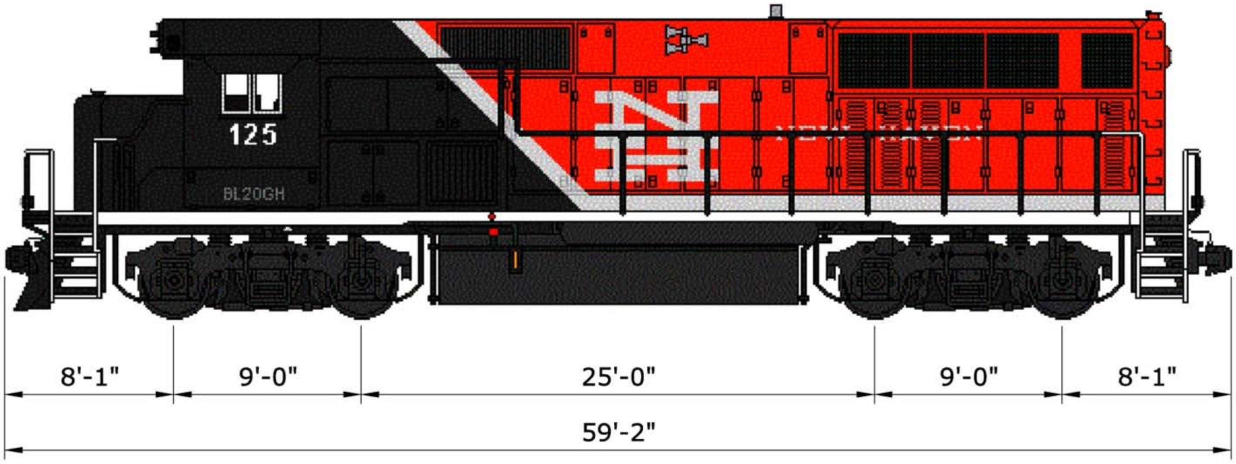
Figure No. 8B

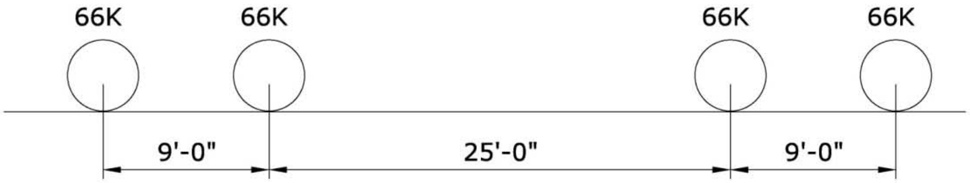


Load chart values are applicable to specific structural members. For limitations, see Executive Summary.

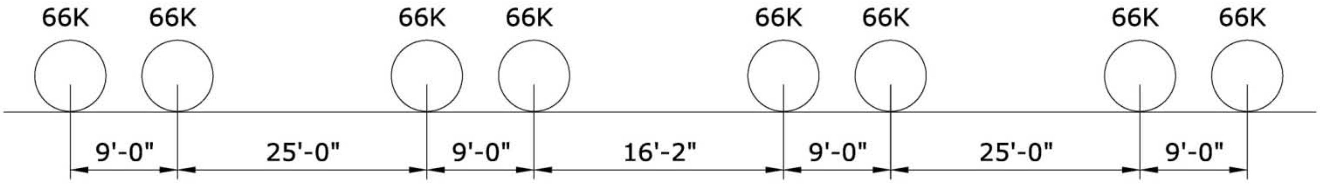
BL20-GH LOCOMOTIVE

WEIGHT: 264,000 LBS GROSS

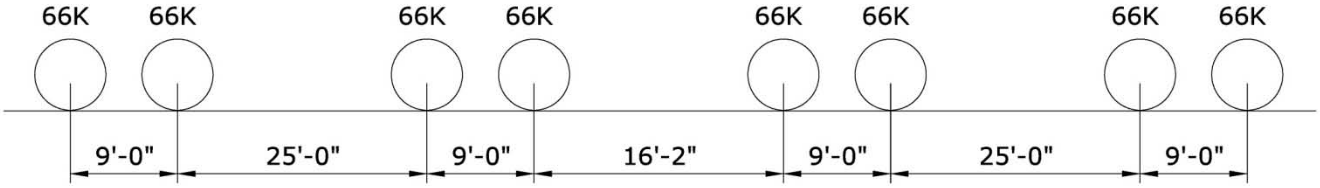




AXLE LOAD DIAGRAM (SINGLE ENGINE)



AXLE LOAD DIAGRAM (2 ENGINES SAME DIRECTION)



AXLE LOAD DIAGRAM (BACK TO BACK)

FIGURE NO. 9

BL20-GH Single Engine Equivalent Cooper Load

SPAN FT	SHEAR	MOMENT
5	E 65.99	E 66.00
10	E 48.40	E 58.67
15	E 46.20	E 39.60
20	E 40.92	E 38.13
25	E 38.14	E 36.13
30	E 35.62	E 34.84
35	E 33.76	E 33.51
40	E 33.65	E 31.54
45	E 33.73	E 29.89
50	E 34.49	E 28.80
60	E 34.57	E 28.96
70	E 33.11	E 29.51
80	E 31.07	E 29.29
90	E 29.28	E 28.51
100	E 27.63	E 27.57

Table No. 9A

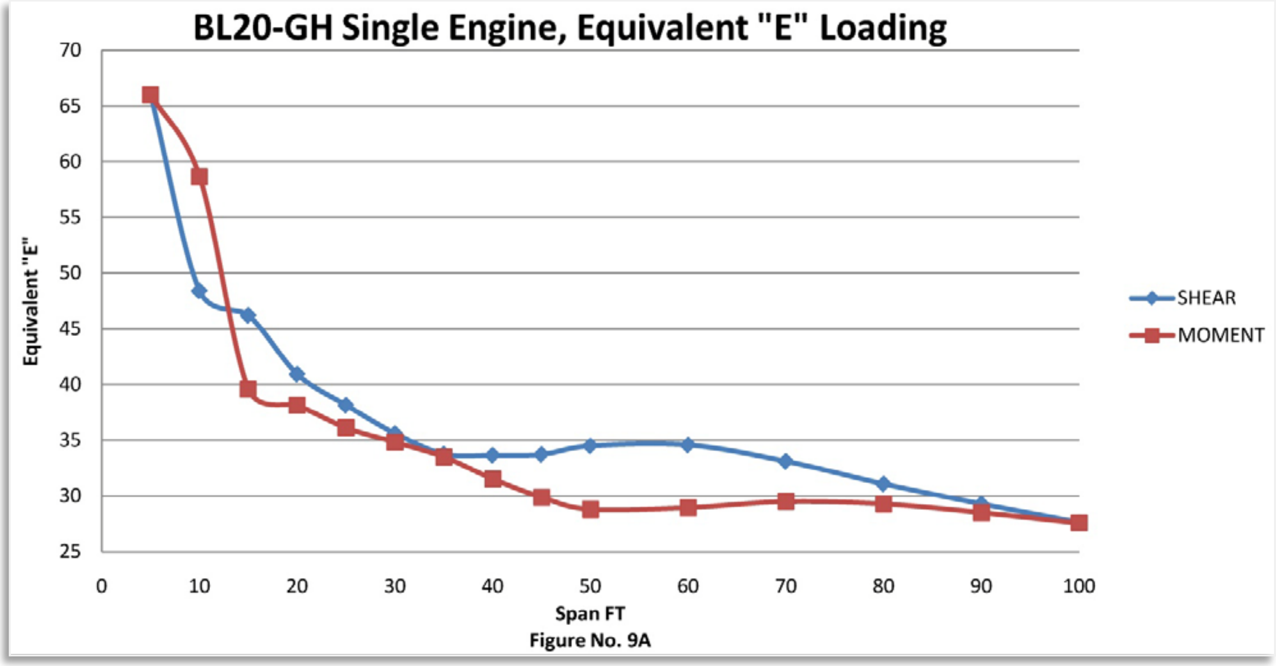
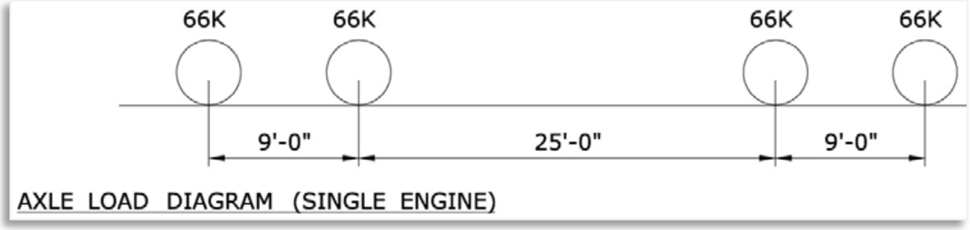


Figure No. 9A



Load chart values are applicable to specific structural members. For limitations, see Executive Summary.

Two BL20-GH in line Equivalent Cooper Load

SPAN FT	SHEAR	MOMENT
5	E 65.99	E 66.00
10	E 48.40	E 58.67
15	E 46.20	E 39.60
20	E 40.92	E 38.22
25	E 38.14	E 36.25
30	E 38.99	E 34.84
35	E 39.03	E 34.56
40	E 40.06	E 35.06
45	E 40.07	E 35.09
50	E 39.84	E 36.28
60	E 38.72	E 36.44
70	E 38.28	E 35.22
80	E 37.76	E 35.35
90	E 36.79	E 35.27
100	E 35.58	E 35.36

Table No. 9B

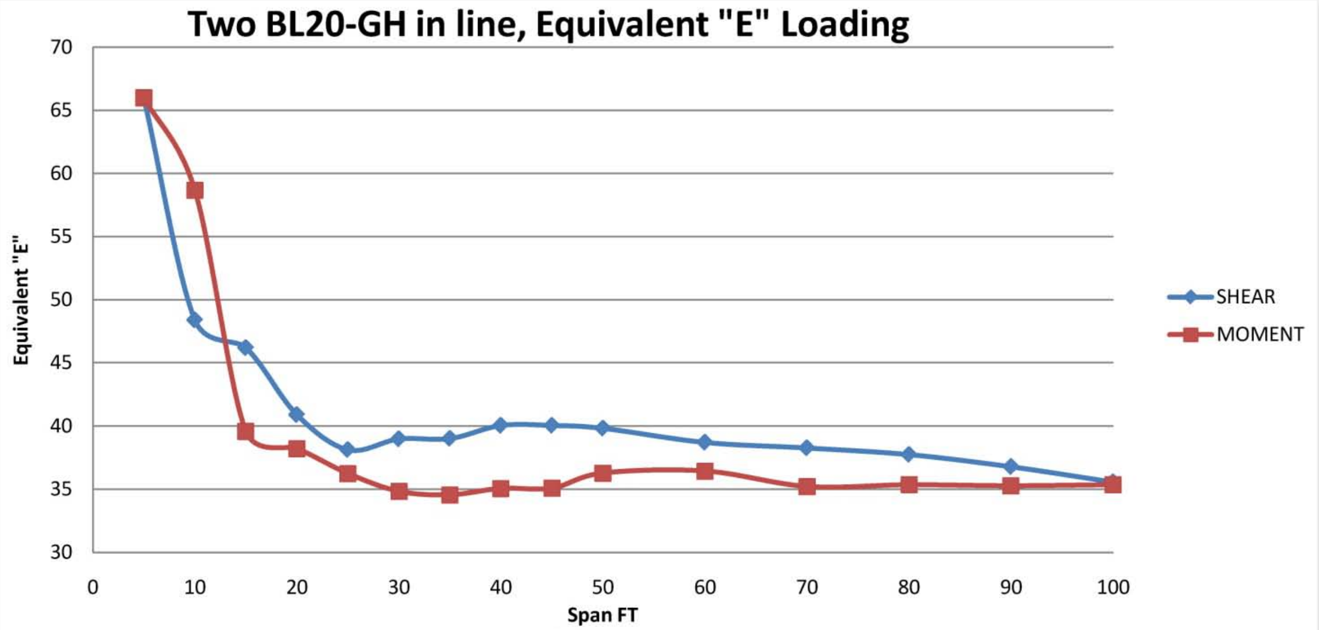
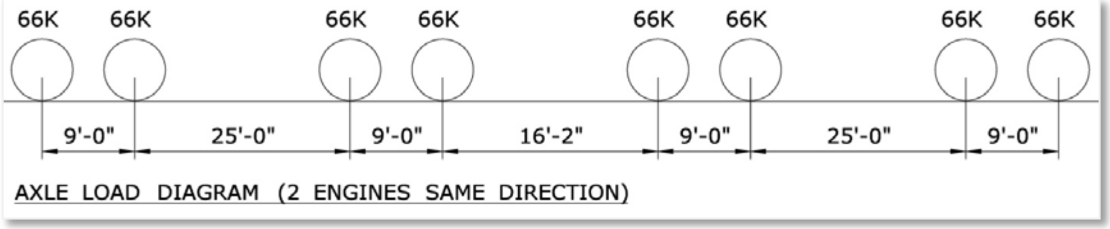


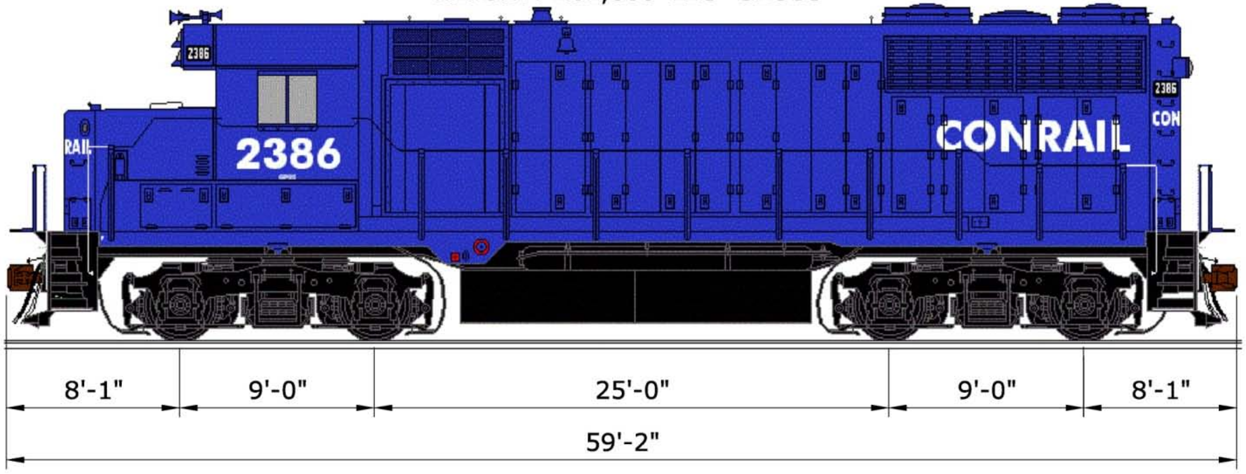
Figure No. 9B

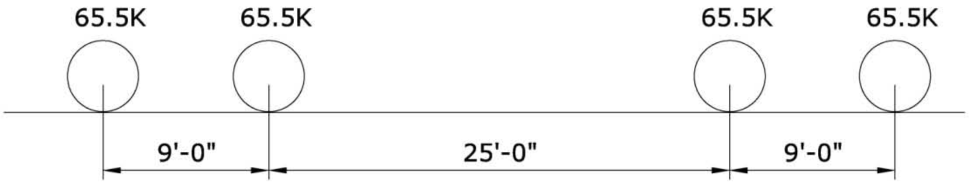


Load chart values are applicable to specific structural members. For limitations, see Executive Summary.

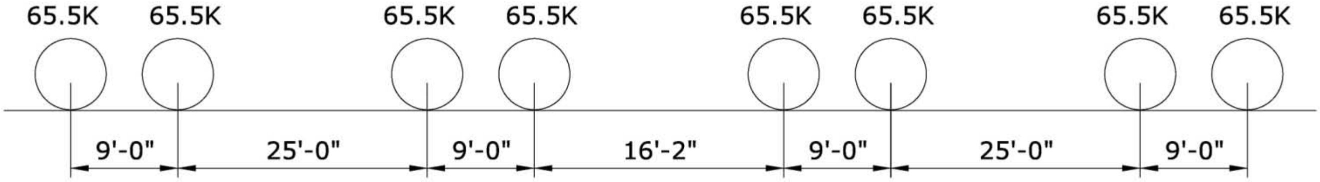
GP35 LOCOMOTIVE

WEIGHT: 262,000 LBS GROSS

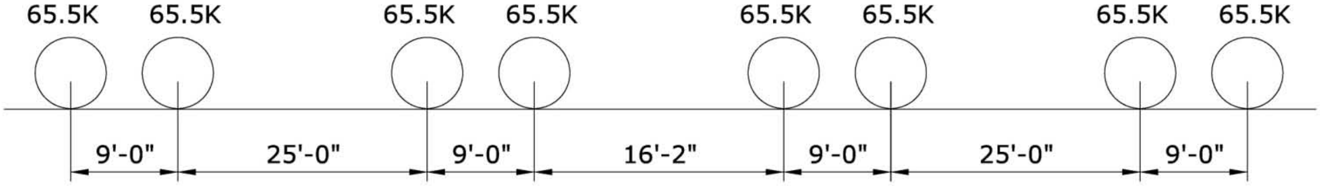




AXLE LOAD DIAGRAM (SINGLE ENGINE)



AXLE LOAD DIAGRAM (2 ENGINES SAME DIRECTION)



AXLE LOAD DIAGRAM (BACK TO BACK)

FIGURE NO. 10

GP35 Single Engine Equivalent Cooper Load

SPAN FT	SHEAR	MOMENT
5	E 65.49	E 65.50
10	E 48.03	E 58.22
15	E 45.85	E 39.30
20	E 40.61	E 37.84
25	E 37.85	E 35.85
30	E 35.35	E 34.57
35	E 33.51	E 33.25
40	E 33.40	E 31.30
45	E 33.47	E 29.66
50	E 34.23	E 28.58
60	E 34.31	E 28.74
70	E 32.85	E 29.28
80	E 30.84	E 29.07
90	E 29.06	E 28.30
100	E 27.42	E 27.37

Table No. 10A

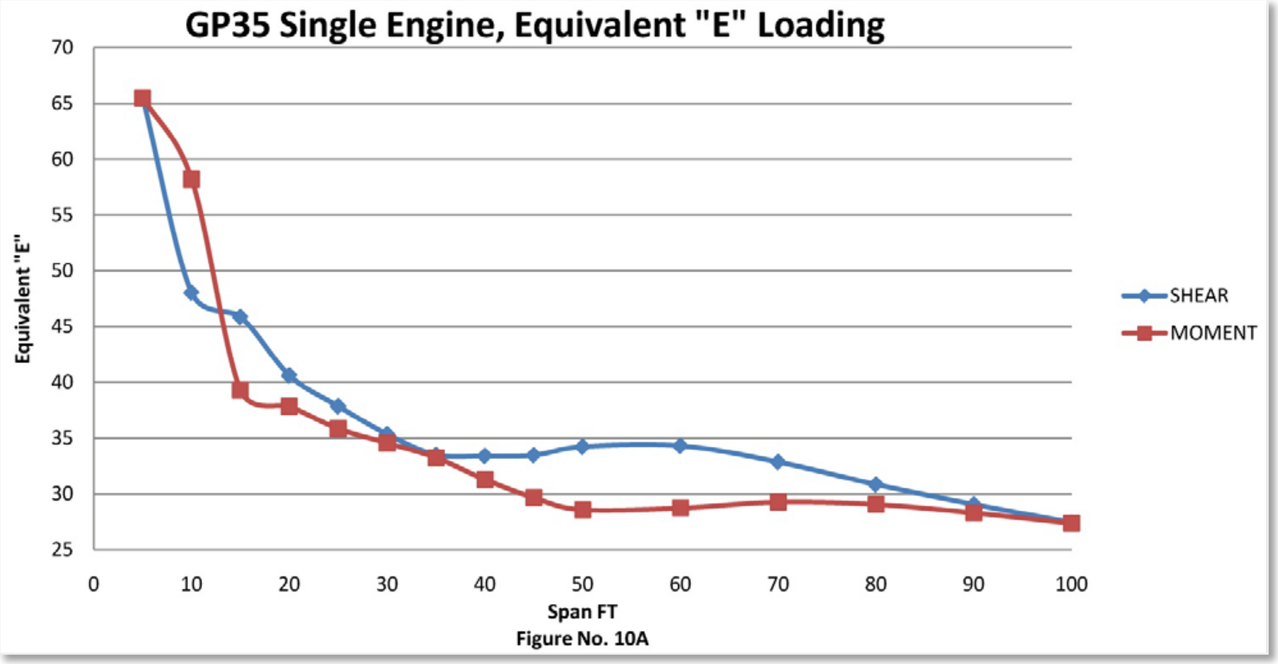
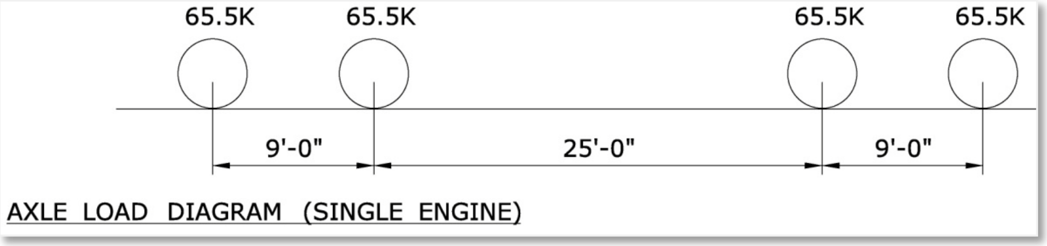


Figure No. 10A



Load chart values are applicable to specific structural members. For limitations, see Executive Summary.

Two GP35 in line Equivalent Cooper Load

SPAN FT	SHEAR	MOMENT
5	E 65.49	E 65.50
10	E 48.03	E 58.22
15	E 45.85	E 39.30
20	E 40.61	E 37.93
25	E 37.85	E 35.97
30	E 38.70	E 34.57
35	E 38.73	E 34.30
40	E 39.76	E 34.79
45	E 39.76	E 34.82
50	E 39.54	E 36.01
60	E 38.43	E 36.16
70	E 37.99	E 34.95
80	E 37.47	E 35.08
90	E 36.52	E 35.01
100	E 35.31	E 35.09

Table No. 10B

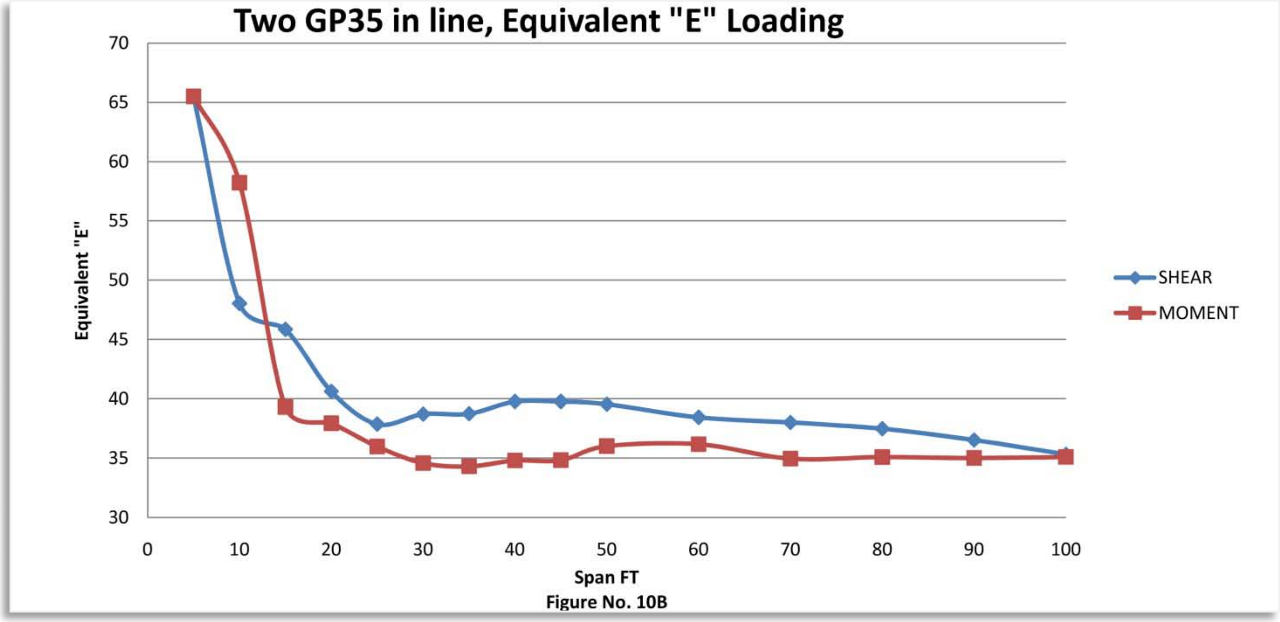
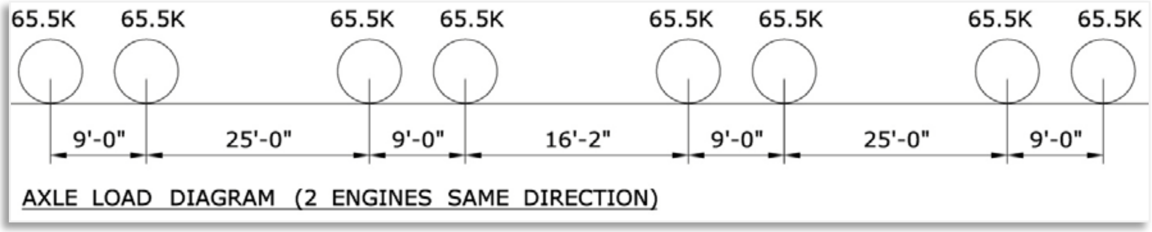


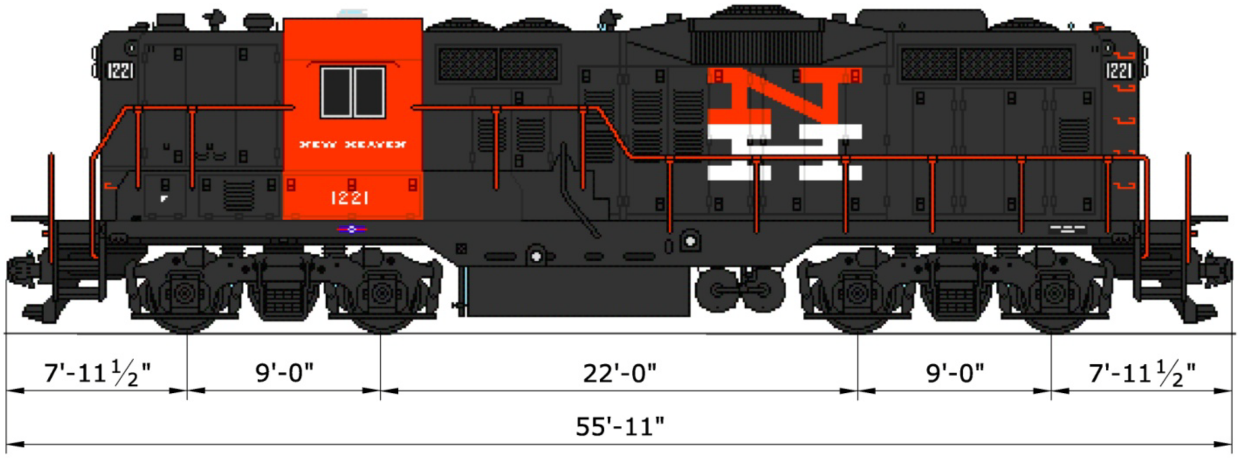
Figure No. 10B

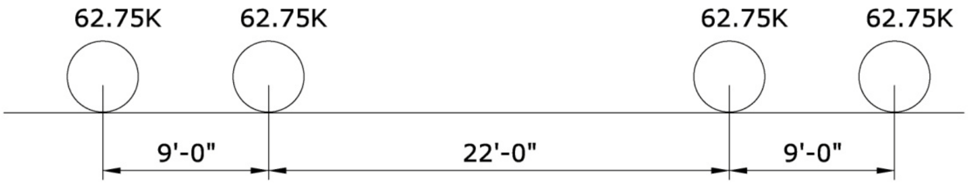


Load chart values are applicable to specific structural members. For limitations, see Executive Summary.

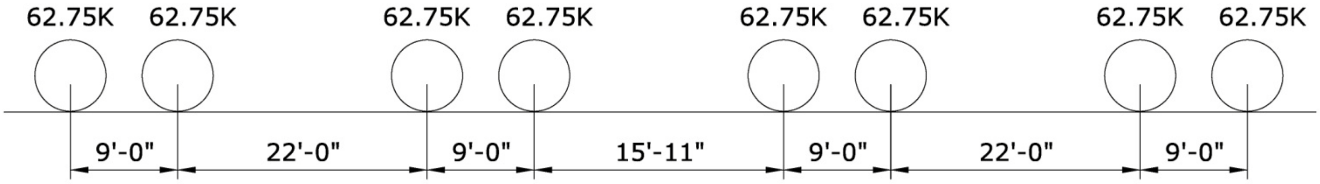
GP9 LOCOMOTIVE

WEIGHT: 251,000 LBS GROSS

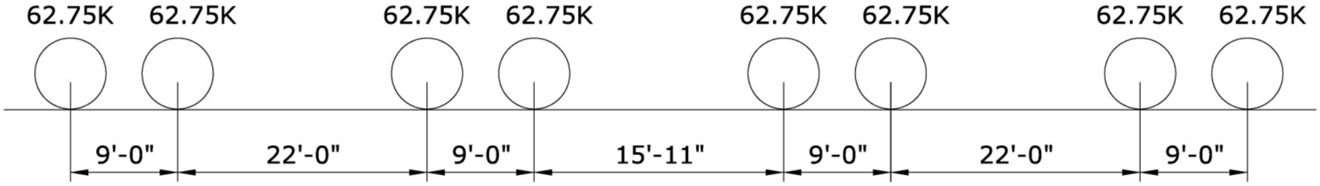




AXLE LOAD DIAGRAM (SINGLE ENGINE)



AXLE LOAD DIAGRAM (2 ENGINES SAME DIRECTION)



AXLE LOAD DIAGRAM (BACK TO BACK)

FIGURE NO. 11

GP9 Single Engine Equivalent Cooper Load

SPAN FT	SHEAR	MOMENT
5	E 62.74	E 62.75
10	E 46.01	E 55.78
15	E 43.92	E 37.65
20	E 38.90	E 36.26
25	E 36.27	E 34.35
30	E 33.86	E 33.12
35	E 33.65	E 31.86
40	E 33.25	E 29.98
45	E 34.11	E 28.84
50	E 34.52	E 29.03
60	E 34.15	E 29.95
70	E 32.45	E 29.89
80	E 30.30	E 29.30
90	E 28.45	E 28.29
100	E 26.77	E 27.19

Table No. 11A

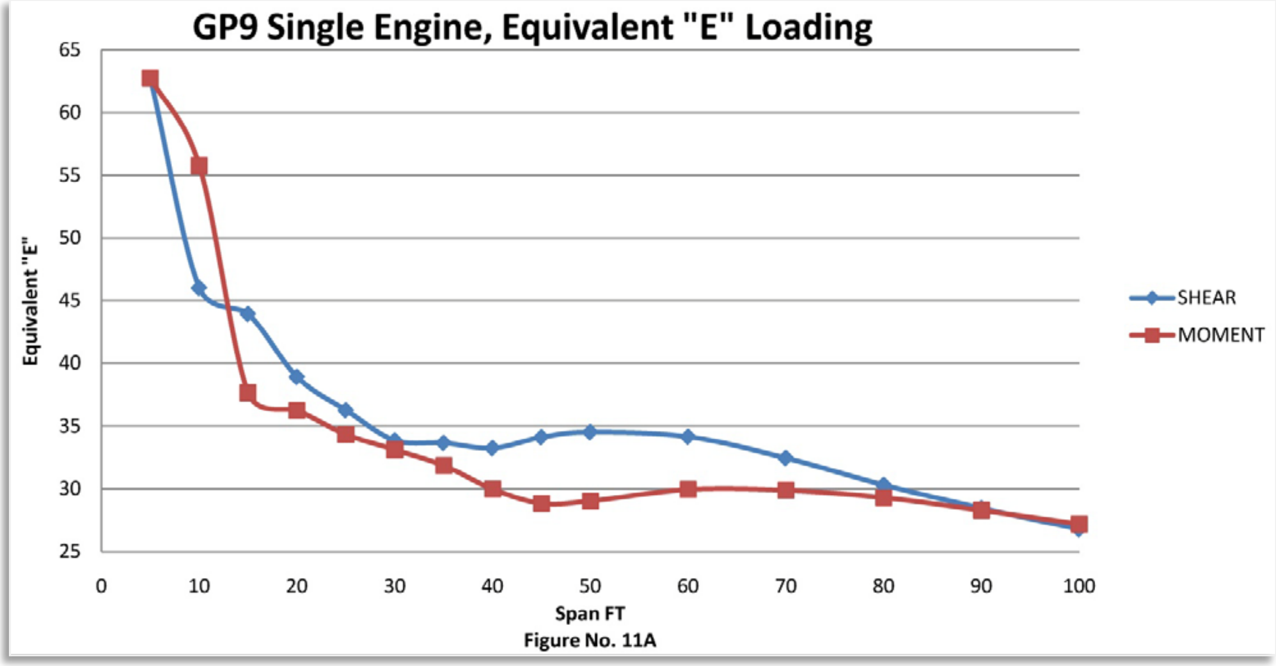
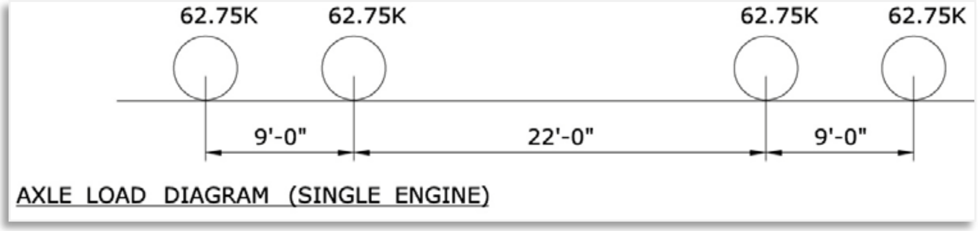


Figure No. 11A



Two GP9 in line Equivalent Cooper Load

SPAN FT	SHEAR	MOMENT
5	E 62.74	E 62.75
10	E 46.01	E 55.78
15	E 43.92	E 37.65
20	E 38.90	E 36.34
25	E 36.34	E 34.46
30	E 37.24	E 33.12
35	E 37.37	E 33.16
40	E 38.30	E 33.57
45	E 38.26	E 33.68
50	E 38.02	E 34.77
60	E 37.62	E 34.85
70	E 37.53	E 34.61
80	E 36.78	E 34.63
90	E 35.69	E 35.06
100	E 34.83	E 35.48

Table No. 11B

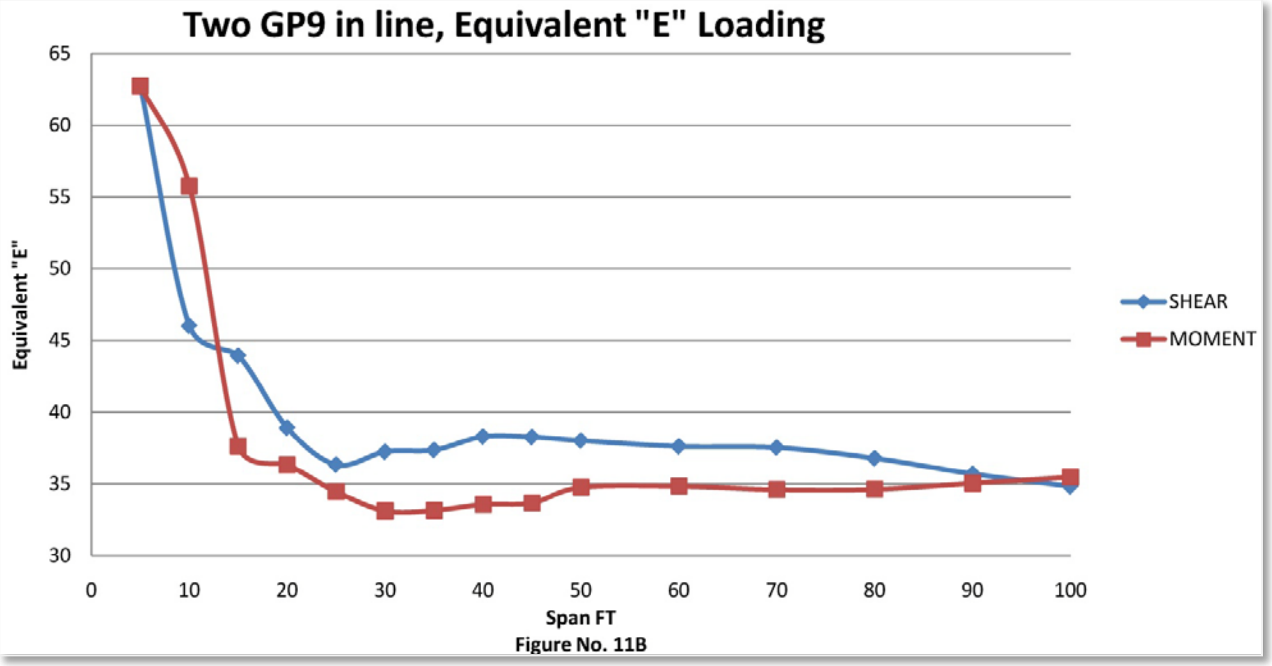
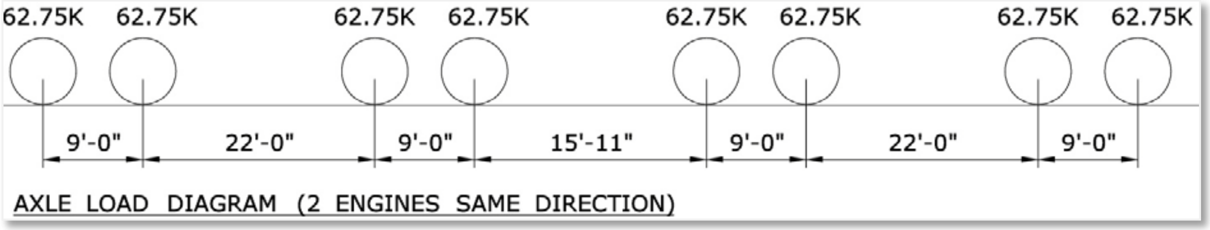


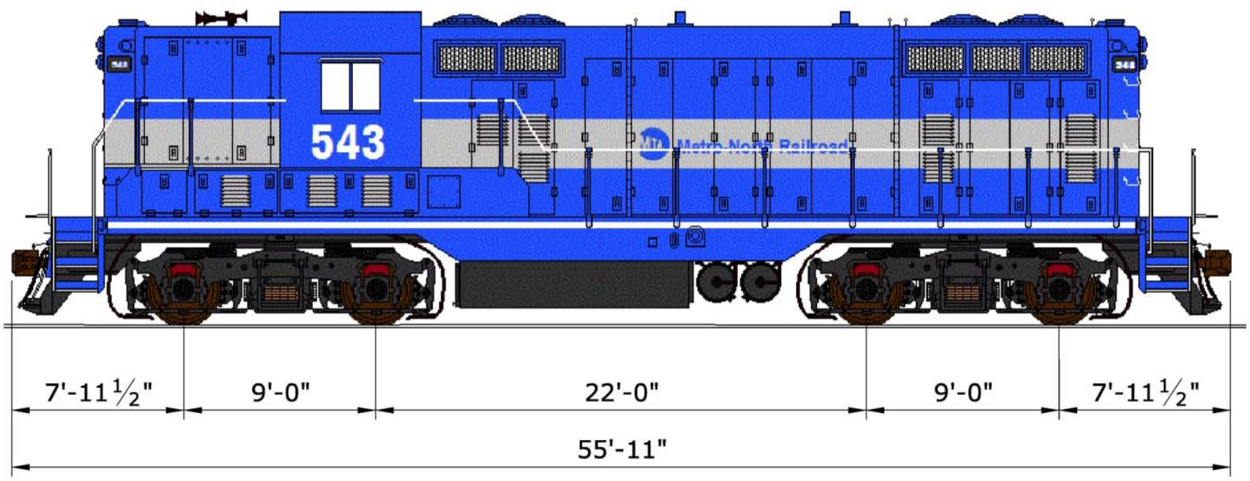
Figure No. 11B

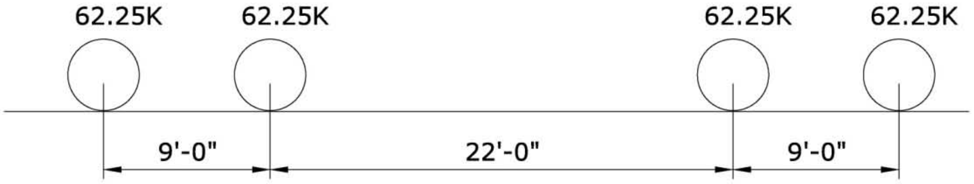


Load chart values are applicable to specific structural members. For limitations, see Executive Summary.

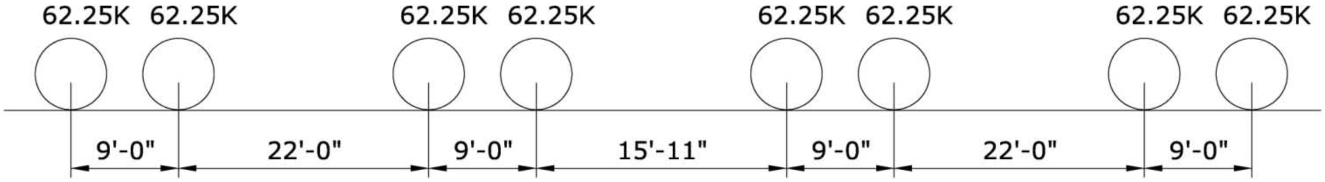
GP8 LOCOMOTIVE

WEIGHT: 249,000 LBS GROSS

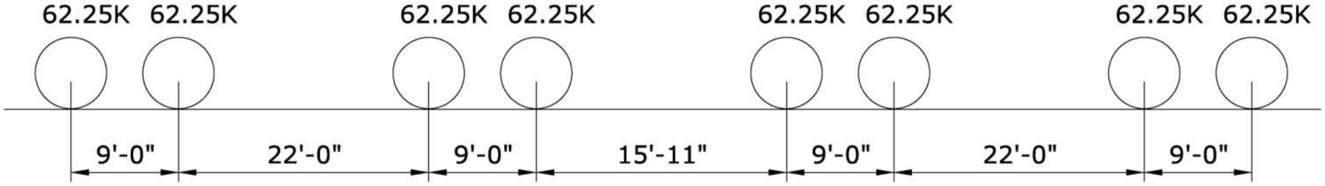




AXLE LOAD DIAGRAM (SINGLE ENGINE)



AXLE LOAD DIAGRAM (2 ENGINES SAME DIRECTION)



AXLE LOAD DIAGRAM (BACK TO BACK)

FIGURE NO. 12

GP8 Single Engine Equivalent Cooper Load

SPAN FT	SHEAR	MOMENT
5	E 62.24	E 62.25
10	E 45.65	E 55.33
15	E 43.57	E 37.35
20	E 38.59	E 35.97
25	E 35.98	E 34.07
30	E 33.59	E 32.86
35	E 33.39	E 31.60
40	E 32.98	E 29.74
45	E 33.84	E 28.61
50	E 34.24	E 28.80
60	E 33.88	E 29.71
70	E 32.19	E 29.65
80	E 30.06	E 29.07
90	E 28.22	E 28.06
100	E 26.56	E 26.97

Table No. 12A

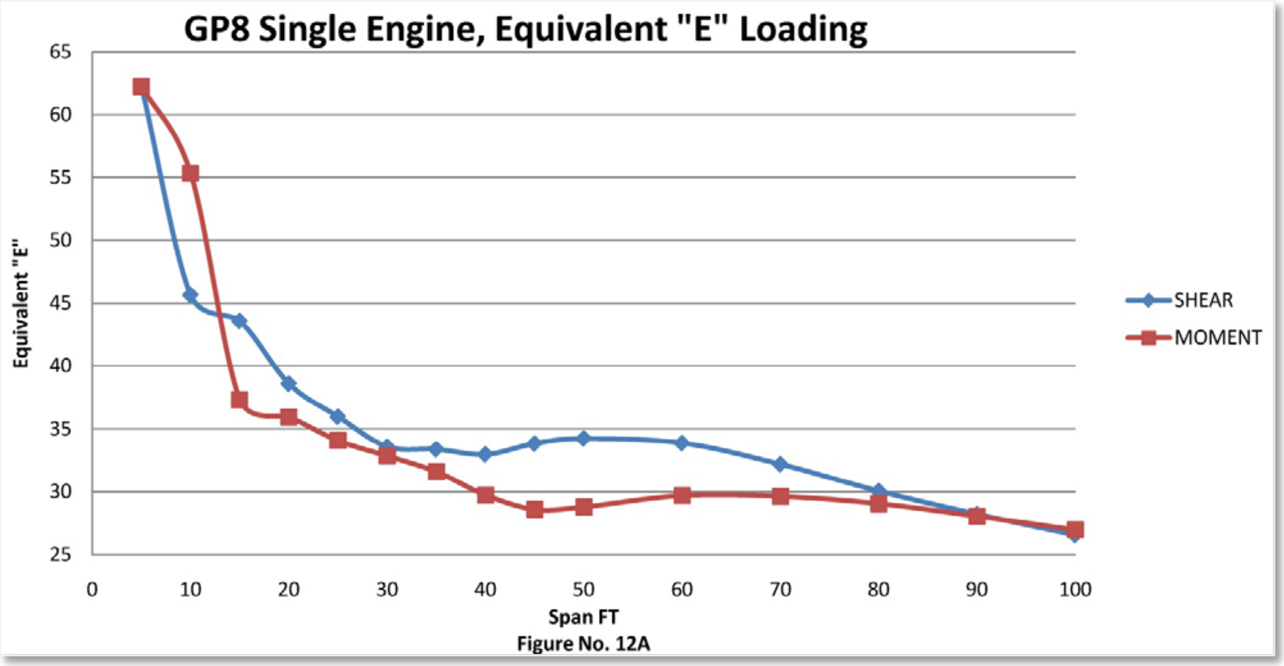
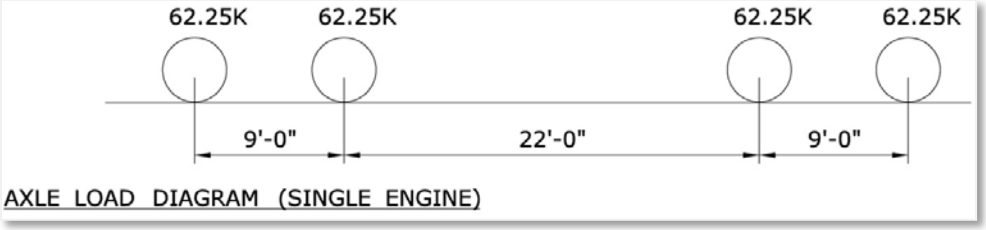


Figure No. 12A



Load chart values are applicable to specific structural members. For limitations, see Executive Summary.

Two GP8 in line Equivalent Cooper Load

SPAN FT	SHEAR	MOMENT
5	E 62.24	E 62.25
10	E 45.65	E 55.33
15	E 43.57	E 37.35
20	E 38.59	E 36.05
25	E 36.05	E 34.19
30	E 36.94	E 32.86
35	E 37.07	E 32.89
40	E 37.99	E 33.30
45	E 37.96	E 33.42
50	E 37.72	E 34.49
60	E 37.32	E 34.57
70	E 37.23	E 34.33
80	E 36.49	E 34.35
90	E 35.41	E 34.78
100	E 34.55	E 35.20

Table No. 12B

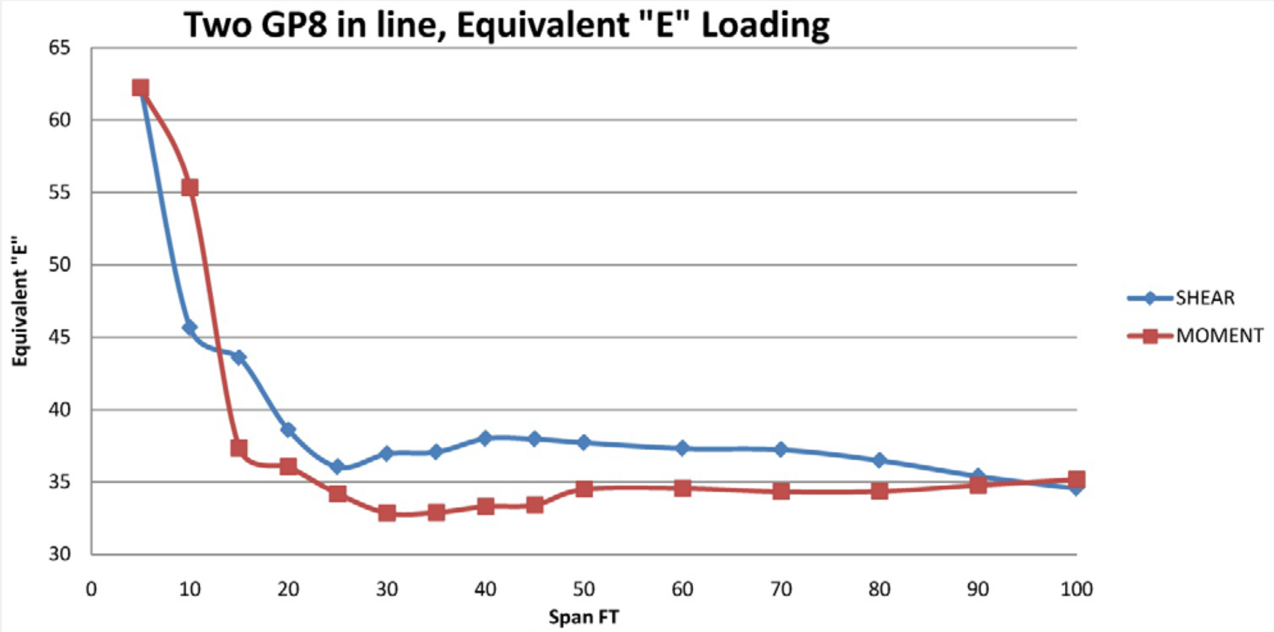
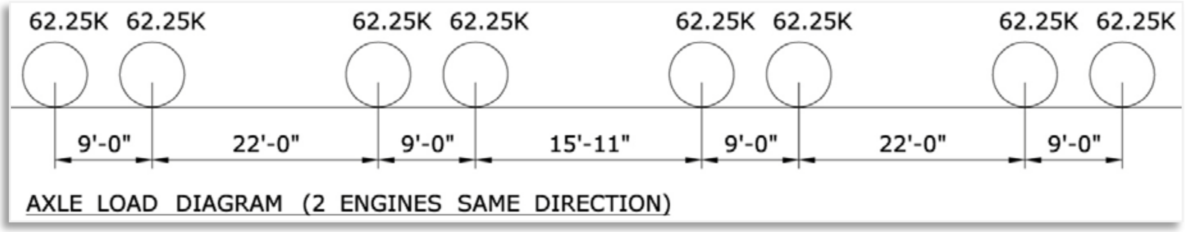


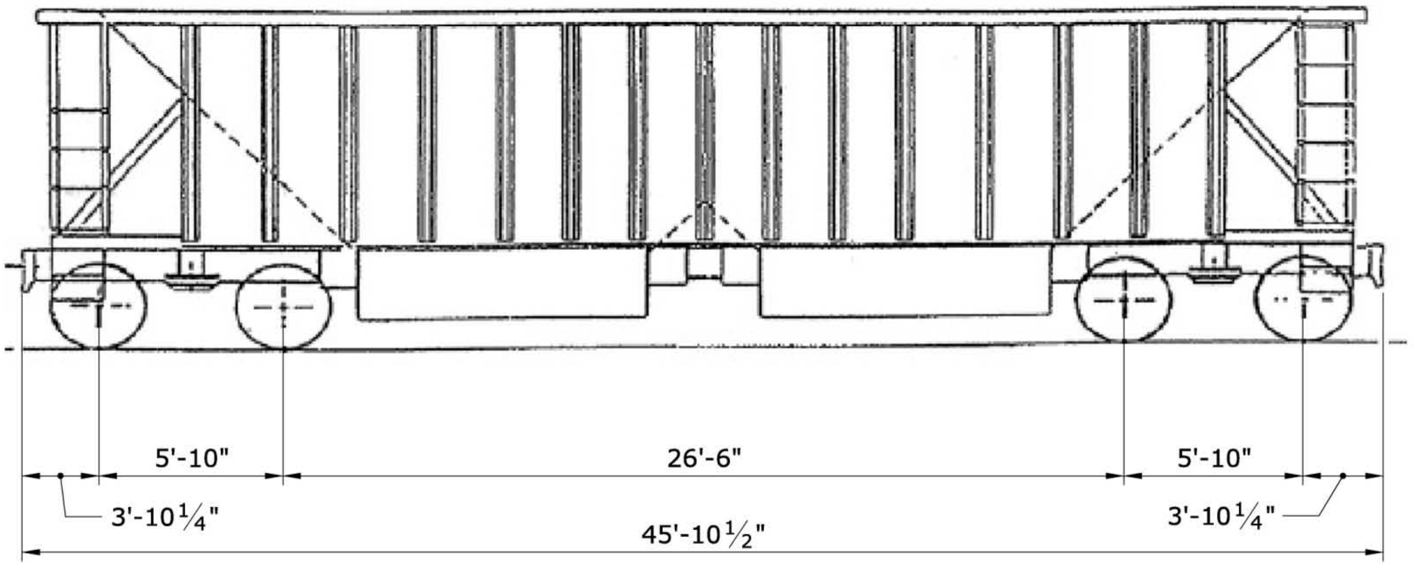
Figure No. 12B

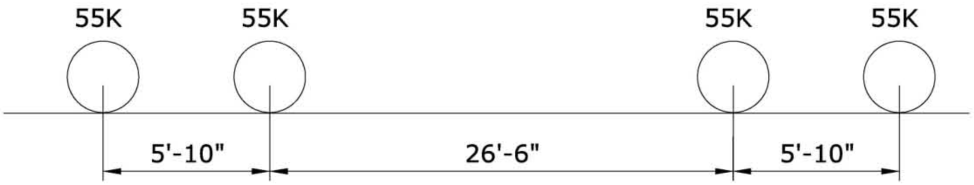


Load chart values are applicable to specific structural members. For limitations, see Executive Summary.

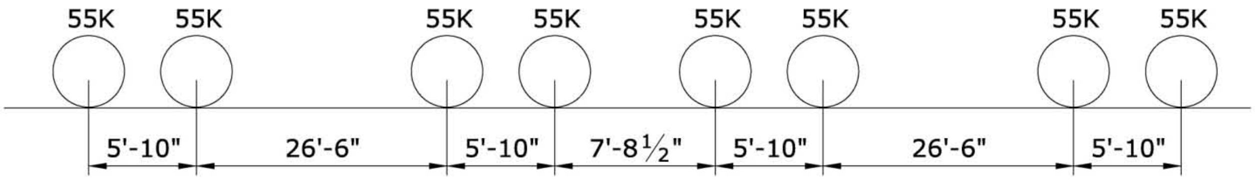
220,000 LBS HOPPER CAR

WEIGHT: 220,000 LBS GROSS (MAXIMUM)





AXLE LOAD DIAGRAM (SINGLE CAR)



AXLE LOAD DIAGRAM (2 CARS)

FIGURE NO. 13

Single 220k Hopper Car Equivalent Cooper Load

SPAN FT	SHEAR	MOMENT
5	E 55.00	E 55.00
10	E 51.94	E 48.89
15	E 44.31	E 42.78
20	E 37.58	E 38.89
25	E 34.24	E 34.95
30	E 31.53	E 32.57
35	E 30.33	E 30.73
40	E 30.47	E 28.66
45	E 31.00	E 26.91
50	E 31.18	E 25.54
60	E 30.62	E 25.76
70	E 28.96	E 25.86
80	E 26.97	E 25.40
90	E 25.26	E 24.55
100	E 23.74	E 23.65

Table No. 13A

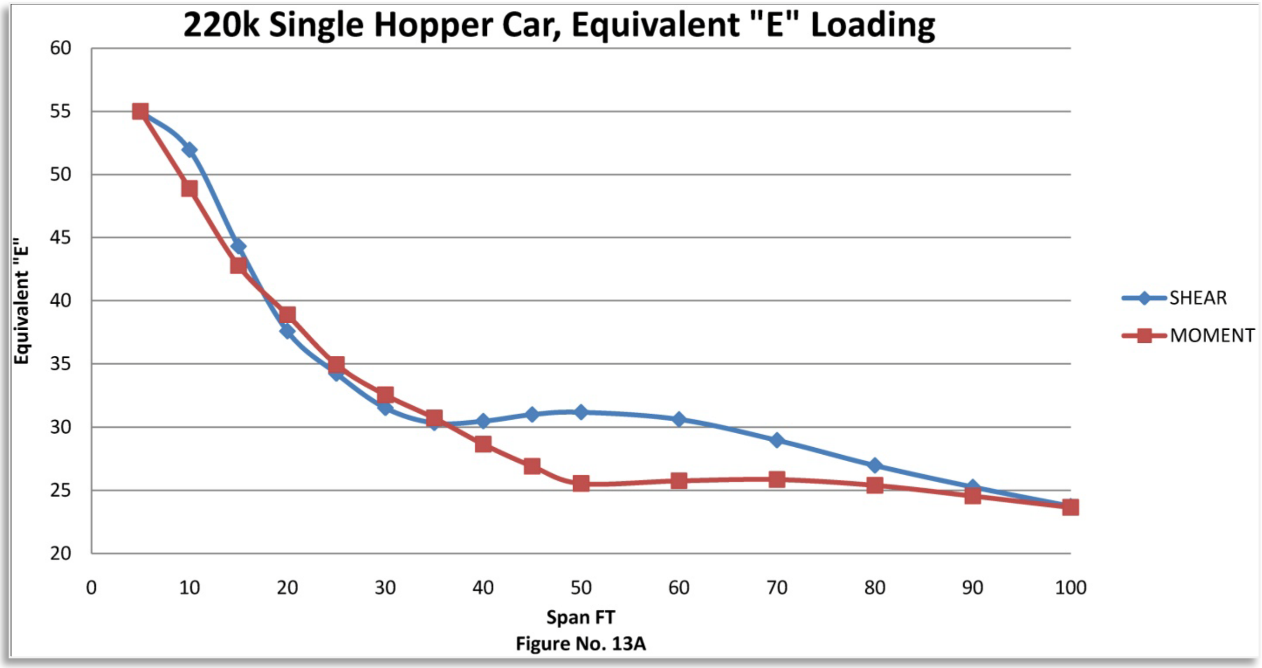
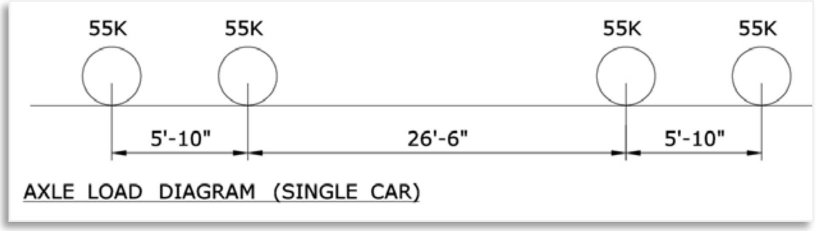


Figure No. 13A



Load chart values are applicable to specific structural members. For limitations, see Executive Summary.

220k Hopper Cars in line Equivalent Cooper Load

SPAN FT	SHEAR	MOMENT
5	E 54.99	E 55.00
10	E 51.94	E 48.89
15	E 46.98	E 42.78
20	E 45.37	E 43.89
25	E 47.49	E 43.31
30	E 47.29	E 45.31
35	E 45.95	E 45.88
40	E 44.16	E 44.67
45	E 42.23	E 43.28
50	E 41.70	E 42.17
60	E 41.84	E 39.34
70	E 40.34	E 37.29
80	E 38.03	E 36.91
90	E 35.95	E 36.54
100	E 34.01	E 36.94

Table No. 13B

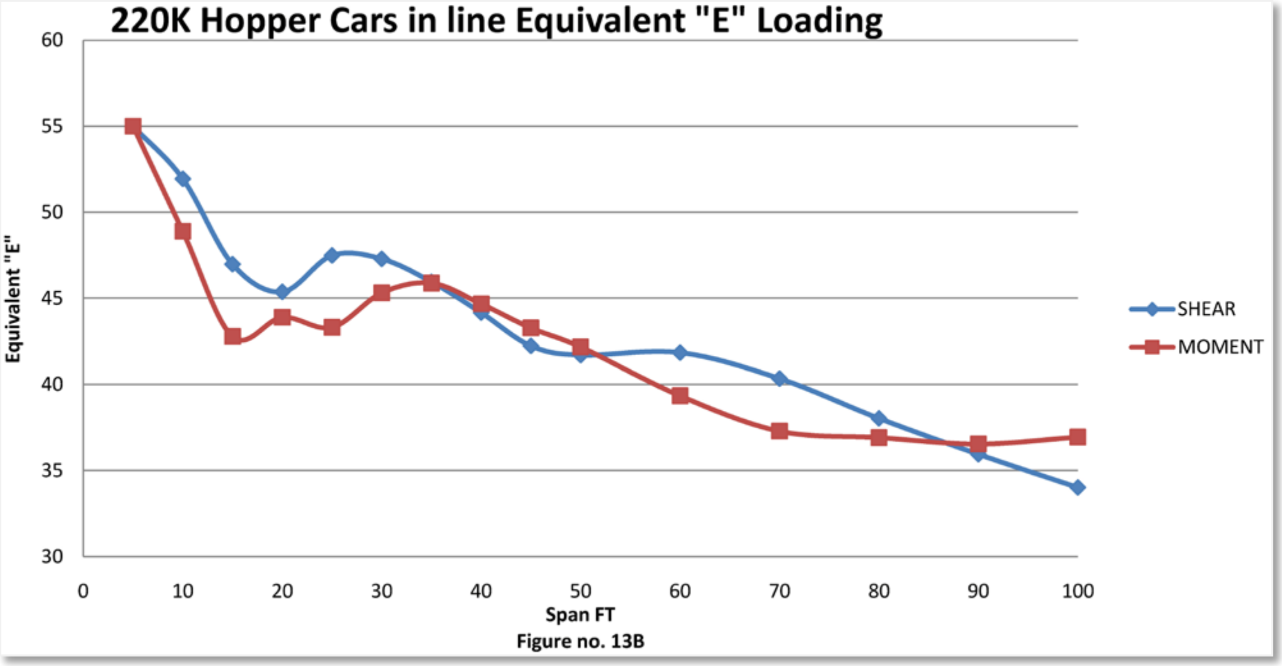
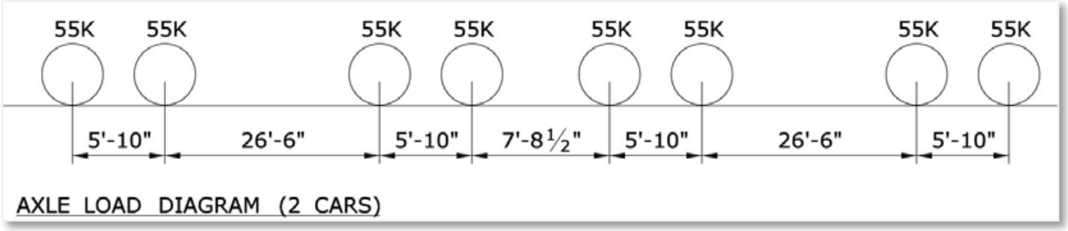


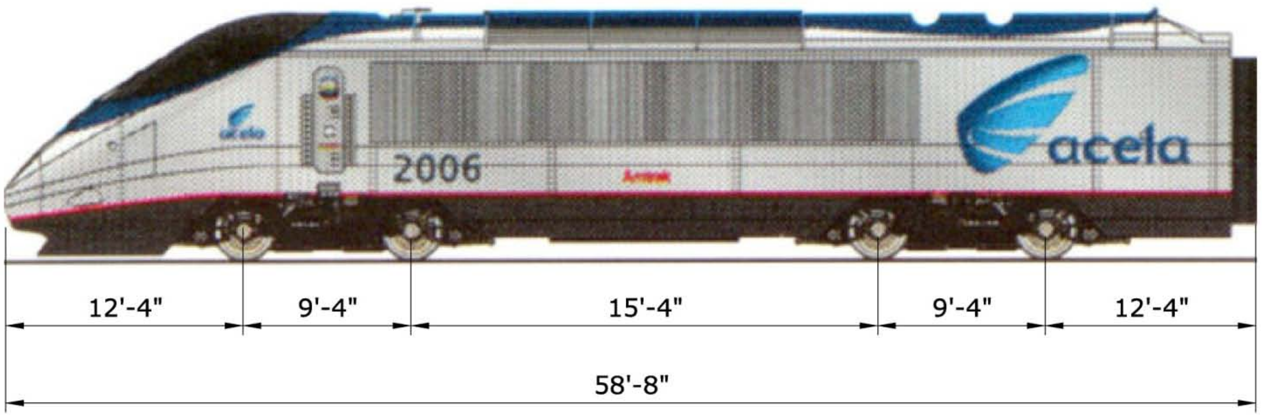
Figure no. 13B

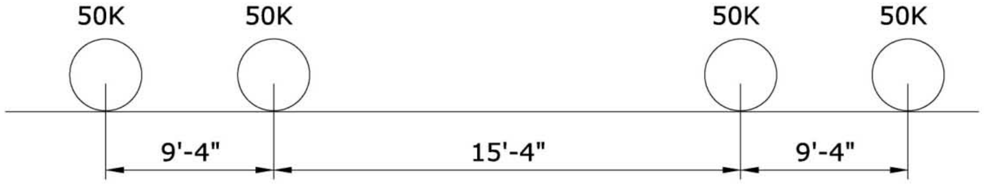


Load chart values are applicable to specific structural members. For limitations, see Executive Summary.

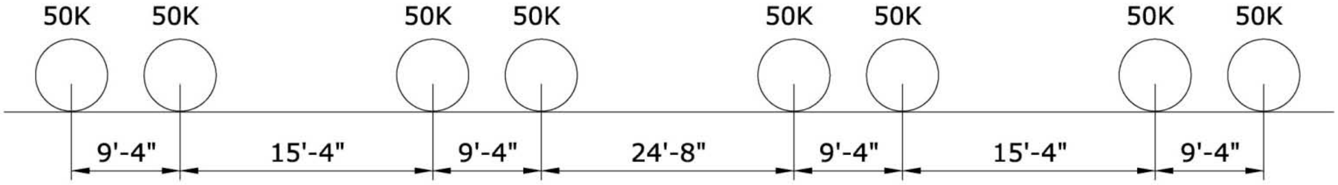
ACELA LOCOMOTIVE

WEIGHT: 200,000 LBS GROSS

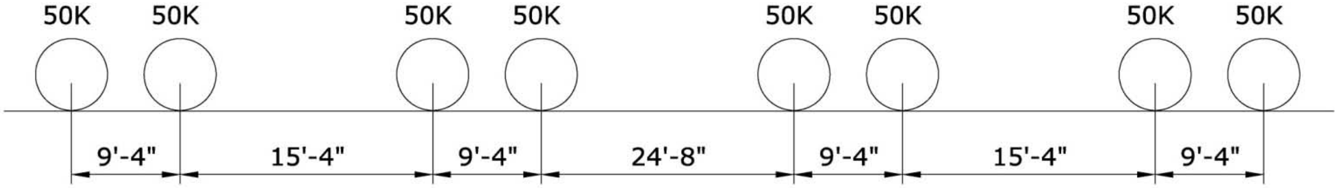




AXLE LOAD DIAGRAM (SINGLE ENGINE)



AXLE LOAD DIAGRAM (2 ENGINES SAME DIRECTION)



AXLE LOAD DIAGRAM (BACK TO BACK)

FIGURE NO. 14

ACELA Single Engine Equivalent Cooper Load

SPAN FT	SHEAR	MOMENT
5	E 50.00	E 50.00
10	E 35.56	E 44.44
15	E 34.44	E 30.00
20	E 30.67	E 28.22
25	E 28.90	E 27.01
30	E 29.63	E 26.05
35	E 29.71	E 26.58
40	E 30.46	E 26.88
45	E 30.45	E 26.96
50	E 30.26	E 27.87
60	E 29.25	E 27.84
70	E 27.41	E 26.89
80	E 25.35	E 25.78
90	E 23.64	E 24.47
100	E 22.13	E 23.37

Table No. 14A

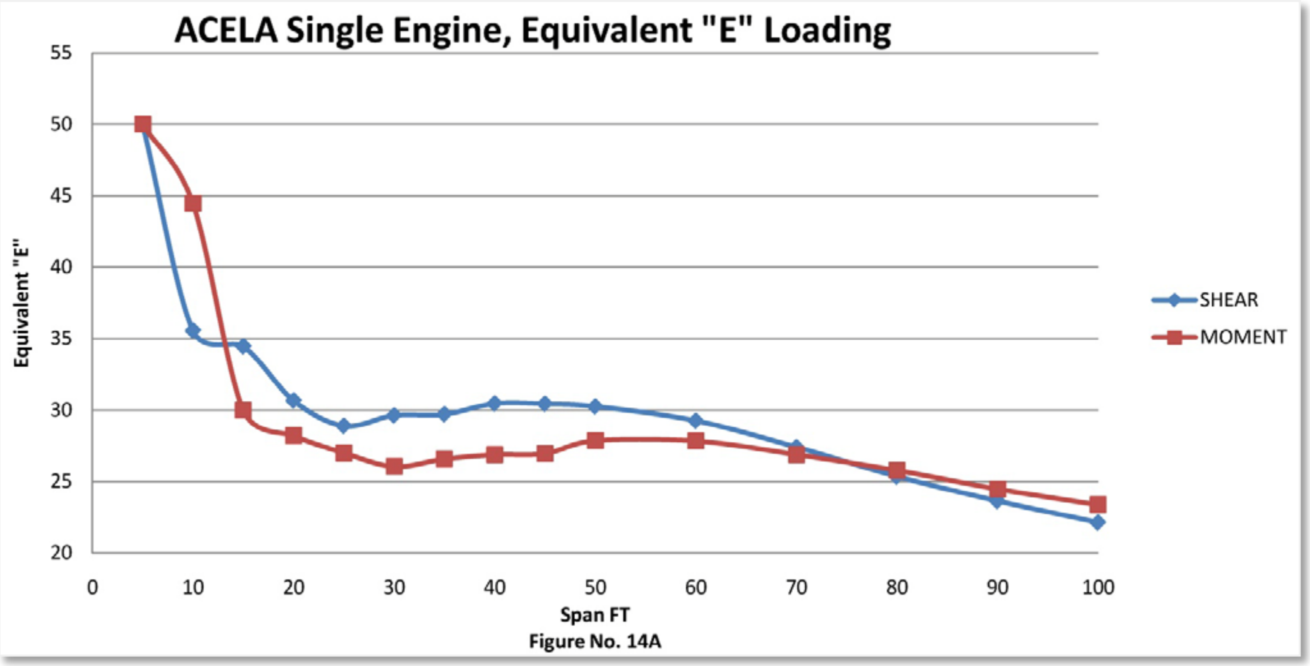
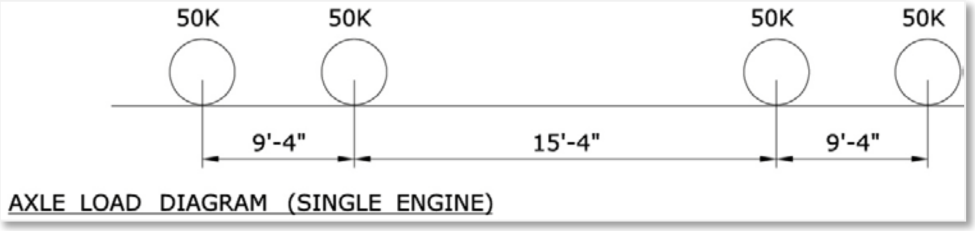


Figure No. 14A



Load chart values are applicable to specific structural members. For limitations, see Executive Summary.

Two ACELA in line Equivalent Cooper Load

SPAN FT	SHEAR	MOMENT
5	E 50.00	E 50.00
10	E 35.56	E 44.45
15	E 34.44	E 30.00
20	E 30.67	E 28.28
25	E 28.90	E 27.01
30	E 29.63	E 26.05
35	E 29.71	E 26.66
40	E 30.46	E 26.94
45	E 30.45	E 27.03
50	E 30.26	E 27.87
60	E 29.48	E 27.88
70	E 29.13	E 26.91
80	E 28.71	E 27.01
90	E 28.50	E 26.90
100	E 28.62	E 26.99

Table No. 14B

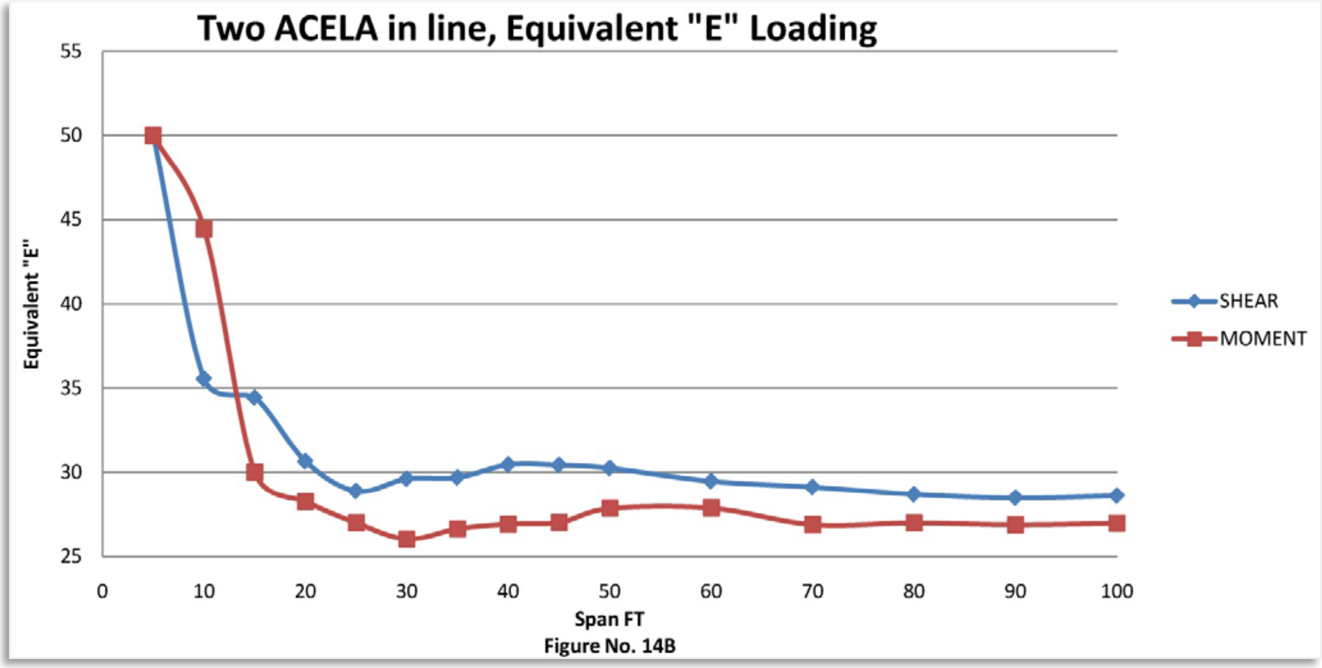
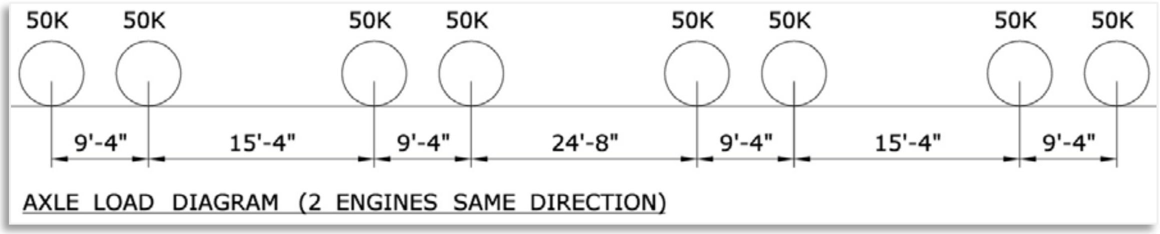


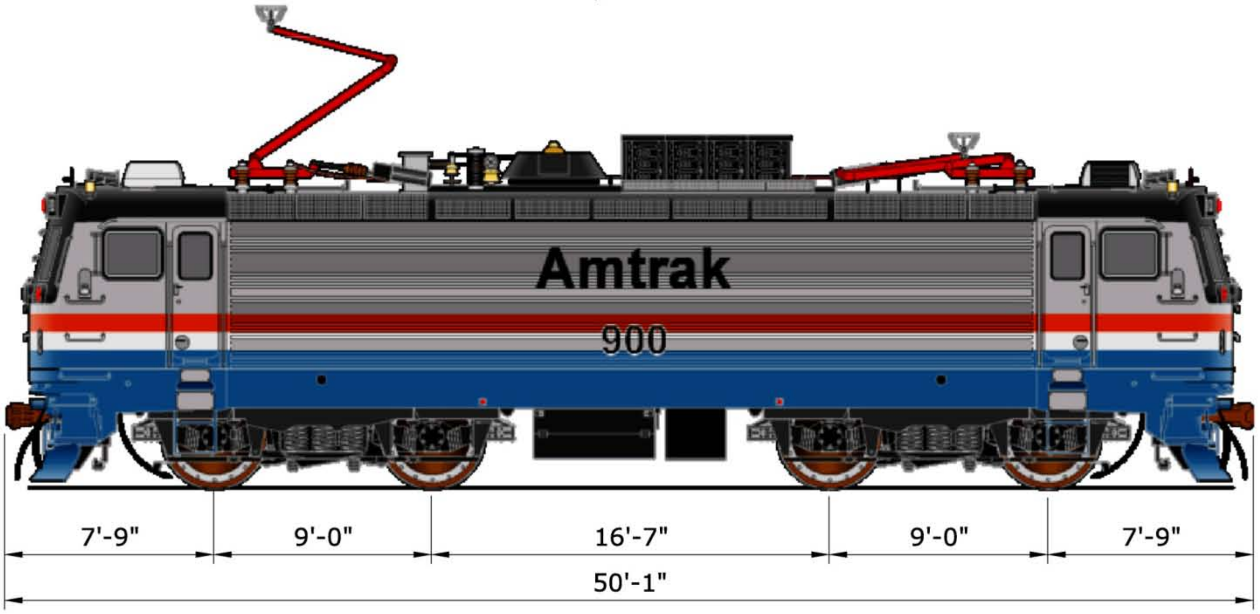
Figure No. 14B

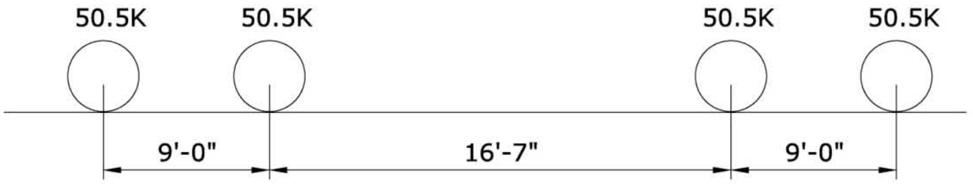


AXLE LOAD DIAGRAM (2 ENGINES SAME DIRECTION)

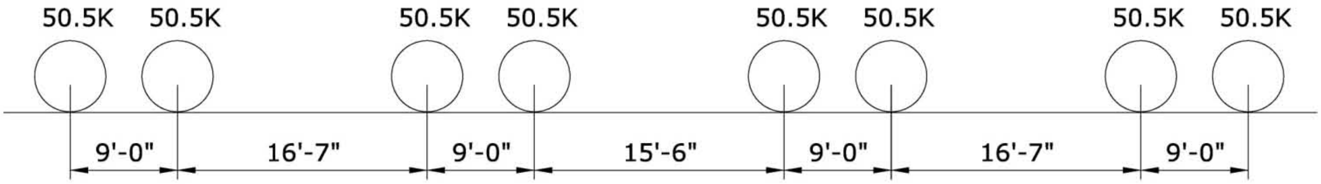
AEM-7 LOCOMOTIVE

WEIGHT: 202,000 LBS GROSS

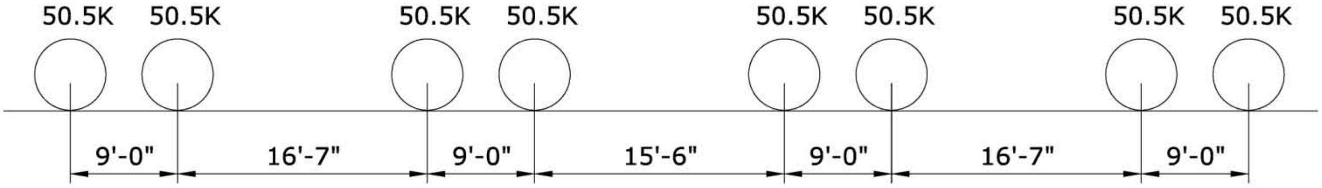




AXLE LOAD DIAGRAM (SINGLE ENGINE)



AXLE LOAD DIAGRAM (2 ENGINES SAME DIRECTION)



AXLE LOAD DIAGRAM (BACK TO BACK)

FIGURE NO. 15

AEM-7 Single Engine Equivalent Cooper Load

SPAN FT	SHEAR	MOMENT
5	E 50.49	E 50.50
10	E 37.03	E 44.89
15	E 35.35	E 30.30
20	E 31.31	E 29.25
25	E 29.19	E 27.73
30	E 29.61	E 26.65
35	E 29.52	E 26.04
40	E 30.38	E 26.50
45	E 30.43	E 26.44
50	E 30.29	E 27.36
60	E 29.34	E 27.61
70	E 27.53	E 26.76
80	E 25.49	E 25.69
90	E 23.78	E 24.47
100	E 22.28	E 23.32

Table No. 15A

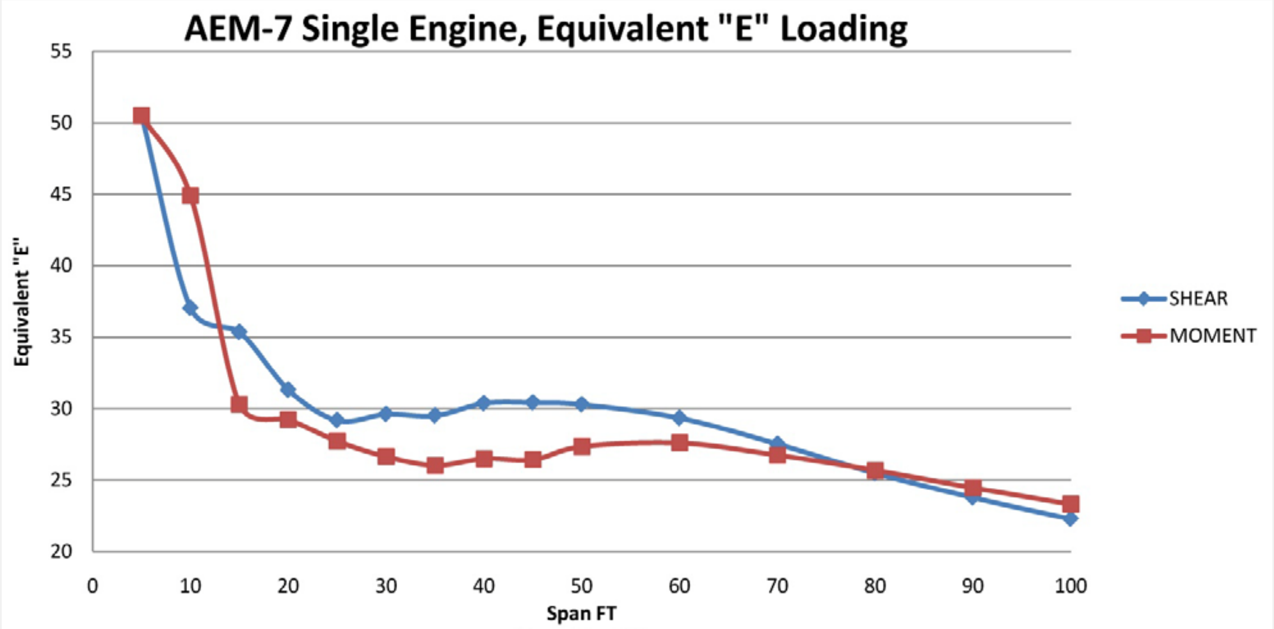
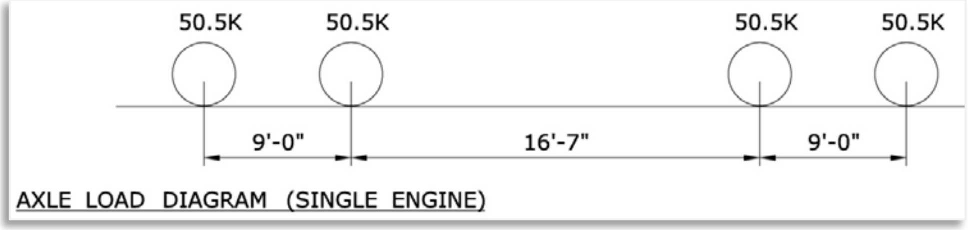


Figure No. 15A



Load chart values are applicable to specific structural members. For limitations, see Executive Summary.

Two AEM-7 in line Equivalent Cooper Load

SPAN FT	SHEAR	MOMENT
5	E 50.49	E 50.51
10	E 37.03	E 44.90
15	E 35.35	E 30.30
20	E 31.31	E 29.25
25	E 29.36	E 27.74
30	E 30.06	E 26.66
35	E 30.28	E 27.01
40	E 30.99	E 27.27
45	E 30.93	E 27.51
50	E 30.71	E 28.35
60	E 31.49	E 29.29
70	E 31.77	E 29.82
80	E 31.09	E 30.60
90	E 31.18	E 31.15
100	E 31.06	E 31.28

Table No. 15B

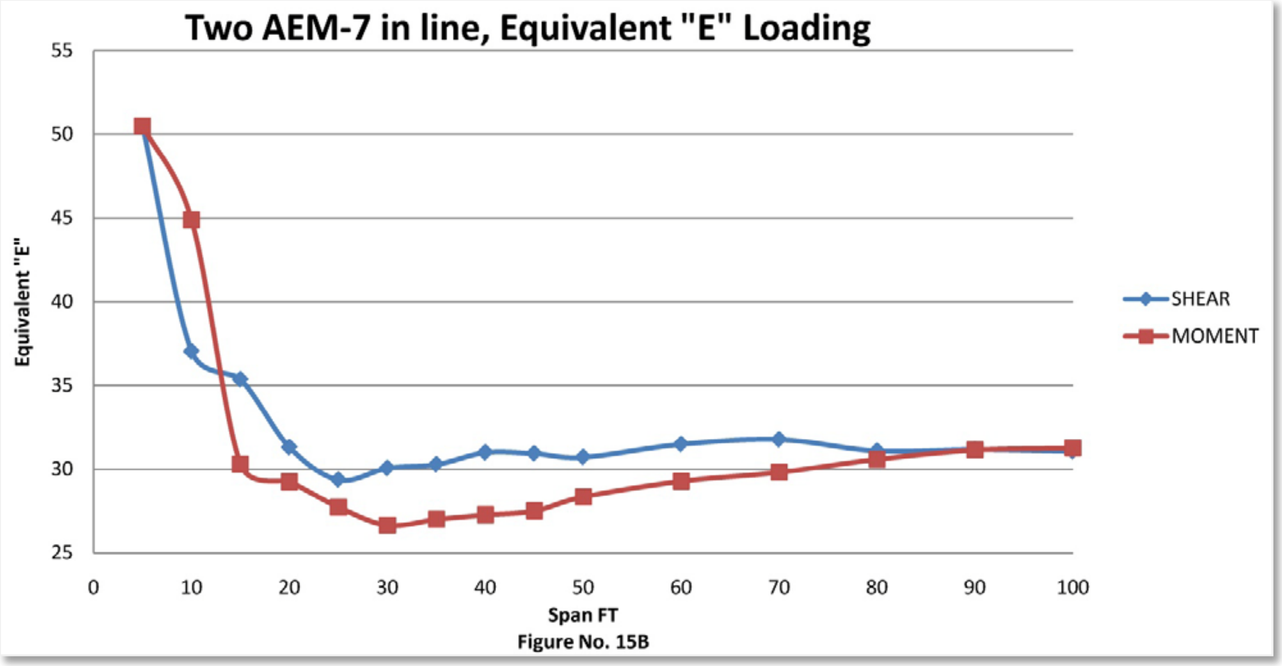
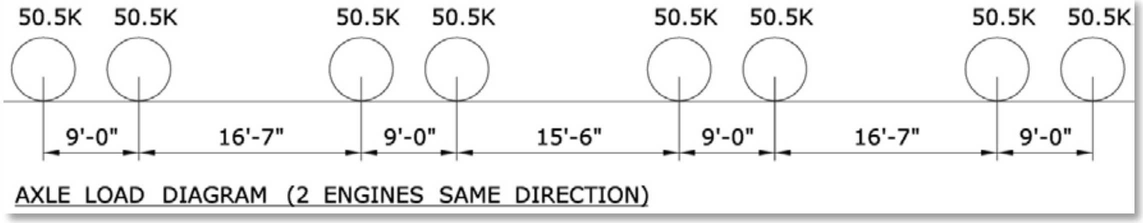


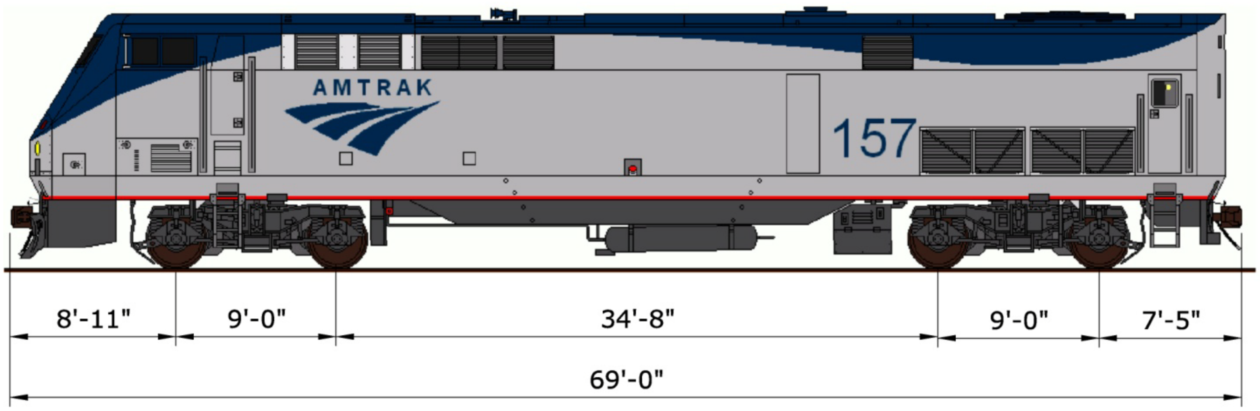
Figure No. 15B

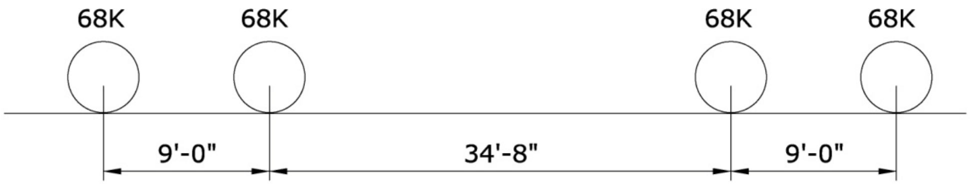


Load chart values are applicable to specific structural members. For limitations, see Executive Summary.

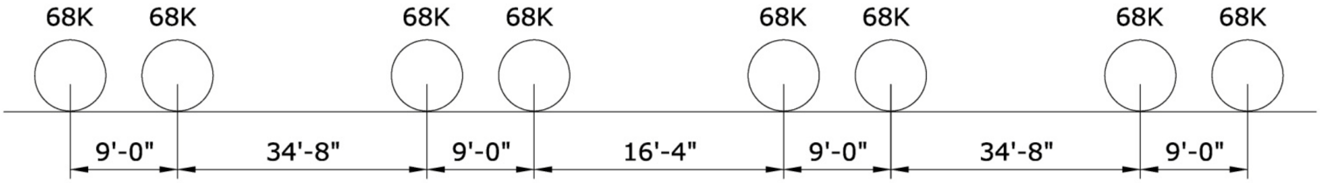
AMD-103 (GENESIS) LOCOMOTIVE

WEIGHT: 272,000 LBS GROSS

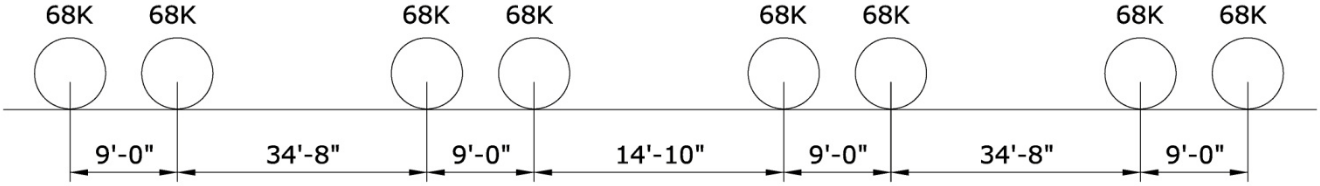




AXLE LOAD DIAGRAM (SINGLE ENGINE)



AXLE LOAD DIAGRAM (2 ENGINES SAME DIRECTION)



AXLE LOAD DIAGRAM (BACK TO BACK)

FIGURE NO. 16

AMD-103 Single Engine Equivalent Cooper Load

SPAN FT	SHEAR	MOMENT
5	E 67.99	E 68.00
10	E 49.86	E 60.44
15	E 47.60	E 40.80
20	E 42.16	E 39.38
25	E 39.30	E 37.35
30	E 36.70	E 35.89
35	E 34.23	E 34.56
40	E 31.97	E 32.55
45	E 30.44	E 30.79
50	E 30.34	E 29.40
60	E 31.15	E 26.70
70	E 30.71	E 24.95
80	E 29.37	E 25.12
90	E 28.04	E 25.27
100	E 26.72	E 25.02

Table No. 16A

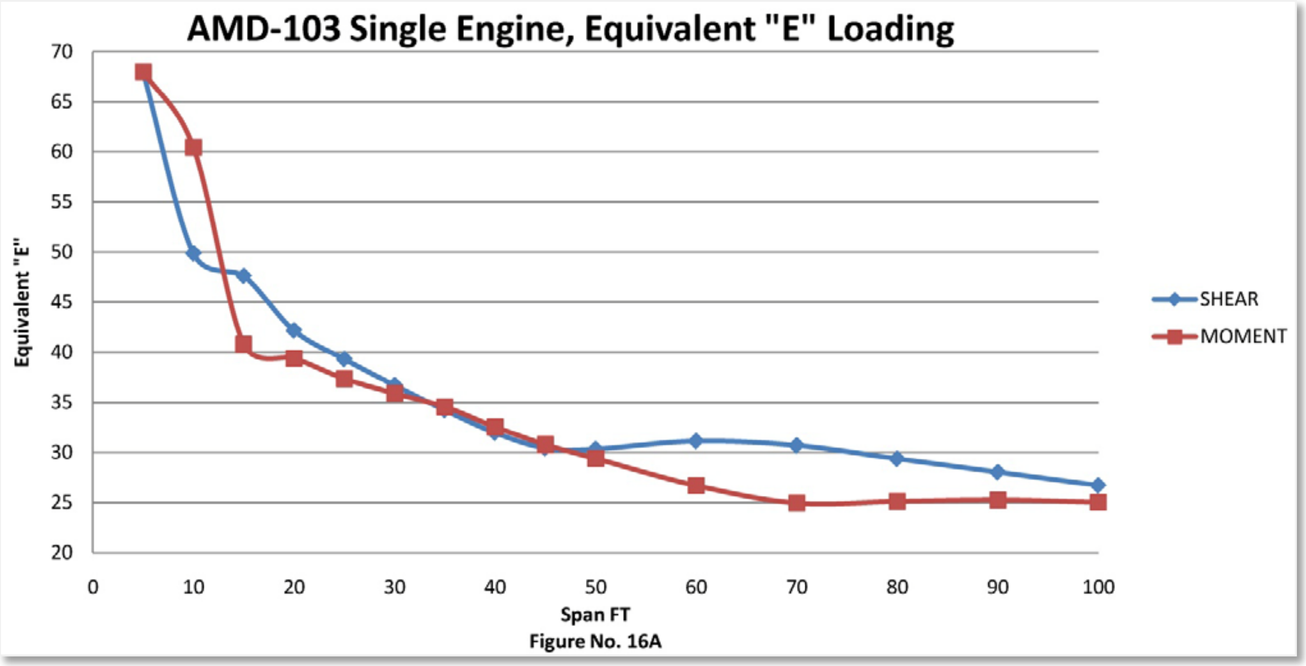
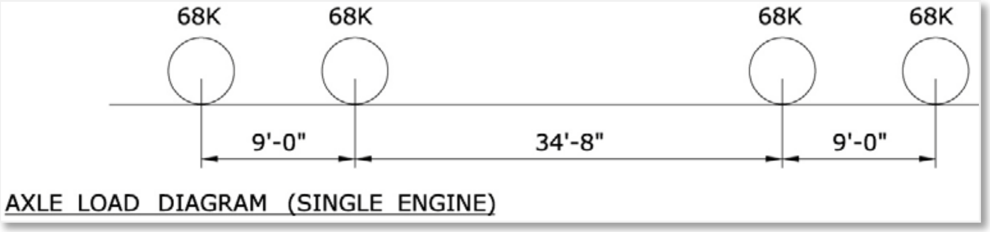


Figure No. 16A



Load chart values are applicable to specific structural members. For limitations, see Executive Summary.

Two AMD-103 in line Equivalent Cooper Load

SPAN FT	SHEAR	MOMENT
5	E 68.00	E 68.01
10	E 49.86	E 60.45
15	E 47.60	E 40.80
20	E 42.16	E 39.38
25	E 39.30	E 37.35
30	E 39.70	E 35.89
35	E 39.65	E 35.39
40	E 40.83	E 35.95
45	E 40.91	E 35.91
50	E 40.73	E 37.14
60	E 39.47	E 37.40
70	E 37.19	E 36.20
80	E 36.03	E 34.73
90	E 35.60	E 33.28
100	E 34.70	E 32.84

Table No. 16B

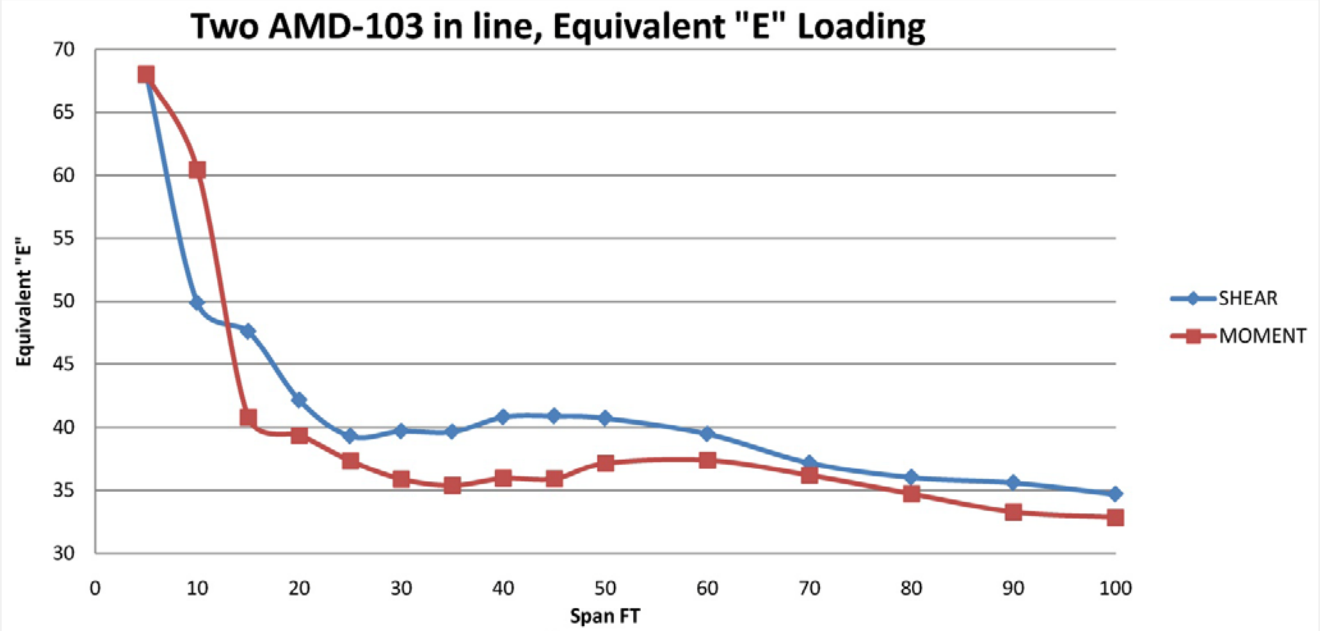
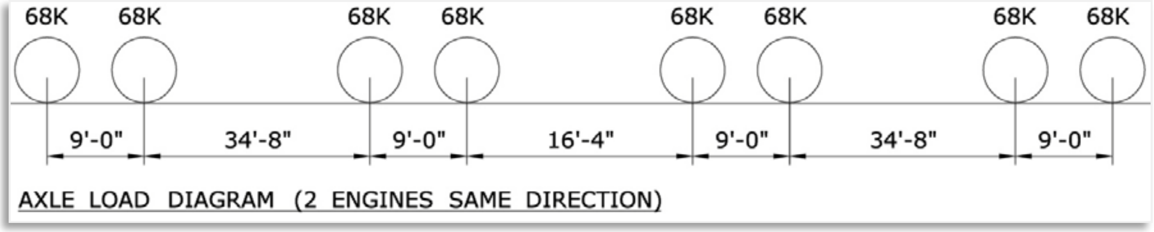


Figure No. 16B



Load chart values are applicable to specific structural members. For limitations, see Executive Summary.

Two AMD-103 Back to Back Equivalent Cooper Load

SPAN FT	SHEAR	MOMENT
5	E 68.00	E 68.01
10	E 49.86	E 60.45
15	E 47.60	E 40.80
20	E 42.16	E 39.38
25	E 39.94	E 37.35
30	E 40.78	E 35.89
35	E 41.33	E 37.34
40	E 42.18	E 37.50
45	E 42.02	E 38.04
50	E 41.67	E 38.93
60	E 40.17	E 38.71
70	E 37.98	E 37.19
80	E 36.85	E 35.51
90	E 36.26	E 34.05
100	E 35.25	E 33.48

Table No. 16C

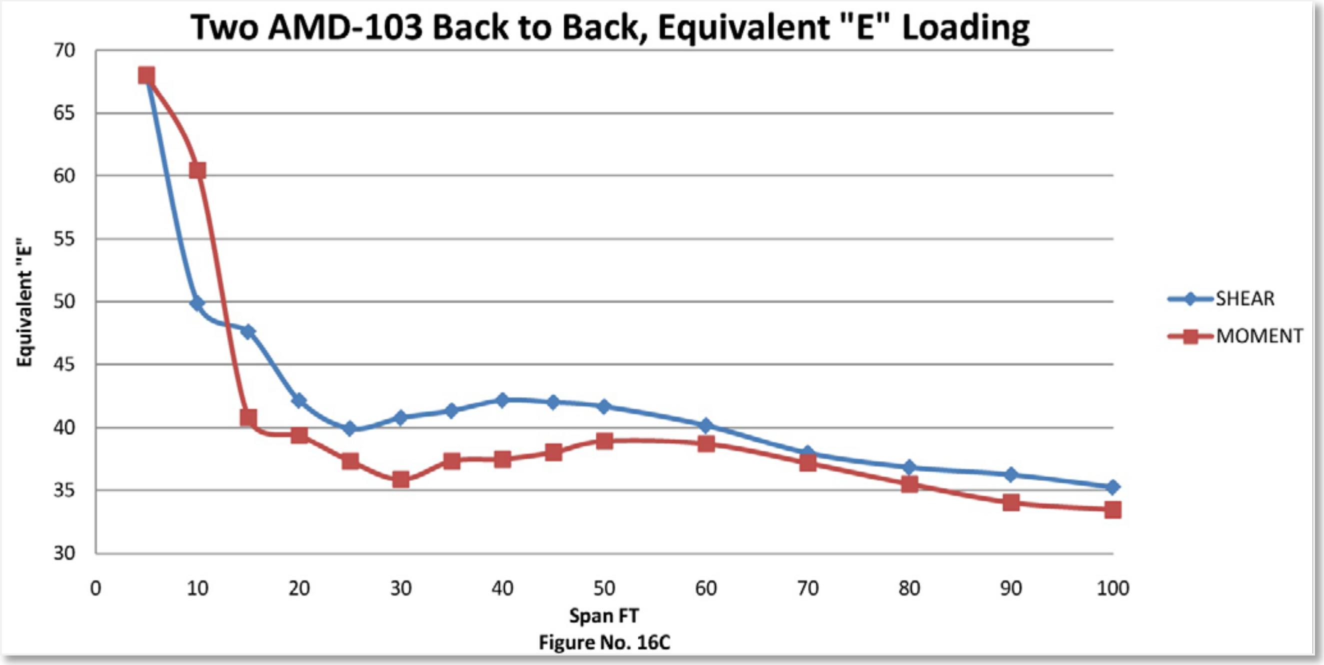
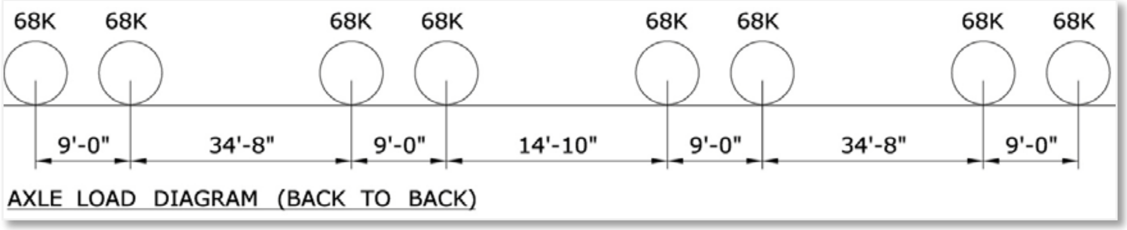


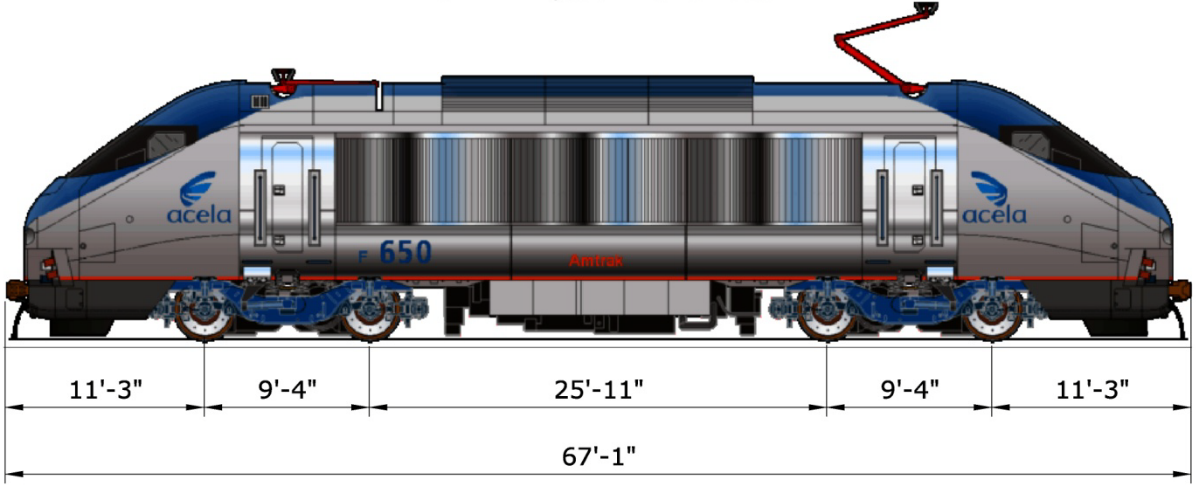
Figure No. 16C

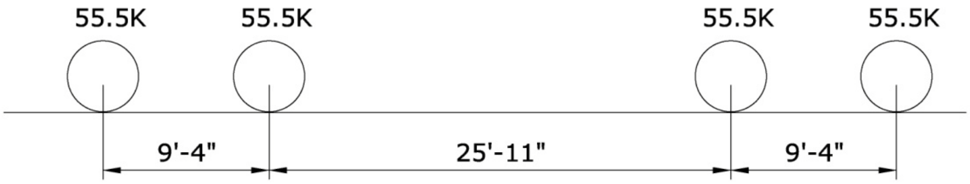


Load chart values are applicable to specific structural members. For limitations, see Executive Summary.

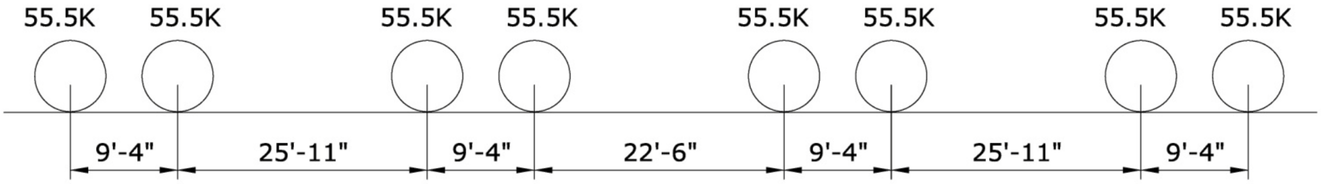
HHP-8 ELECTRIC LOCOMOTIVE

WEIGHT: 222,000 LBS GROSS

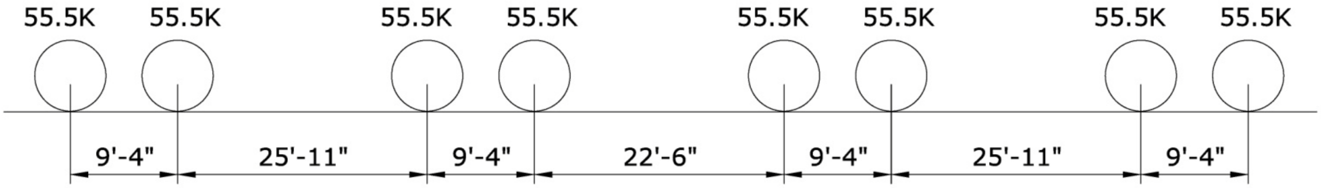




AXLE LOAD DIAGRAM (SINGLE ENGINE)



AXLE LOAD DIAGRAM (2 ENGINES SAME DIRECTION)



AXLE LOAD DIAGRAM (BACK TO BACK)

FIGURE NO. 17

HHP-8 Single Engine Equivalent Cooper Load

SPAN FT	SHEAR	MOMENT
5	E 55.50	E 55.50
10	E 39.47	E 49.33
15	E 38.23	E 33.30
20	E 34.04	E 31.32
25	E 31.82	E 29.98
30	E 29.76	E 28.92
35	E 27.78	E 27.88
40	E 27.54	E 26.33
45	E 27.21	E 24.94
50	E 28.03	E 23.81
60	E 28.35	E 23.50
70	E 27.29	E 24.12
80	E 25.70	E 24.08
90	E 24.28	E 23.52
100	E 22.95	E 22.82

Table No. 17A

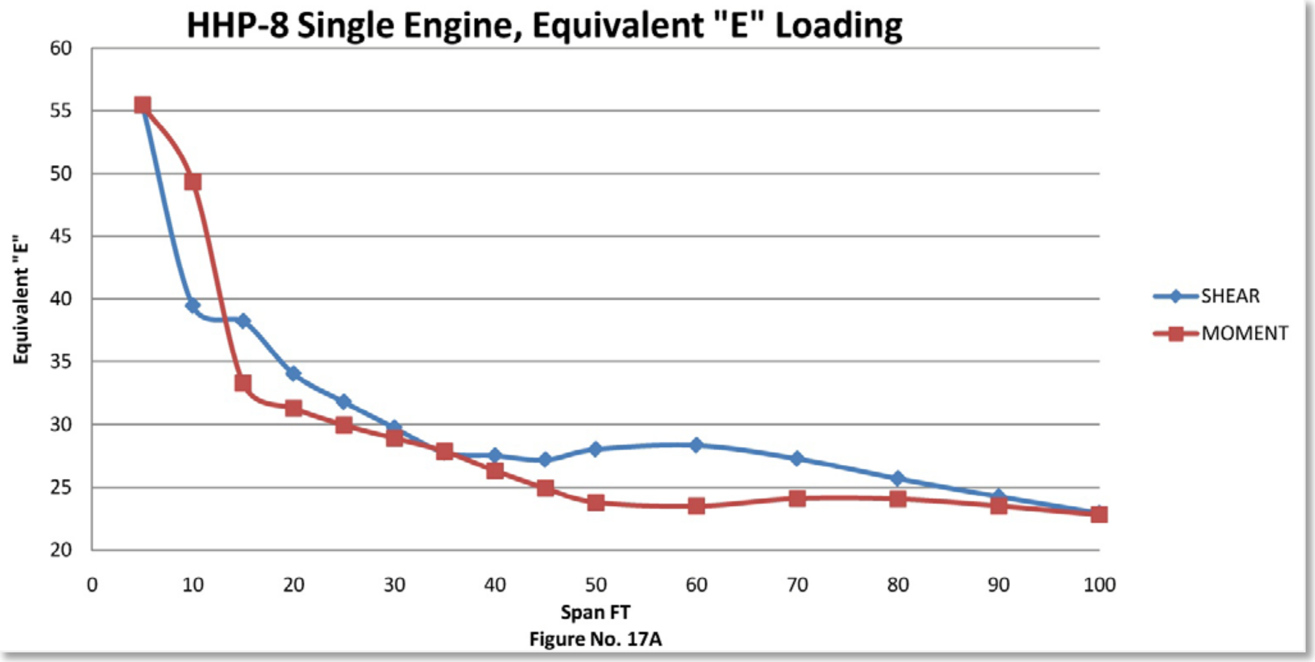
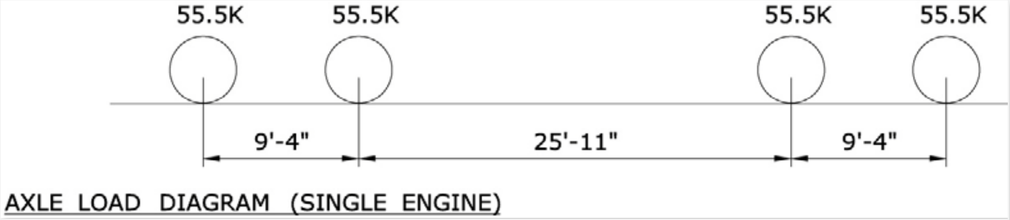


Figure No. 17A



Load chart values are applicable to specific structural members. For limitations, see Executive Summary.

Two HHP-8 in line Equivalent Cooper Load

SPAN FT	SHEAR	MOMENT
5	E 55.50	E 55.50
10	E 39.47	E 49.33
15	E 38.23	E 33.30
20	E 34.04	E 31.40
25	E 31.82	E 29.98
30	E 29.76	E 28.92
35	E 29.23	E 27.91
40	E 28.97	E 26.33
45	E 29.47	E 24.94
50	E 29.94	E 25.26
60	E 29.76	E 25.82
70	E 28.78	E 25.98
80	E 28.38	E 25.96
90	E 28.23	E 26.30
100	E 27.69	E 26.95

Table No. 17B

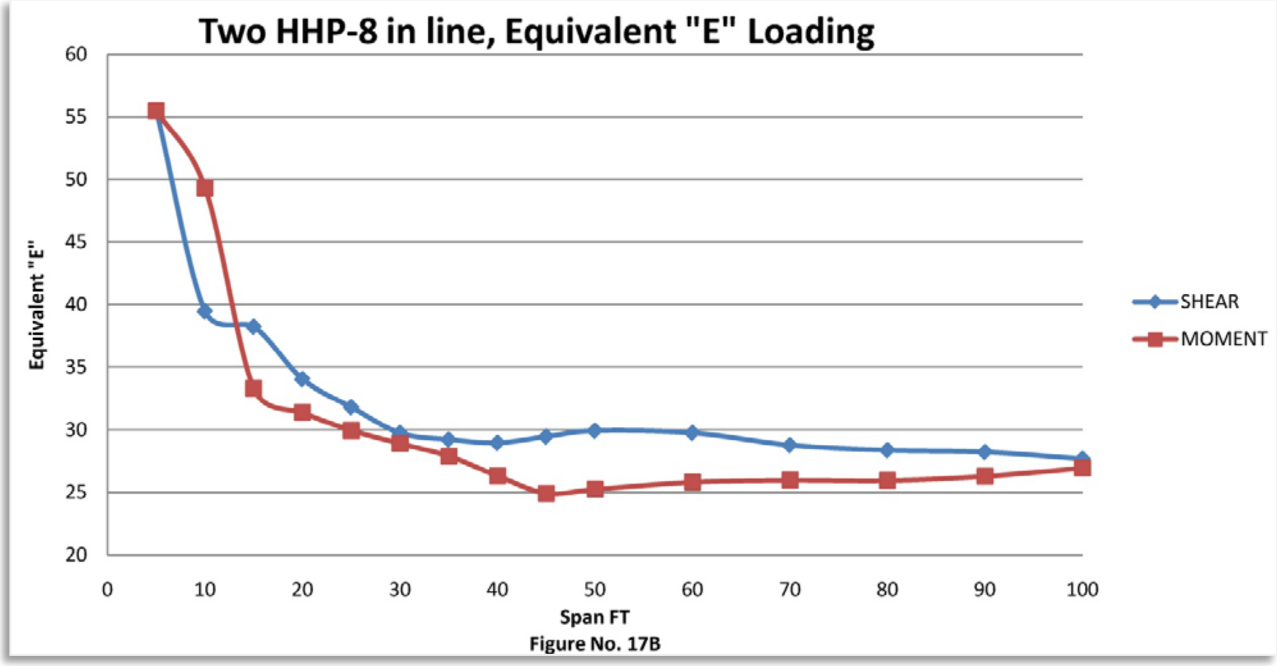
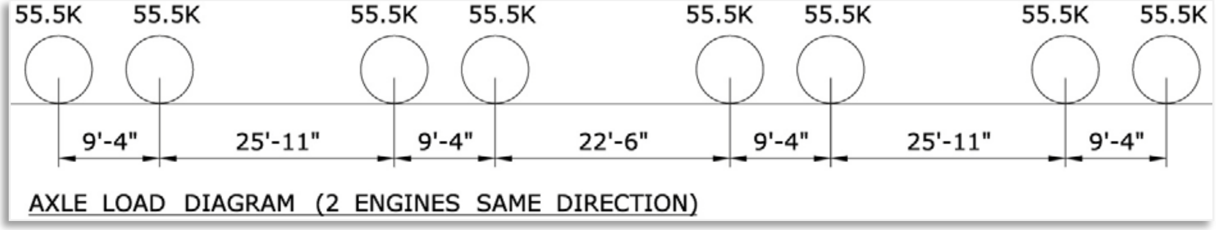


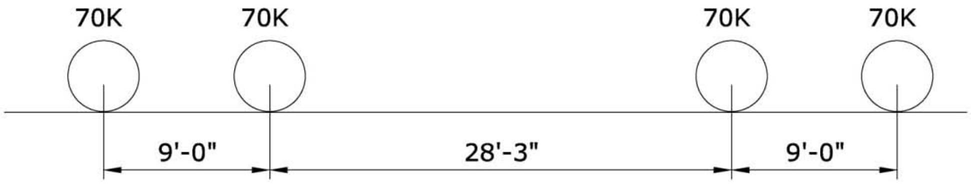
Figure No. 17B



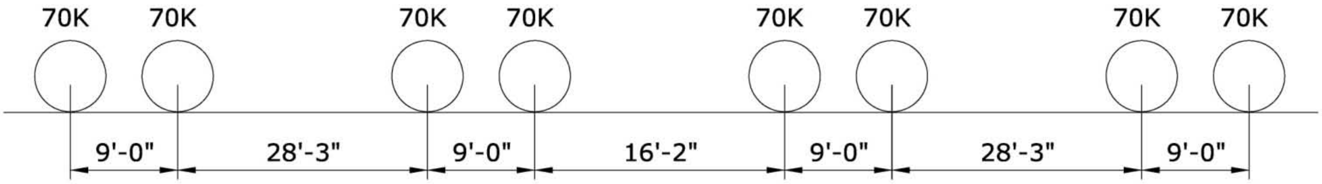
Load chart values are applicable to specific structural members. For limitations, see Executive Summary.

GP40/GP40-2H LOCOMOTIVE

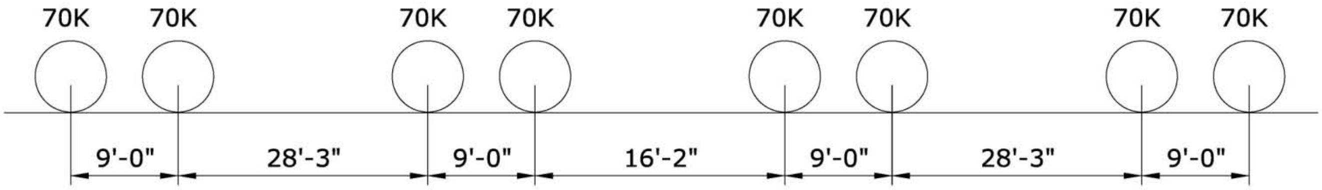
WEIGHT: 280,000 LBS GROSS



AXLE LOAD DIAGRAM (SINGLE ENGINE)



AXLE LOAD DIAGRAM (2 ENGINES SAME DIRECTION)



AXLE LOAD DIAGRAM (BACK TO BACK)

FIGURE NO. 18

GP40 Single Engine Equivalent Cooper Load

SPAN FT	SHEAR	MOMENT
5	E 69.99	E 70.00
10	E 51.33	E 62.22
15	E 49.00	E 42.00
20	E 43.40	E 40.44
25	E 40.46	E 38.32
30	E 37.78	E 36.95
35	E 35.23	E 35.54
40	E 34.19	E 33.45
45	E 33.77	E 31.70
50	E 34.50	E 30.24
60	E 35.12	E 28.81
70	E 33.94	E 29.07
80	E 32.04	E 29.31
90	E 30.32	E 28.82
100	E 28.70	E 28.07

Table No. 18A

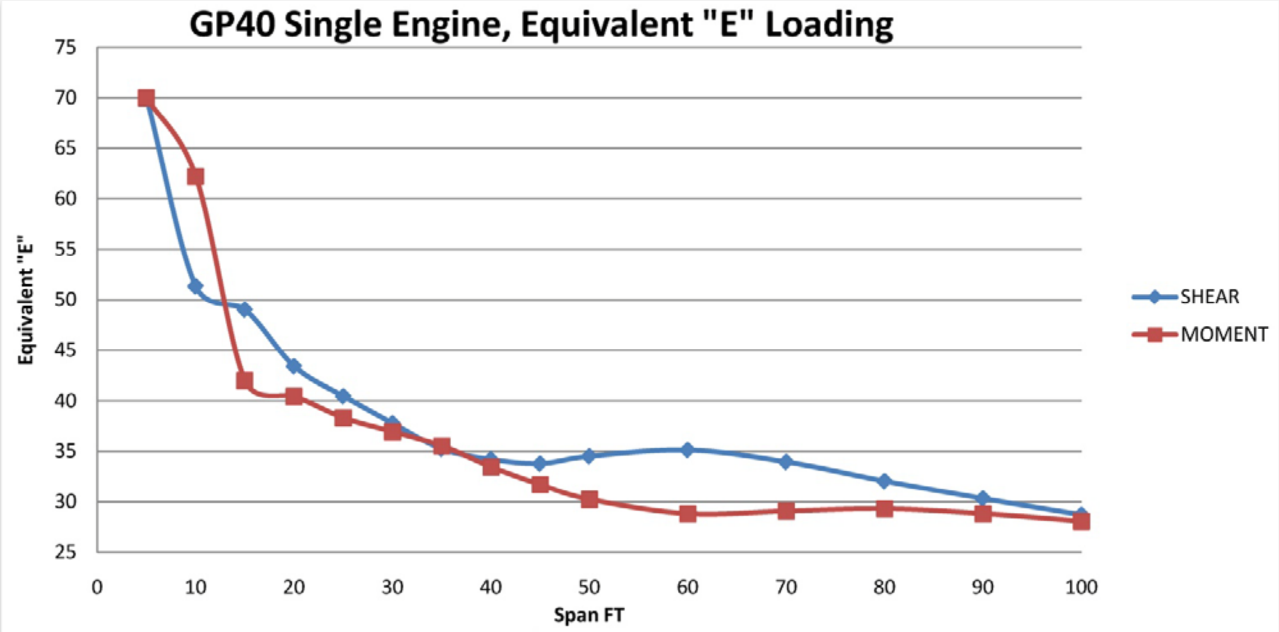
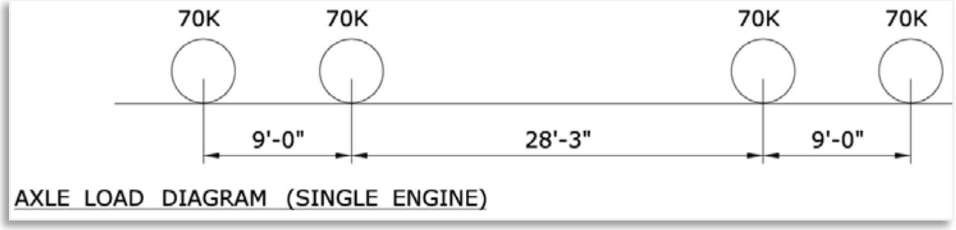


Figure No. 18A



Load chart values are applicable to specific structural members. For limitations, see Executive Summary.

Two GP40 in line Equivalent Cooper Load

SPAN FT	SHEAR	MOMENT
5	E 70.00	E 70.01
10	E 51.33	E 62.23
15	E 49.00	E 42.00
20	E 43.40	E 40.54
25	E 40.46	E 38.44
30	E 41.36	E 36.95
35	E 41.40	E 36.65
40	E 42.49	E 37.18
45	E 42.50	E 37.21
50	E 42.25	E 38.48
60	E 40.87	E 38.65
70	E 39.68	E 37.35
80	E 39.13	E 36.44
90	E 38.29	E 36.03
100	E 37.13	E 36.13

Table No. 18B

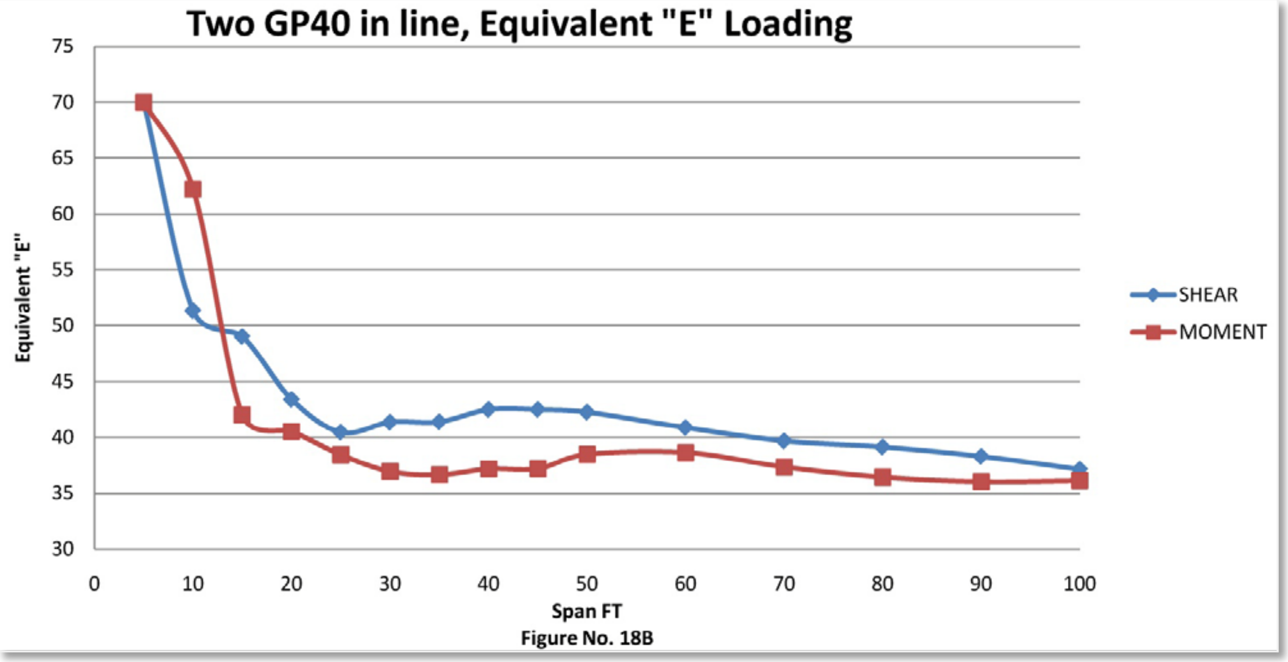
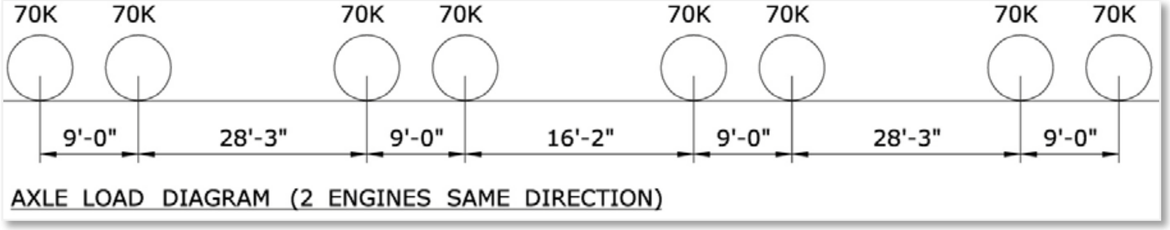


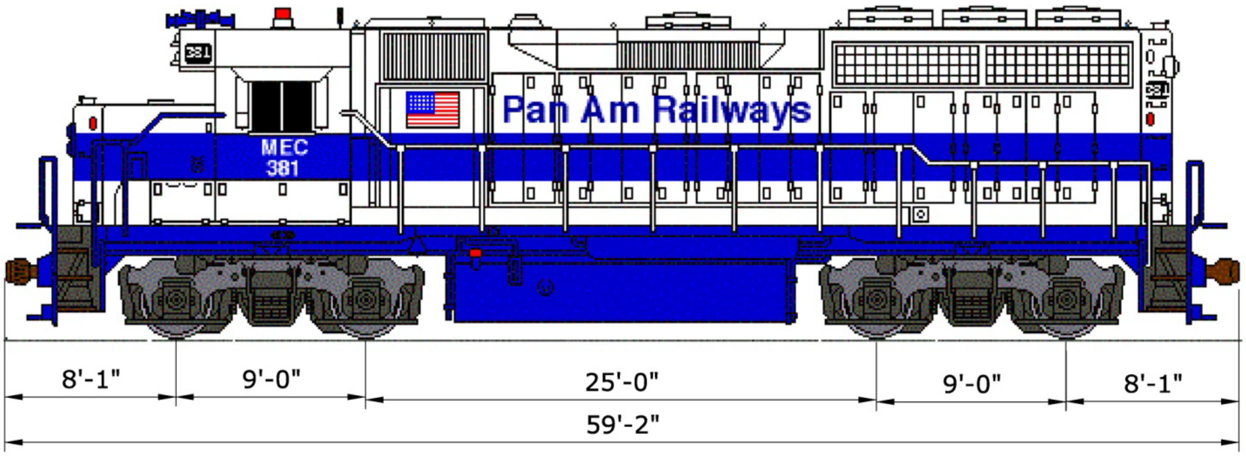
Figure No. 18B

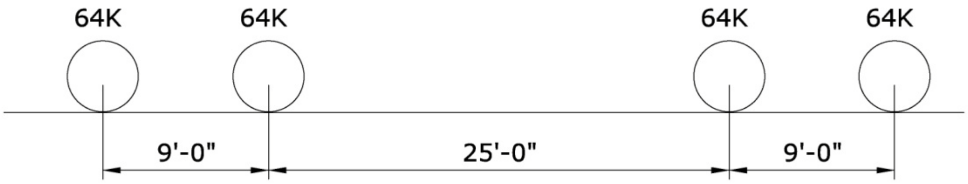


Load chart values are applicable to specific structural members. For limitations, see Executive Summary.

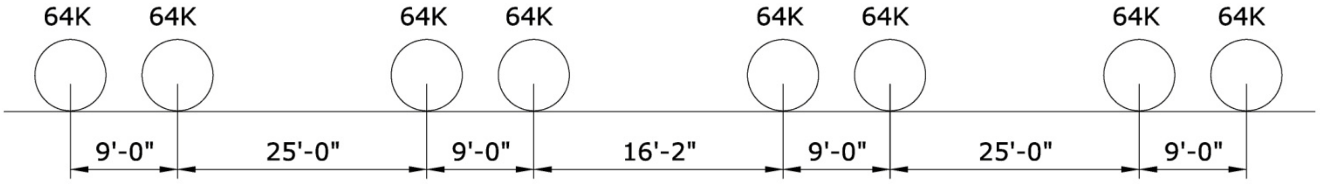
GP40-2 LOCOMOTIVE

WEIGHT: 256,000 LBS GROSS

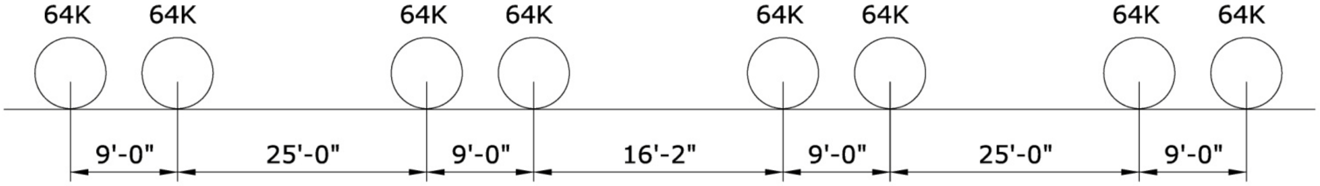




AXLE LOAD DIAGRAM (SINGLE ENGINE)



AXLE LOAD DIAGRAM (2 ENGINES SAME DIRECTION)



AXLE LOAD DIAGRAM (BACK TO BACK)

FIGURE NO. 19

GP40-2 Single Engine Equivalent Cooper Load

SPAN FT	SHEAR	MOMENT
5	E 63.99	E 64.00
10	E 46.93	E 56.89
15	E 44.80	E 38.40
20	E 39.68	E 36.98
25	E 36.99	E 35.03
30	E 34.54	E 33.78
35	E 32.74	E 32.49
40	E 32.63	E 30.58
45	E 32.71	E 28.98
50	E 33.45	E 27.93
60	E 33.52	E 28.08
70	E 32.10	E 28.61
80	E 30.13	E 28.40
90	E 28.39	E 27.65
100	E 26.79	E 26.74

Table No. 19A

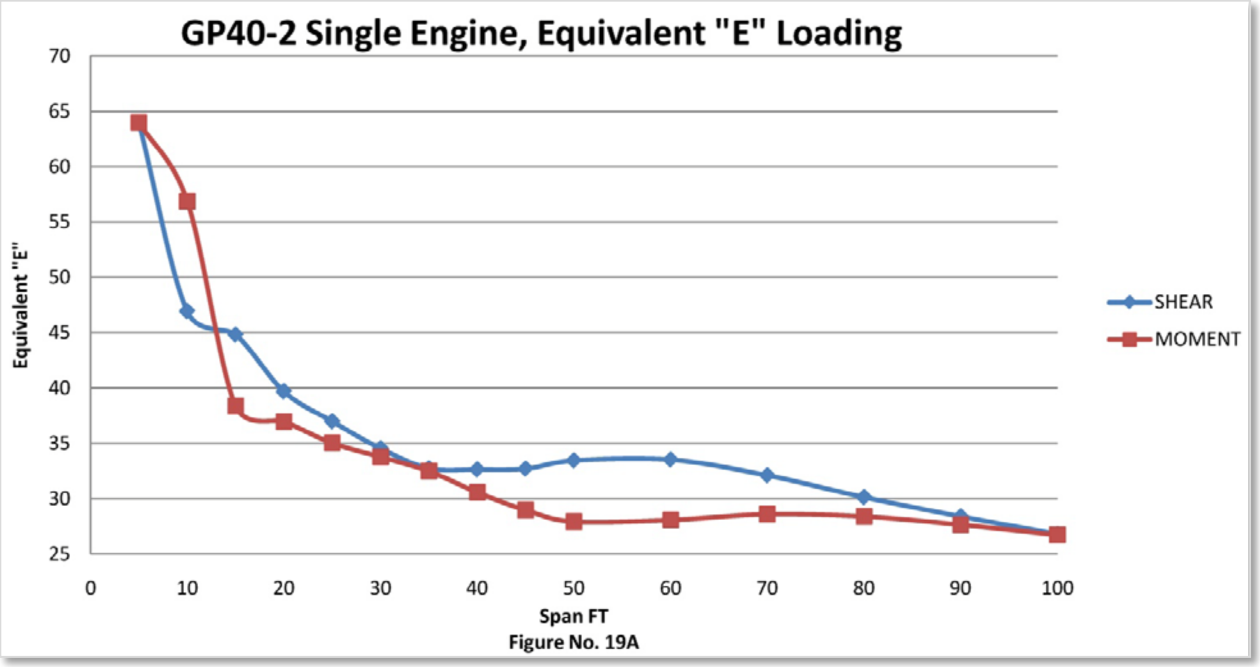
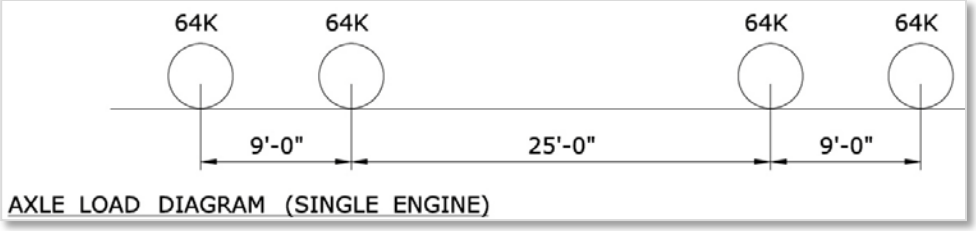


Figure No. 19A



Load chart values are applicable to specific structural members. For limitations, see Executive Summary.

Two GP40-2 in line Equivalent Cooper Load

SPAN FT	SHEAR	MOMENT
5	E 63.99	E 64.00
10	E 46.93	E 56.89
15	E 44.80	E 38.40
20	E 39.68	E 37.07
25	E 36.99	E 35.15
30	E 37.81	E 33.78
35	E 37.85	E 33.51
40	E 38.85	E 34.00
45	E 38.85	E 34.02
50	E 38.63	E 35.18
60	E 37.55	E 35.34
70	E 37.12	E 34.15
80	E 36.61	E 34.28
90	E 35.68	E 34.20
100	E 34.50	E 34.28

Table No. 19B

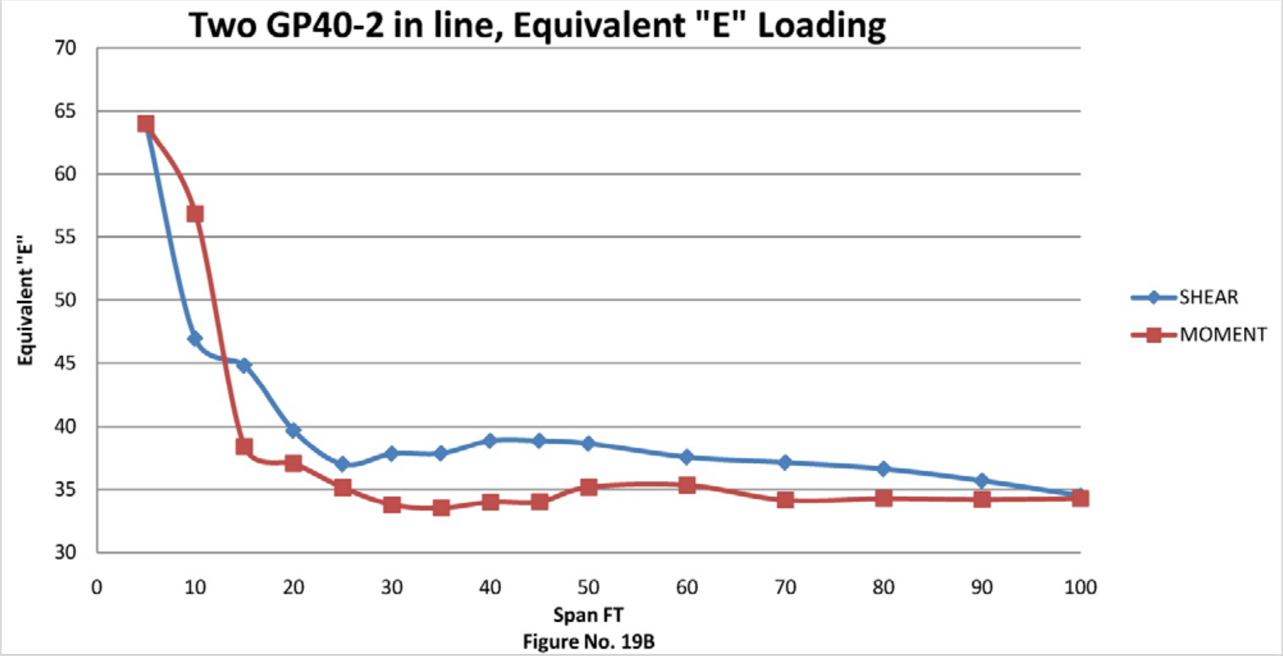
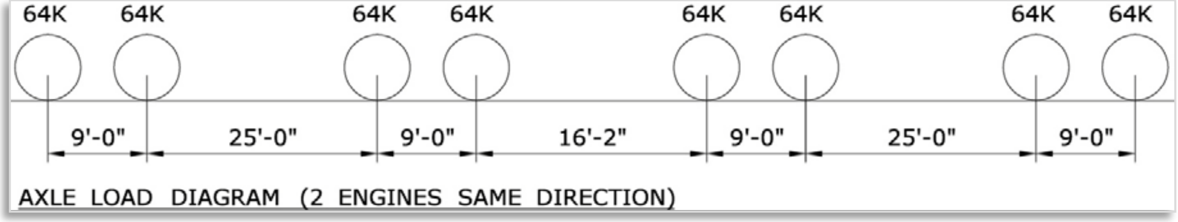


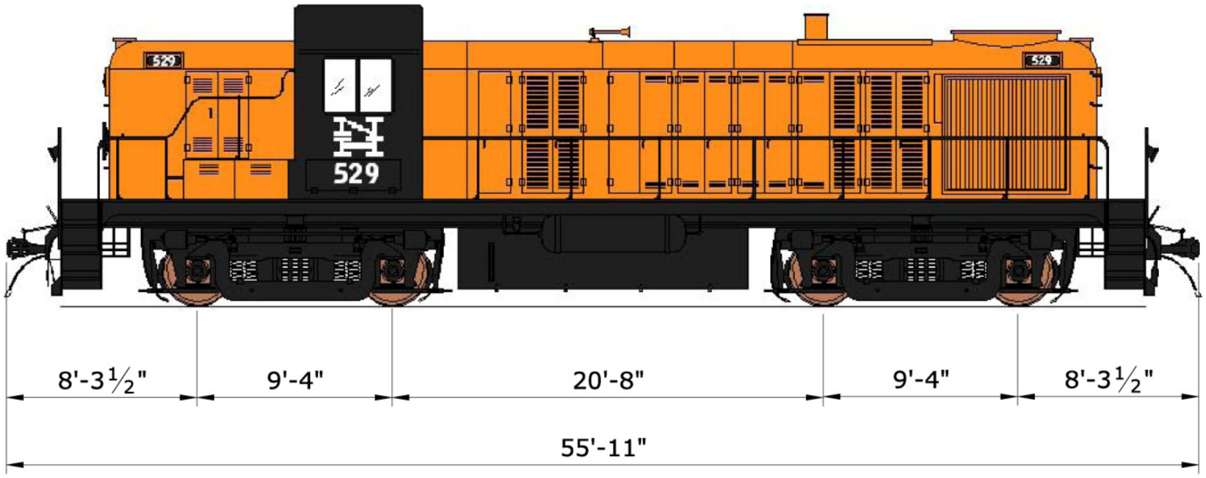
Figure No. 19B

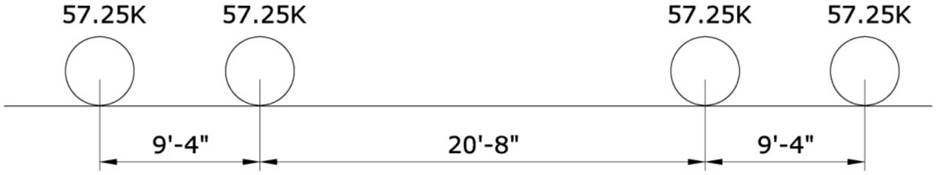


Load chart values are applicable to specific structural members. For limitations, see Executive Summary.

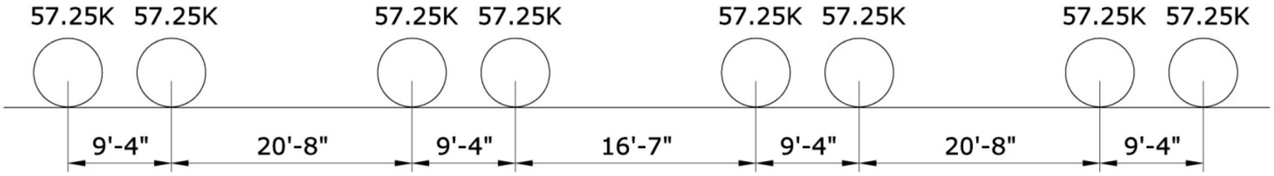
RS-3 LOCOMOTIVE

WEIGHT: 229,000 LBS GROSS

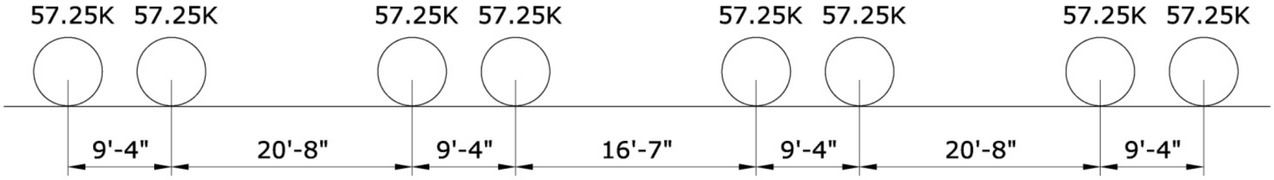




AXLE LOAD DIAGRAM (SINGLE ENGINE)



AXLE LOAD DIAGRAM (2 ENGINES SAME DIRECTION)



AXLE LOAD DIAGRAM (BACK TO BACK)

FIGURE NO. 20

RS-3 Single Engine Equivalent Cooper Load

SPAN FT	SHEAR	MOMENT
5	E 57.24	E 57.25
10	E 40.71	E 50.89
15	E 39.44	E 34.35
20	E 35.11	E 32.38
25	E 32.82	E 30.92
30	E 30.69	E 29.83
35	E 31.02	E 28.79
40	E 30.84	E 27.16
45	E 31.54	E 26.83
50	E 31.84	E 27.09
60	E 31.41	E 28.01
70	E 29.80	E 27.83
80	E 27.80	E 27.16
90	E 26.08	E 26.14
100	E 24.53	E 25.10

Table No. 20A

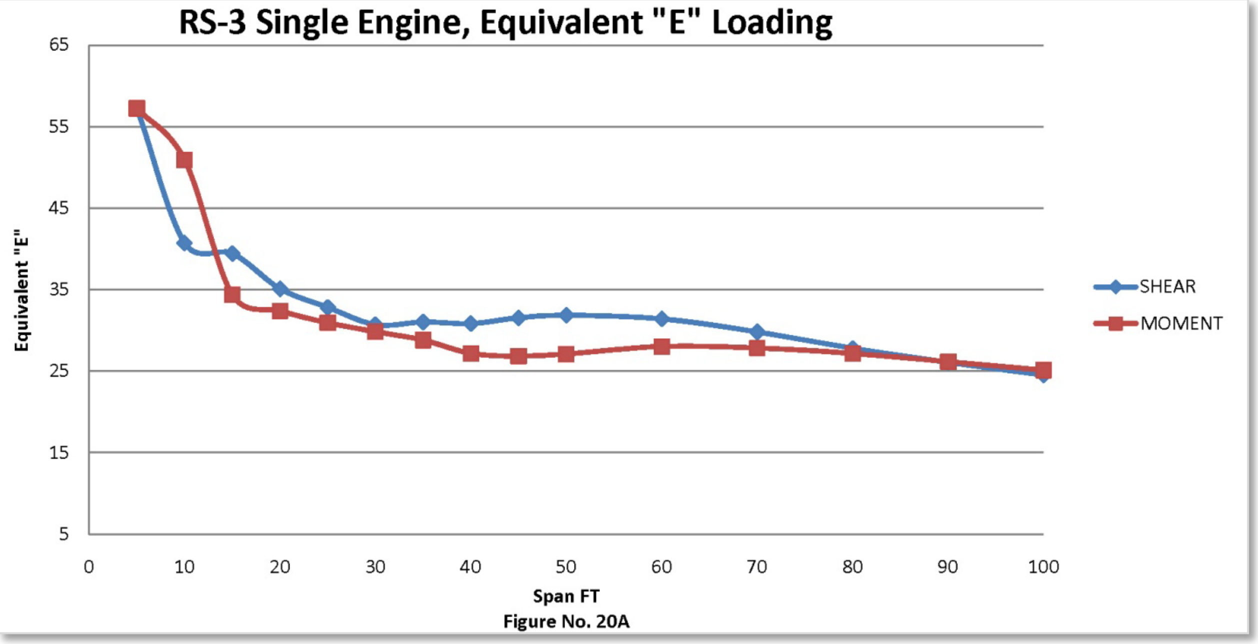
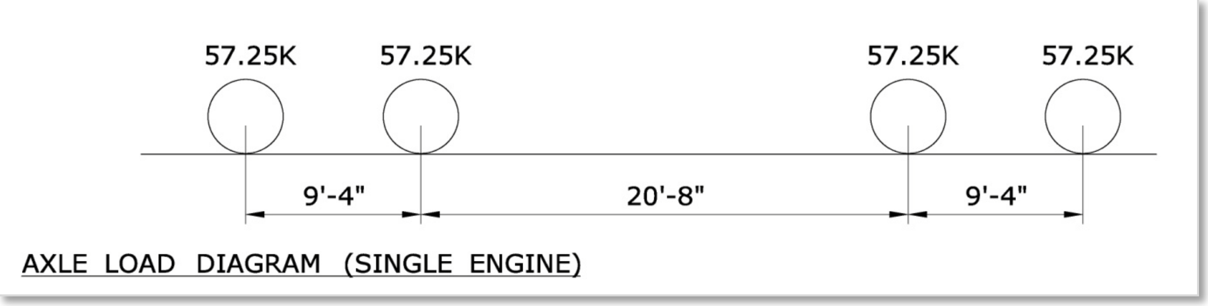


Figure No. 20A



Load chart values are applicable to specific structural members. For limitations, see Executive Summary.

Two RS-3 in line Equivalent Cooper Load

SPAN FT	SHEAR	MOMENT
5	E 57.24	E 57.25
10	E 40.71	E 50.89
15	E 39.44	E 34.35
20	E 35.11	E 32.38
25	E 32.82	E 30.92
30	E 33.17	E 29.83
35	E 32.95	E 29.16
40	E 33.93	E 29.76
45	E 34.08	E 29.74
50	E 33.99	E 30.65
60	E 33.80	E 31.01
70	E 33.80	E 31.24
80	E 33.21	E 31.50
90	E 32.29	E 31.92
100	E 31.98	E 32.37

Table No. 20B

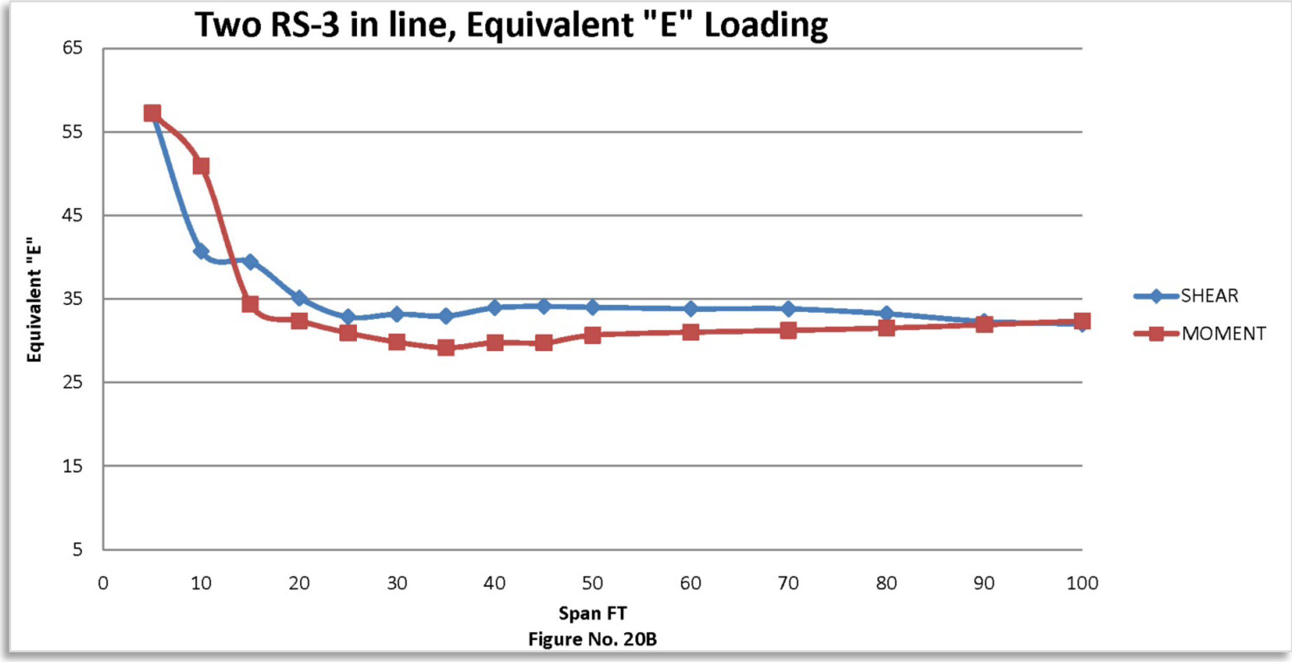
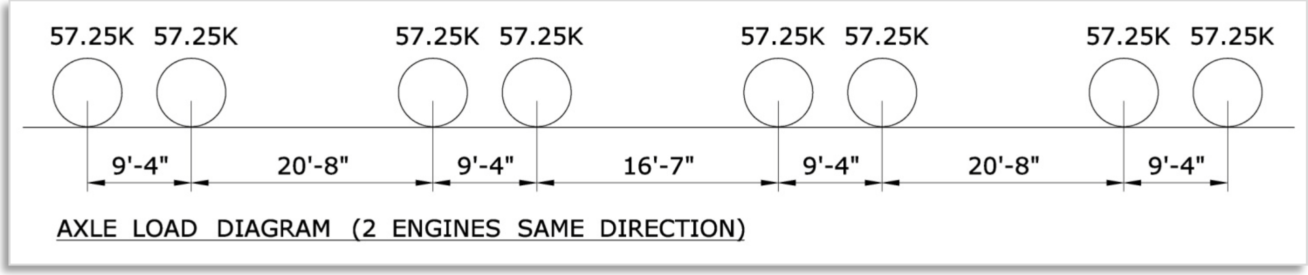


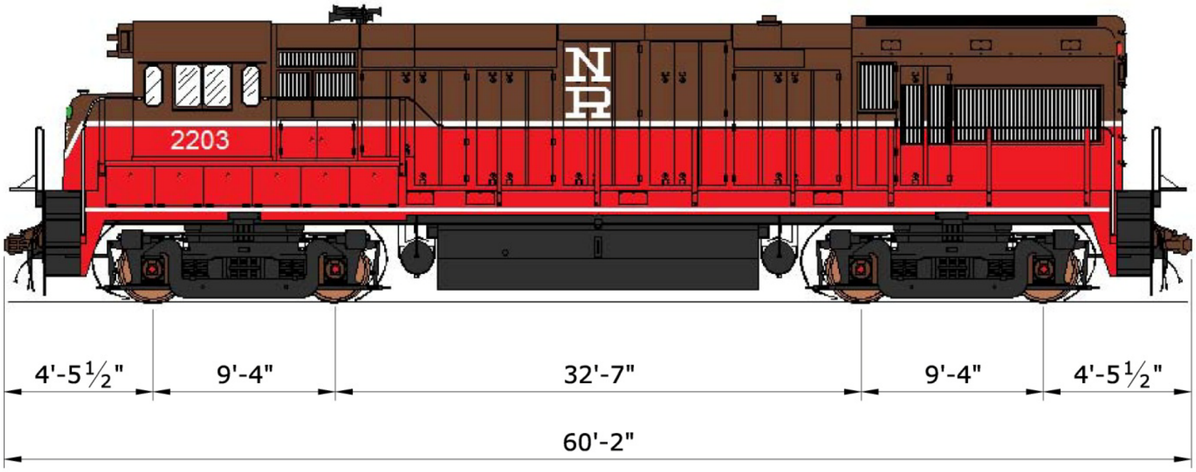
Figure No. 20B

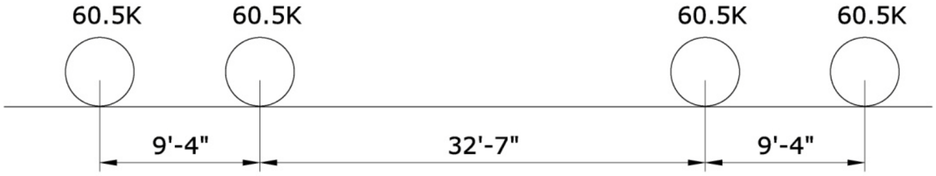


Load chart values are applicable to specific structural members. For limitations, see Executive Summary.

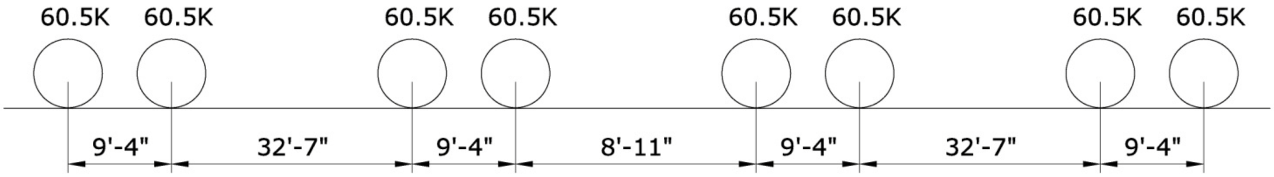
U23-B LOCOMOTIVE

WEIGHT: 242,000 LBS GROSS

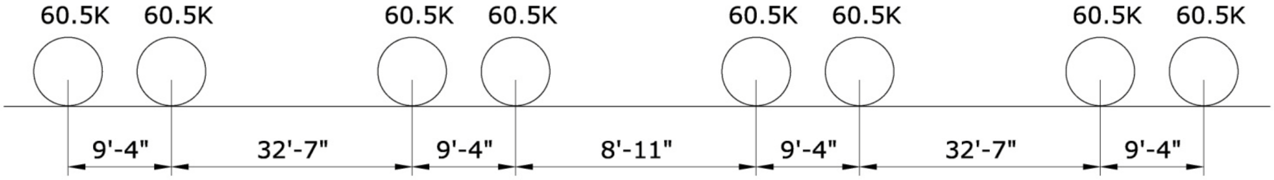




AXLE LOAD DIAGRAM (SINGLE ENGINE)



AXLE LOAD DIAGRAM (2 ENGINES SAME DIRECTION)



AXLE LOAD DIAGRAM (BACK TO BACK)

FIGURE NO. 21

U23-B Single Engine Equivalent Cooper Load

SPAN FT	SHEAR	MOMENT
5	E 60.49	E 60.50
10	E 43.02	E 53.78
15	E 41.67	E 36.30
20	E 37.10	E 34.22
25	E 34.68	E 32.68
30	E 32.44	E 31.52
35	E 30.28	E 30.42
40	E 28.31	E 28.70
45	E 27.55	E 27.19
50	E 27.39	E 25.98
60	E 28.29	E 23.60
70	E 27.77	E 22.69
80	E 26.48	E 23.14
90	E 25.22	E 23.12
100	E 24.00	E 22.80

Table No. 21A

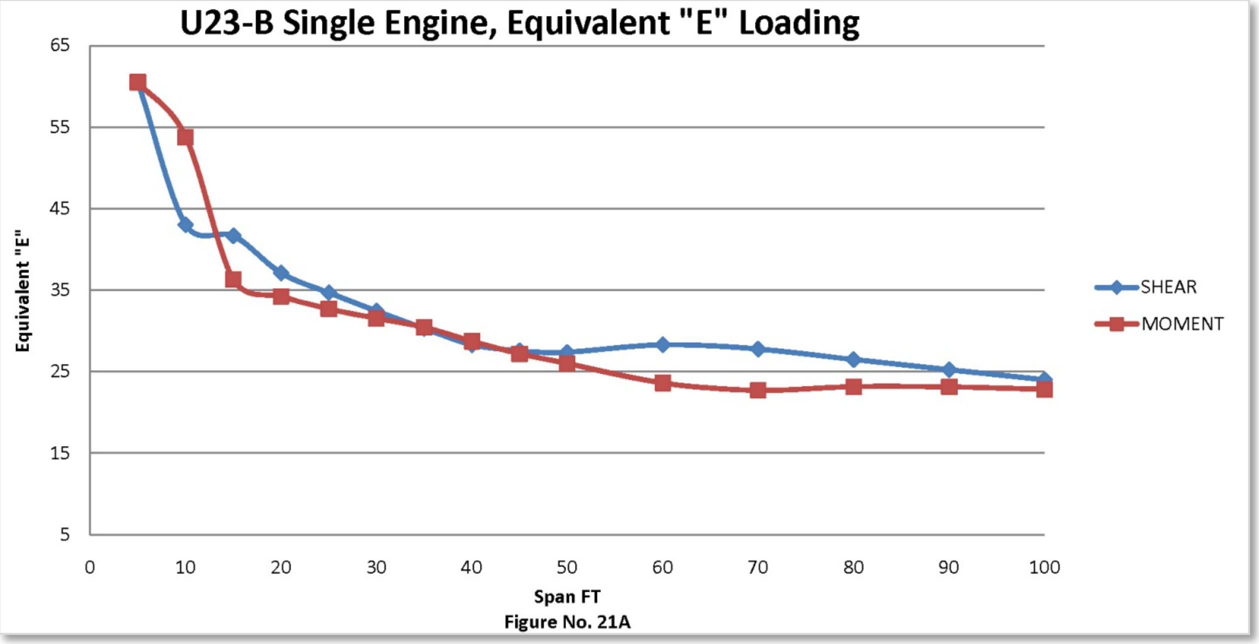
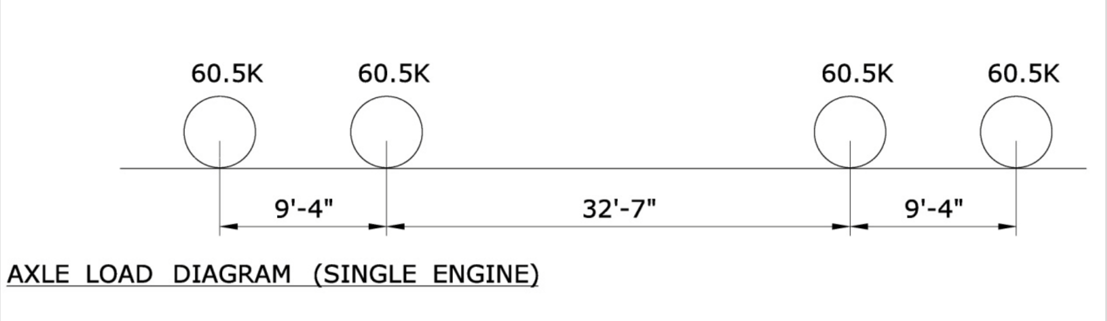


Figure No. 21A



Load chart values are applicable to specific structural members. For limitations, see Executive Summary.

Two U23-B in line Equivalent Cooper Load

SPAN FT	SHEAR	MOMENT
5	E 60.49	E 60.50
10	E 44.70	E 53.78
15	E 42.52	E 36.30
20	E 39.73	E 35.24
25	E 40.79	E 38.06
30	E 41.51	E 39.42
35	E 42.35	E 40.02
40	E 42.00	E 40.83
45	E 41.06	E 40.79
50	E 40.17	E 40.52
60	E 38.03	E 38.89
70	E 36.79	E 36.67
80	E 35.93	E 34.60
90	E 34.79	E 33.22
100	E 33.49	E 32.76

Table No. 21B

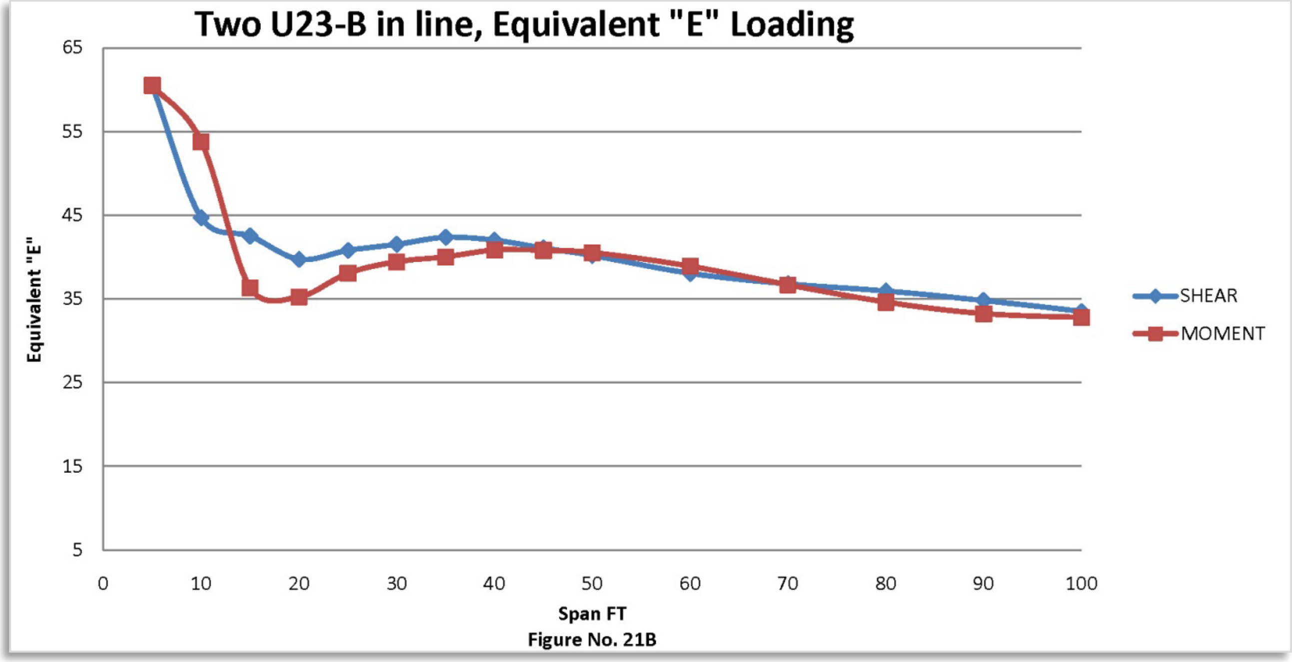
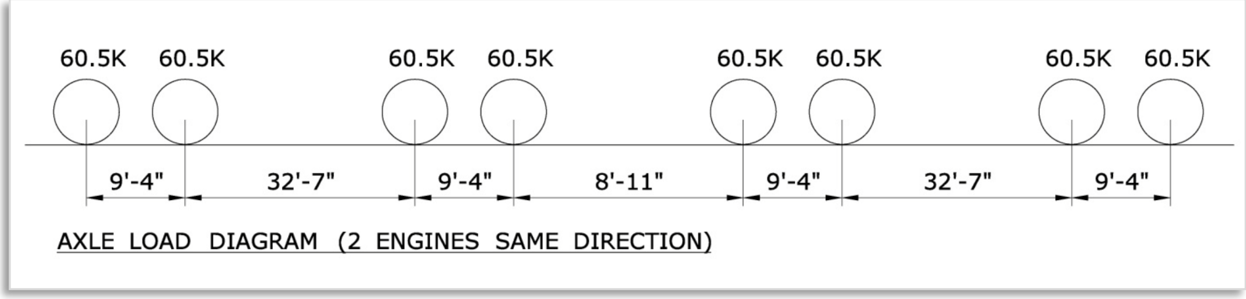


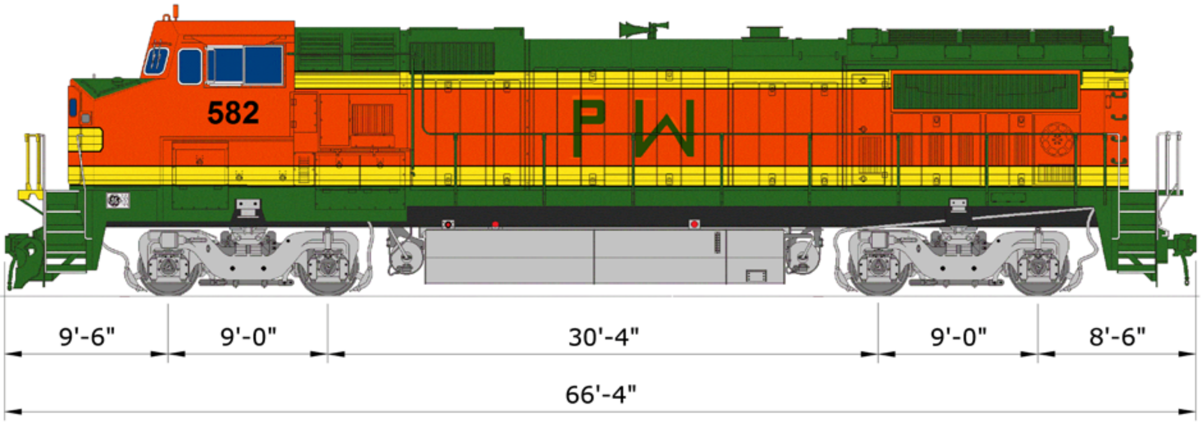
Figure No. 21B

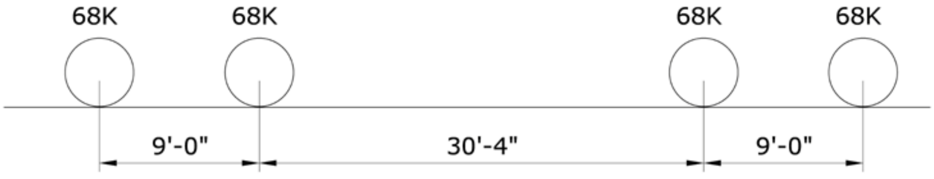


Load chart values are applicable to specific structural members. For limitations, see Executive Summary.

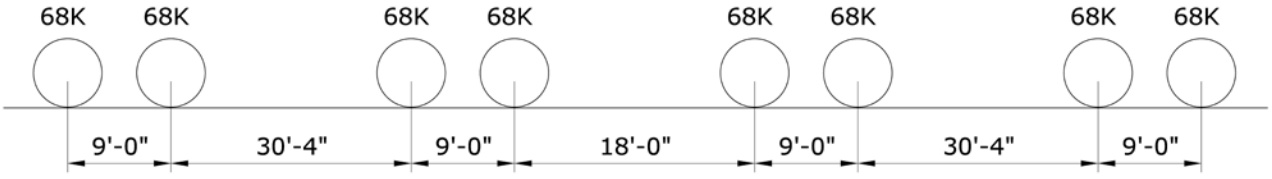
B40-8 LOCOMOTIVE

WEIGHT: 272,000 LBS GROSS

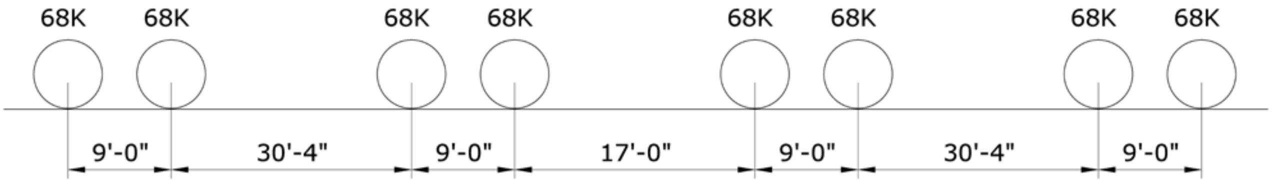




AXLE LOAD DIAGRAM (SINGLE ENGINE)



AXLE LOAD DIAGRAM (2 ENGINES SAME DIRECTION)



AXLE LOAD DIAGRAM (BACK TO BACK)

FIGURE NO. 22

B40-8 Single Engine Equivalent Cooper Load

SPAN FT	SHEAR	MOMENT
5	E 67.99	E 68.00
10	E 49.86	E 60.44
15	E 47.60	E 40.80
20	E 42.16	E 39.38
25	E 39.30	E 37.35
30	E 36.70	E 35.89
35	E 34.23	E 34.56
40	E 32.27	E 32.55
45	E 32.04	E 30.79
50	E 32.21	E 29.40
60	E 33.15	E 27.08
70	E 32.23	E 26.90
80	E 30.56	E 27.40
90	E 28.99	E 27.11
100	E 27.50	E 26.56

Table No. 22A

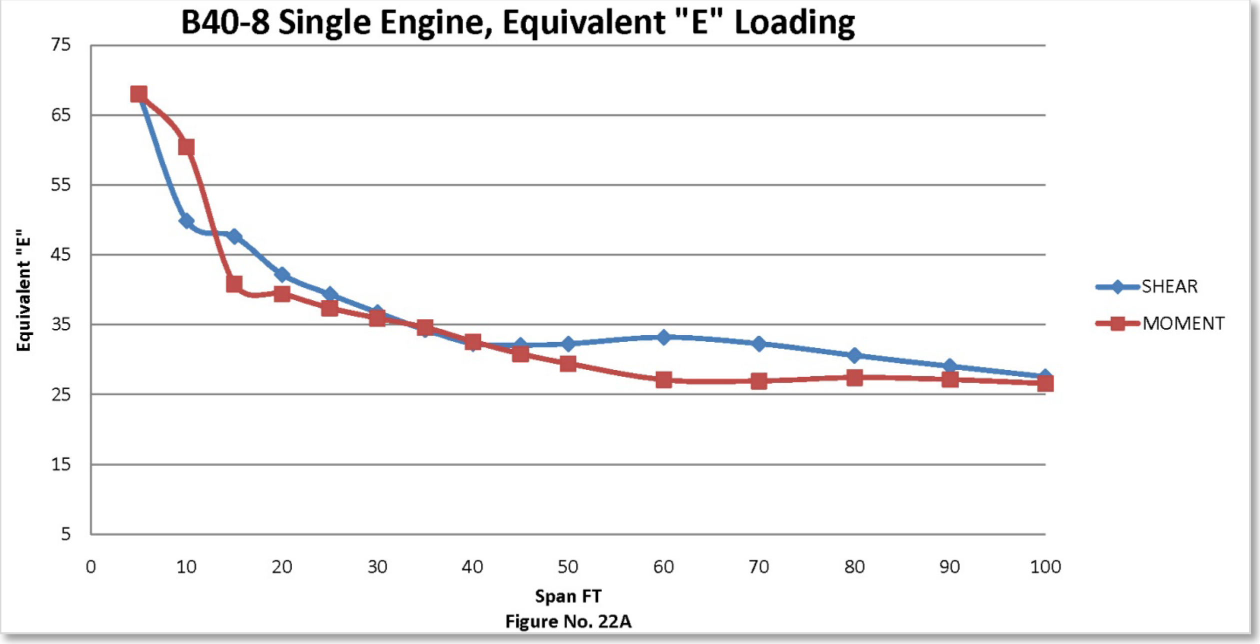
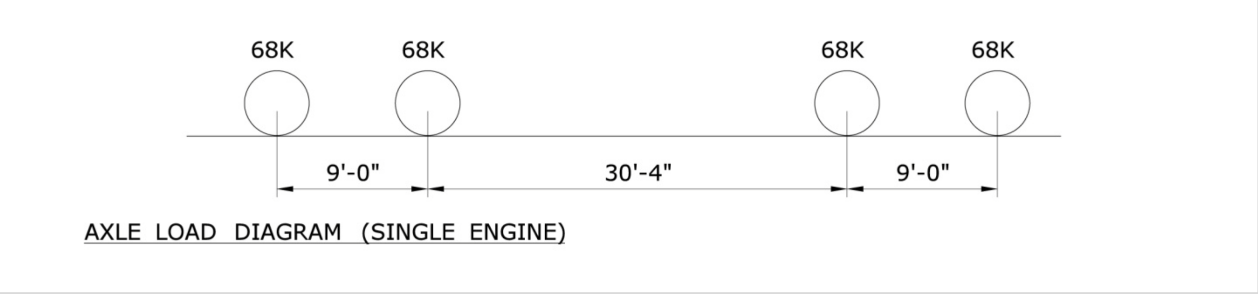


Figure No. 22A



Load chart values are applicable to specific structural members. For limitations, see Executive Summary.

Two B40-8 in line Equivalent Cooper Load

SPAN FT	SHEAR	MOMENT
5	E 67.99	E 68.00
10	E 49.86	E 60.44
15	E 47.60	E 40.80
20	E 42.16	E 39.38
25	E 39.30	E 37.35
30	E 38.85	E 35.89
35	E 38.71	E 34.56
40	E 39.63	E 34.22
45	E 39.92	E 34.40
50	E 39.90	E 35.20
60	E 38.86	E 35.95
70	E 37.21	E 35.09
80	E 36.44	E 33.87
90	E 35.93	E 33.54
100	E 35.03	E 33.46

Table No. 22B

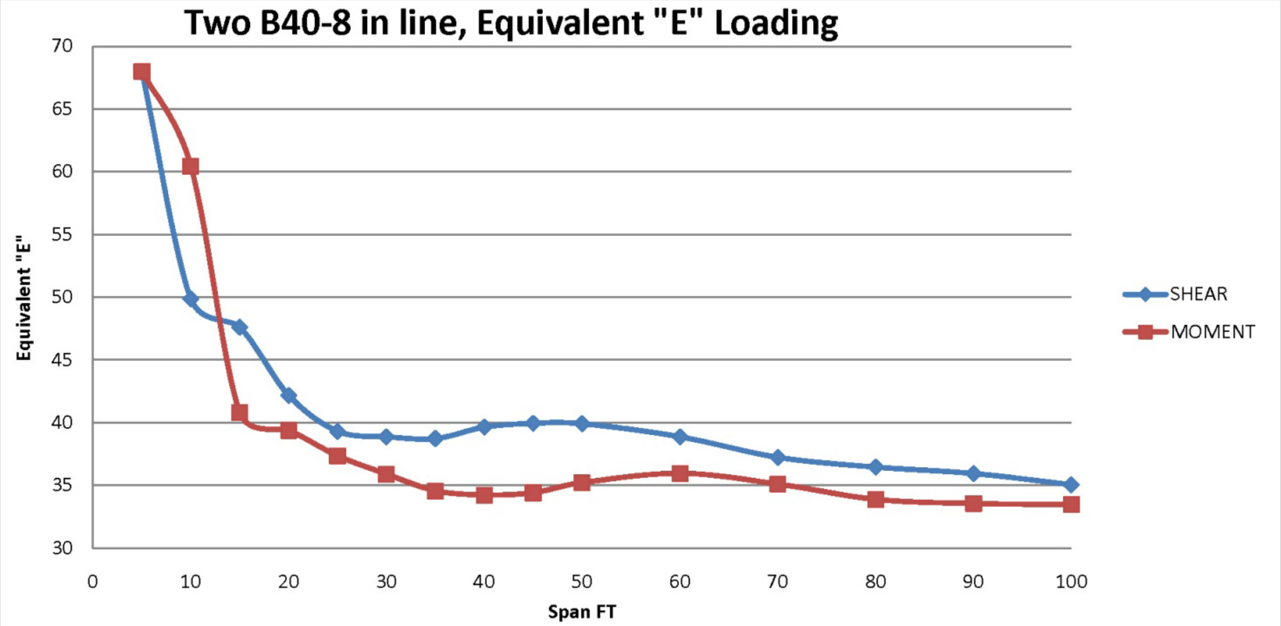
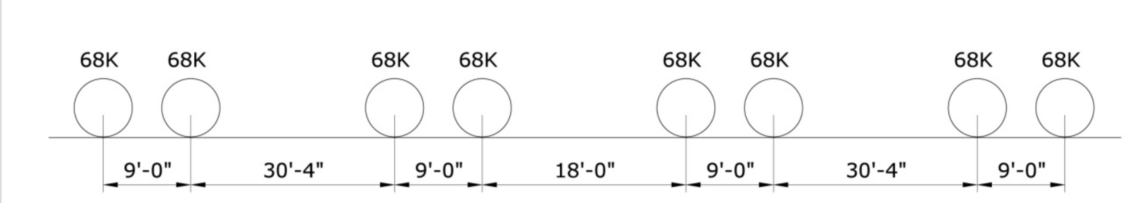


Figure No. 22B

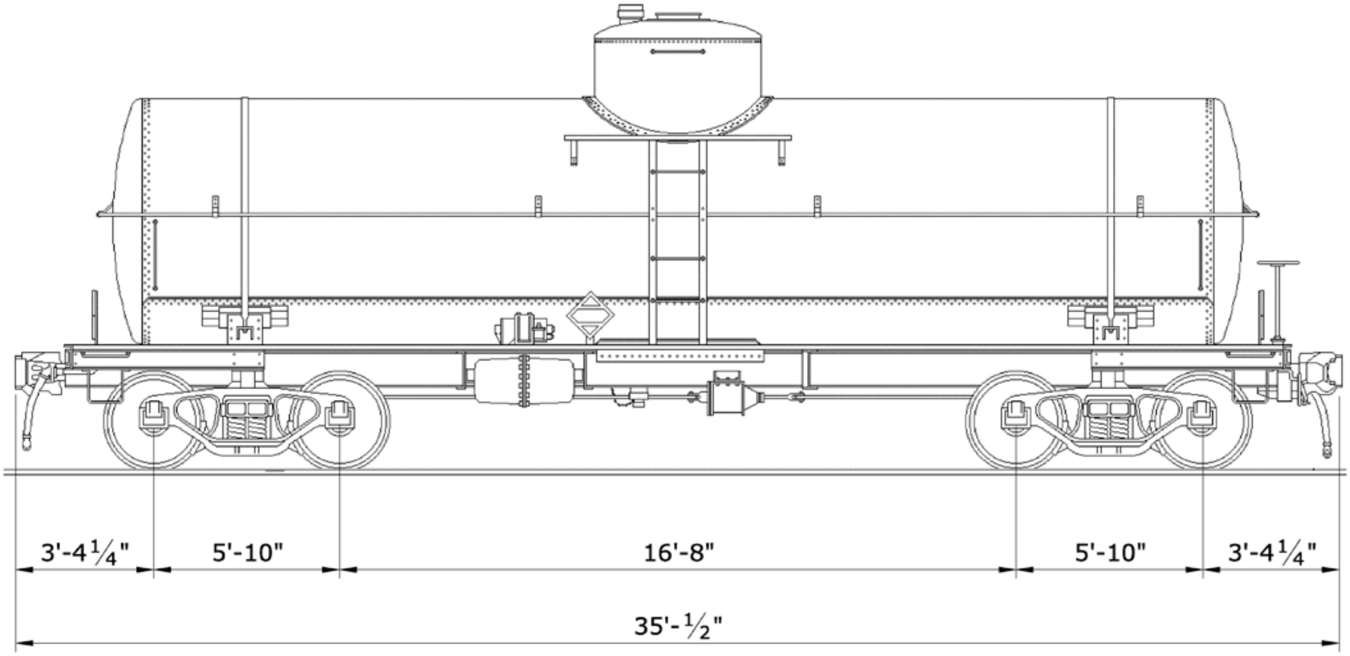


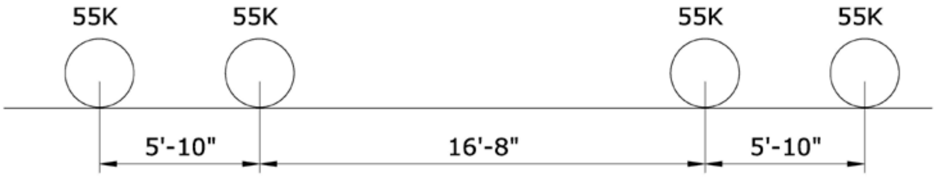
AXLE LOAD DIAGRAM (2 ENGINES SAME DIRECTION)

Load chart values are applicable to specific structural members. For limitations, see Executive Summary.

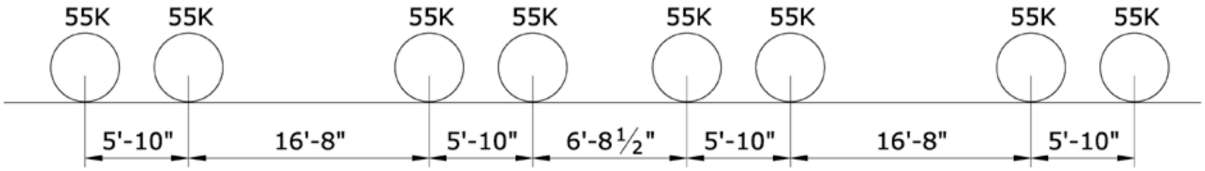
220,000 LBS AAR FREIGHT CAR

WEIGHT: 220,000 LBS GROSS (MAXIMUM)





AXLE LOAD DIAGRAM (SINGLE CAR)



AXLE LOAD DIAGRAM (2 CARS)

FIGURE NO. 23

Single 220k AAR Car Equivalent Cooper Load

SPAN FT	SHEAR	MOMENT
5	E 55.00	E 55.00
10	E 51.94	E 48.89
15	E 44.31	E 42.78
20	E 37.58	E 38.89
25	E 36.18	E 34.95
30	E 36.86	E 32.57
35	E 37.82	E 31.98
40	E 37.64	E 32.15
45	E 36.88	E 33.02
50	E 36.14	E 33.42
60	E 34.30	E 32.70
70	E 31.76	E 31.14
80	E 29.14	E 29.57
90	E 27.01	E 27.93
100	E 25.18	E 26.45

Table No. 23A

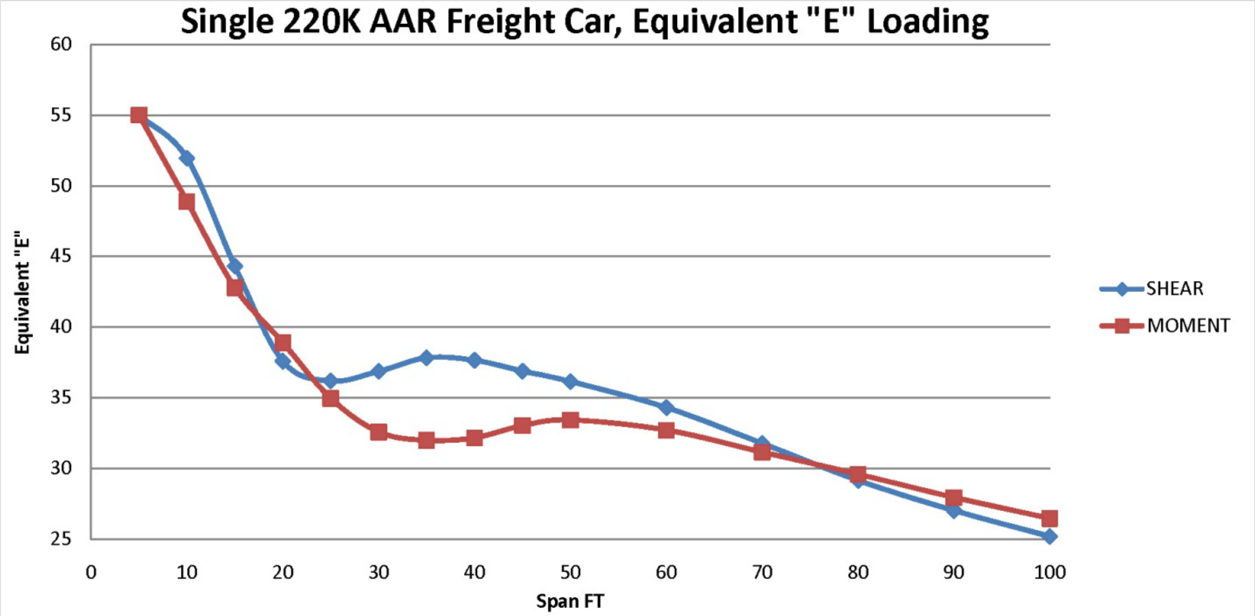
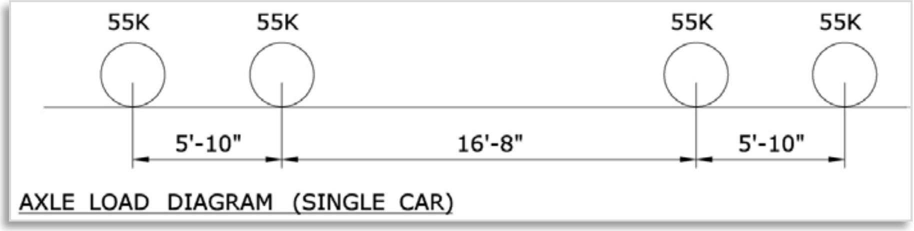


Figure No. 23A



Load chart values are applicable to specific structural members. For limitations, see Executive Summary.

220k AAR Cars in line Equivalent Cooper Load

SPAN FT	SHEAR	MOMENT
5	E 54.99	E 55.00
10	E 51.94	E 48.89
15	E 48.81	E 43.82
20	E 47.57	E 46.56
25	E 49.04	E 46.31
30	E 48.45	E 47.55
35	E 46.86	E 47.63
40	E 46.70	E 46.07
45	E 47.04	E 44.61
50	E 47.84	E 44.77
60	E 49.82	E 44.59
70	E 49.25	E 46.12
80	E 48.73	E 47.06
90	E 48.12	E 48.19
100	E 46.96	E 48.45

Table No. 23B

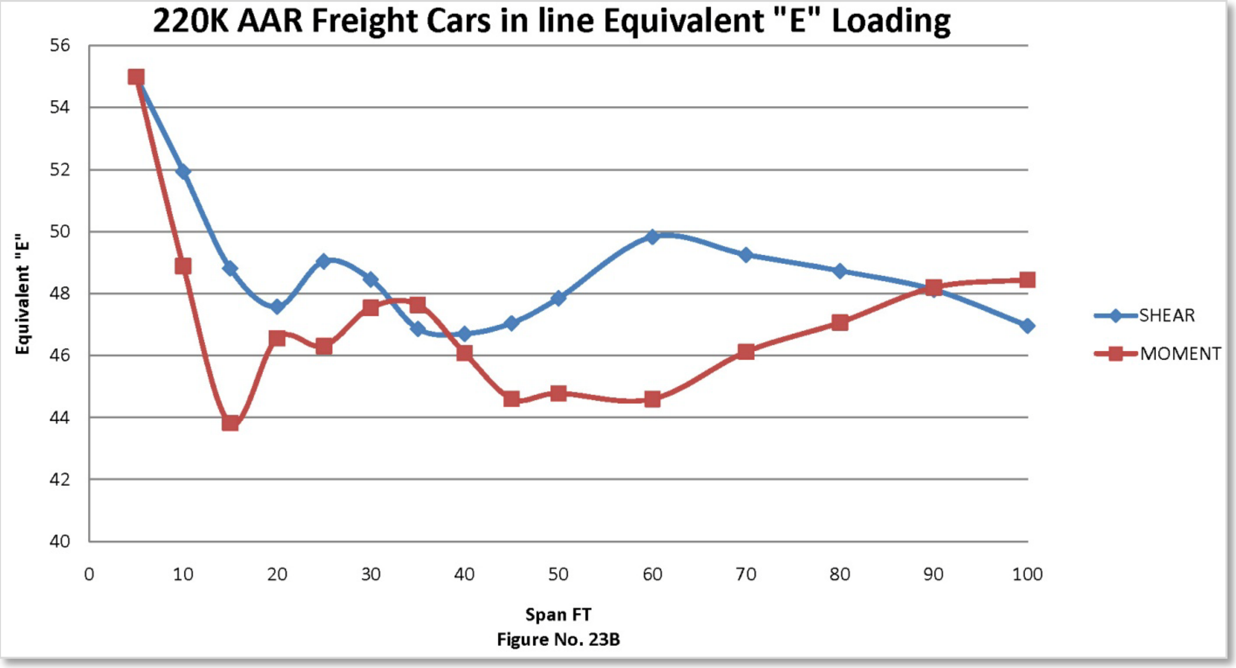
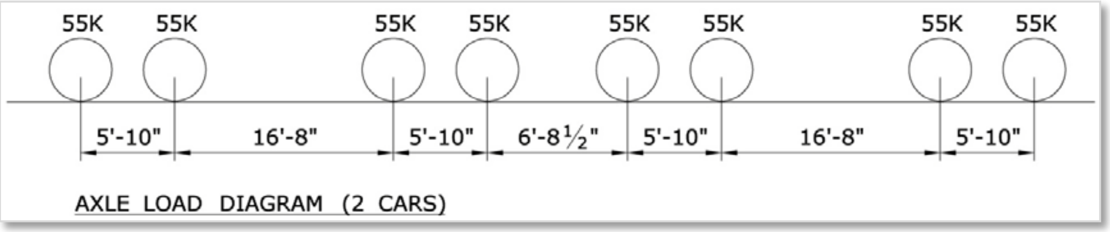


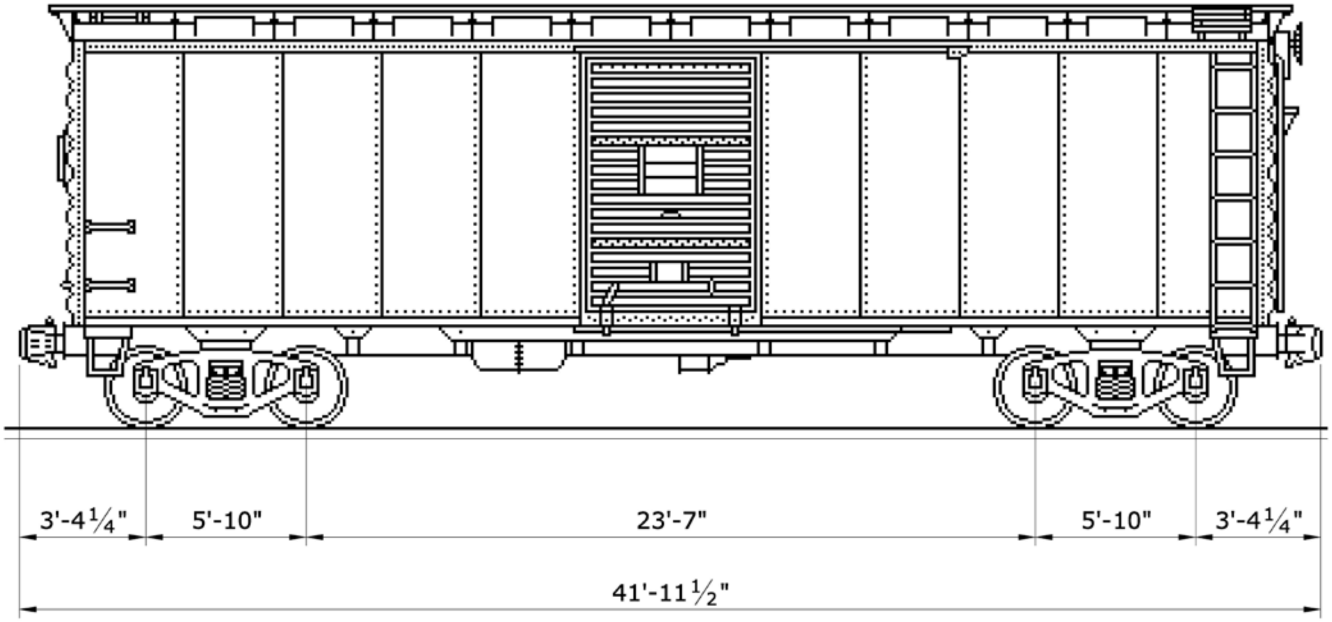
Figure No. 23B



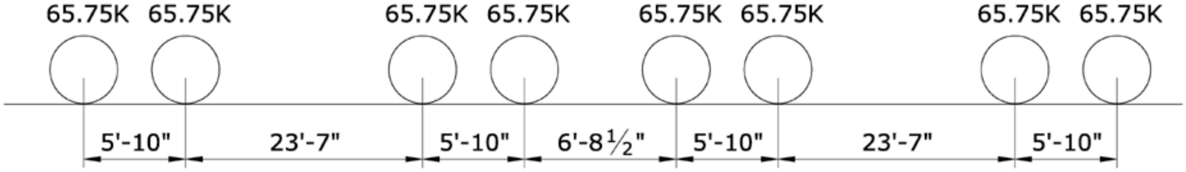
Load chart values are applicable to specific structural members. For limitations, see Executive Summary.

263,00 LBS AAR FREIGHT CAR

WEIGHT: 263,000 LBS GROSS (MAXIMUM)



AXLE LOAD DIAGRAM (SINGLE CAR)



AXLE LOAD DIAGRAM (2 CARS)

FIGURE NO. 24

Single 263k AAR Car Equivalent Cooper Load

SPAN FT	SHEAR	MOMENT
5	E 65.75	E 65.75
10	E 62.10	E 58.45
15	E 52.97	E 51.14
20	E 44.93	E 46.49
25	E 40.94	E 41.78
30	E 38.09	E 38.93
35	E 37.84	E 36.74
40	E 38.97	E 34.26
45	E 39.14	E 32.17
50	E 39.04	E 32.12
60	E 37.91	E 33.25
70	E 35.62	E 32.78
80	E 33.01	E 31.84
90	E 30.82	E 30.55
100	E 28.89	E 29.27

Table No. 24A

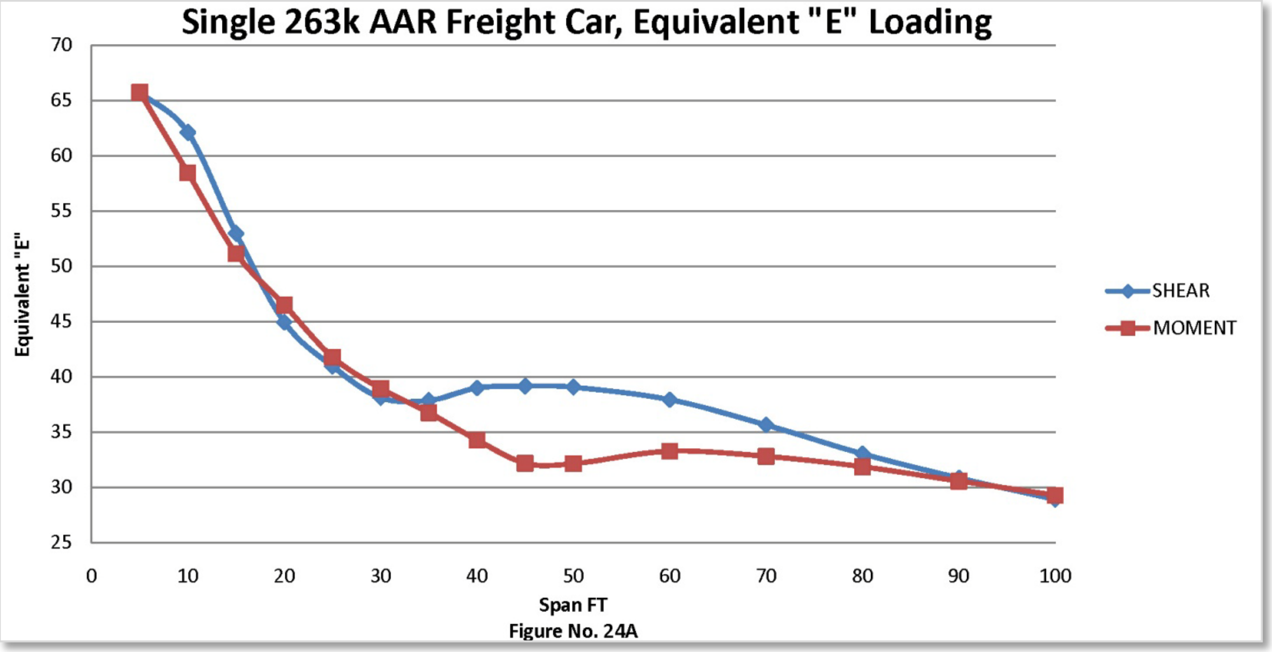
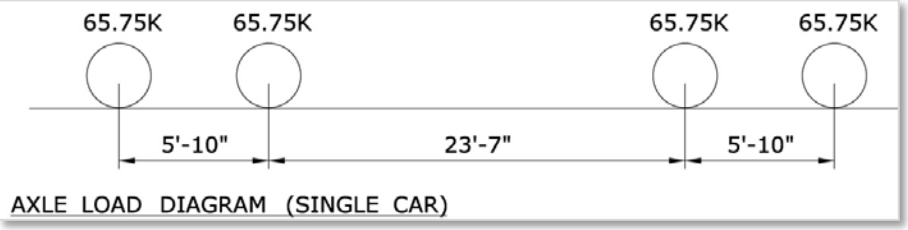


Figure No. 24A



Load chart values are applicable to specific structural members. For limitations, see Executive Summary.

263k AAR Cars in line Equivalent Cooper Load

SPAN FT	SHEAR	MOMENT
5	E 65.74	E 65.75
10	E 62.09	E 58.44
15	E 58.35	E 52.38
20	E 56.87	E 55.66
25	E 58.62	E 55.36
30	E 57.92	E 56.84
35	E 56.02	E 56.94
40	E 53.67	E 55.08
45	E 52.29	E 53.32
50	E 52.30	E 51.80
60	E 53.45	E 48.34
70	E 54.17	E 47.35
80	E 52.74	E 48.41
90	E 51.63	E 48.74
100	E 51.28	E 49.45

Table No. 24B

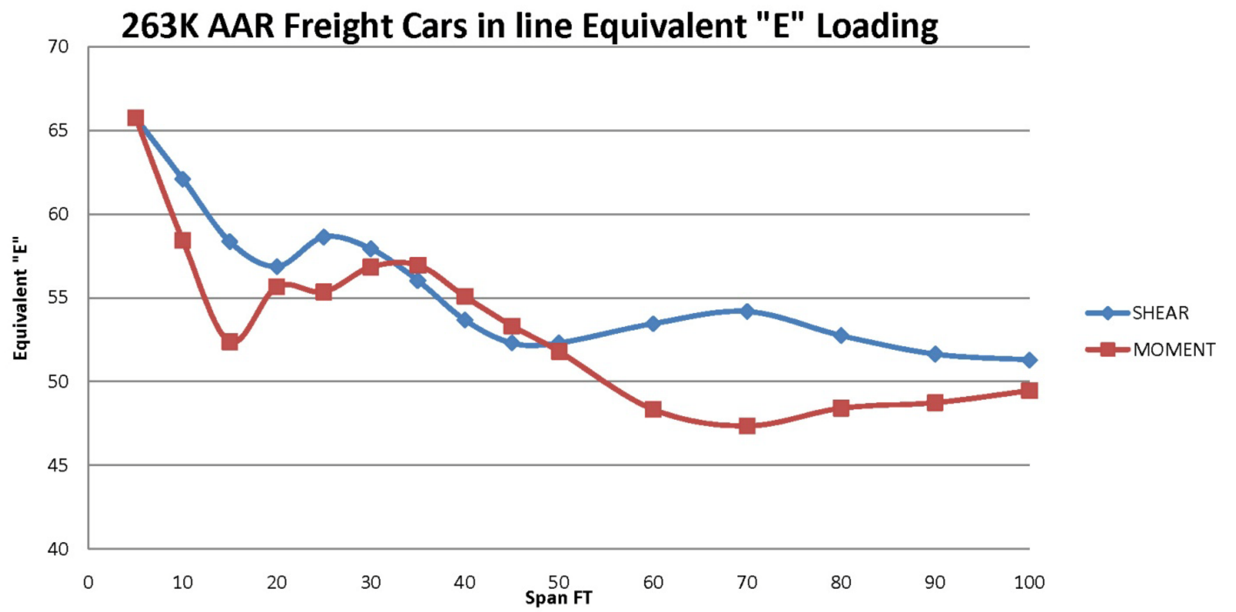
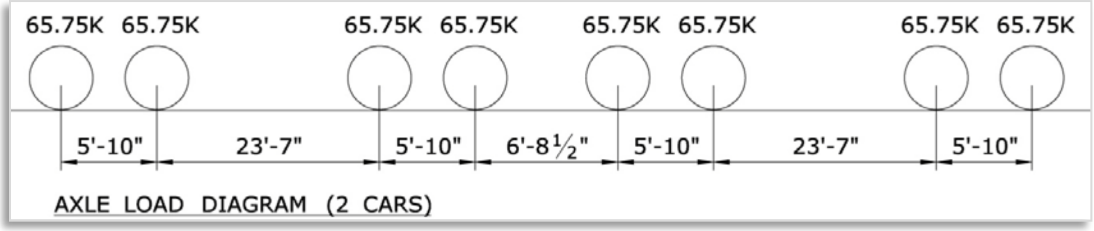
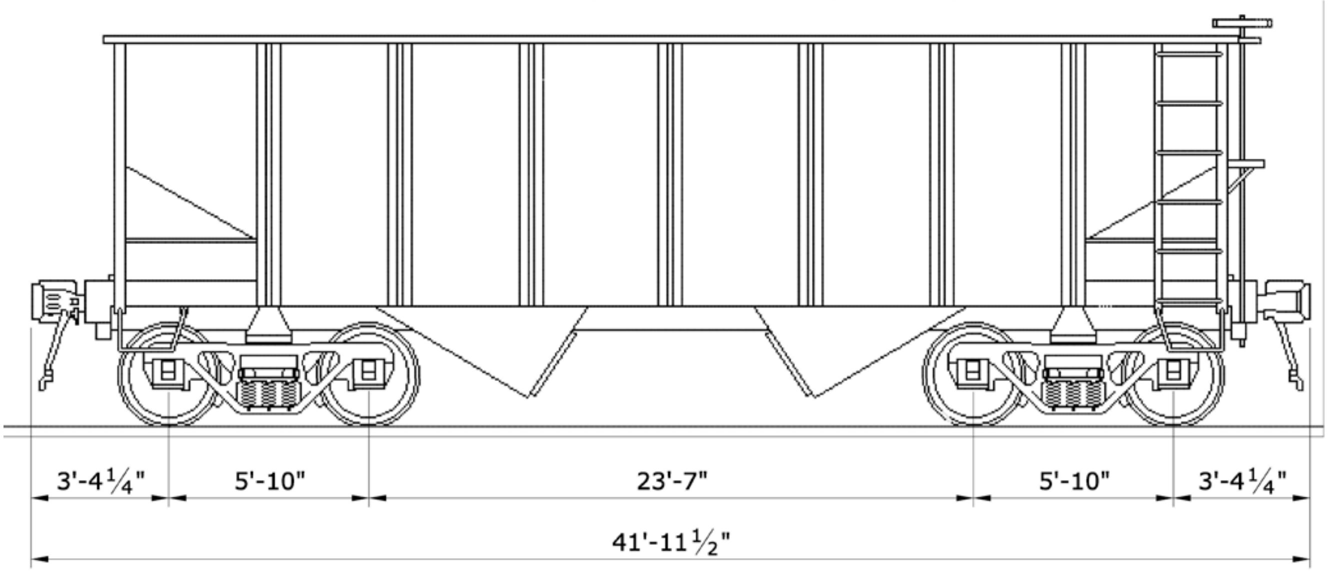


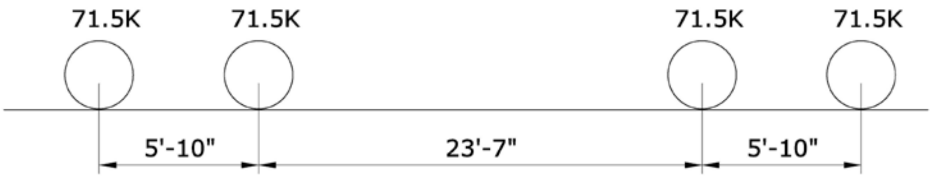
Figure No. 24B



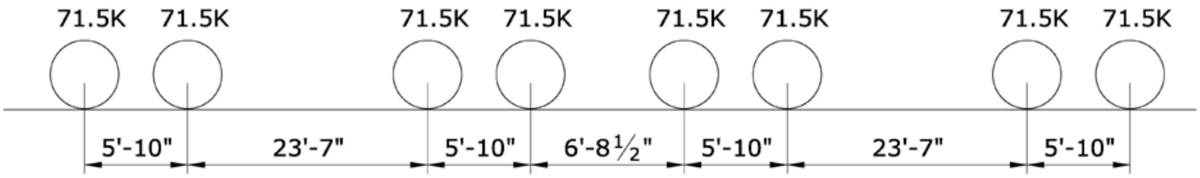
286,000 LBS AAR FREIGHT CAR

WEIGHT: 286,000 LBS GROSS (MAXIMUM)





AXLE LOAD DIAGRAM (SINGLE CAR)



AXLE LOAD DIAGRAM (2 CARS)

FIGURE NO. 25

Single 286k AAR Car Equivalent Cooper Load

SPAN FT	SHEAR	MOMENT
5	E 71.50	E 71.50
10	E 67.53	E 63.56
15	E 57.60	E 55.61
20	E 48.86	E 50.56
25	E 44.52	E 45.43
30	E 41.42	E 42.34
35	E 41.15	E 39.95
40	E 42.38	E 37.25
45	E 42.56	E 34.98
50	E 42.45	E 34.93
60	E 41.22	E 36.16
70	E 38.73	E 35.65
80	E 35.89	E 34.63
90	E 33.51	E 33.22
100	E 31.41	E 31.83

Table No. 25A

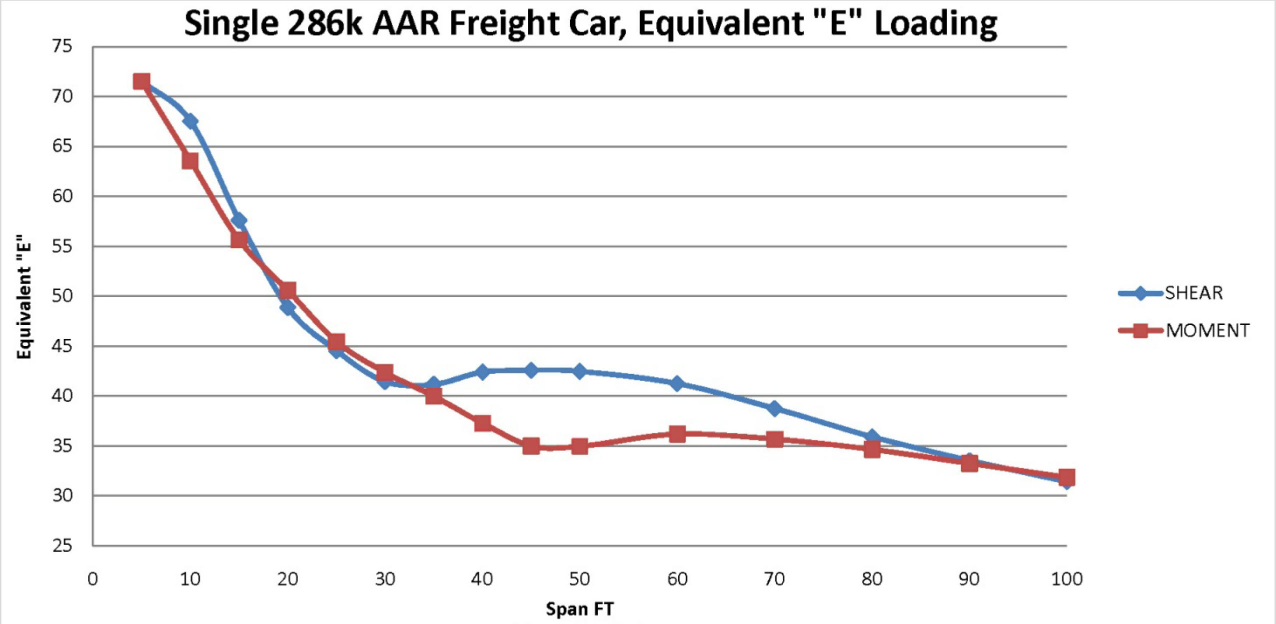
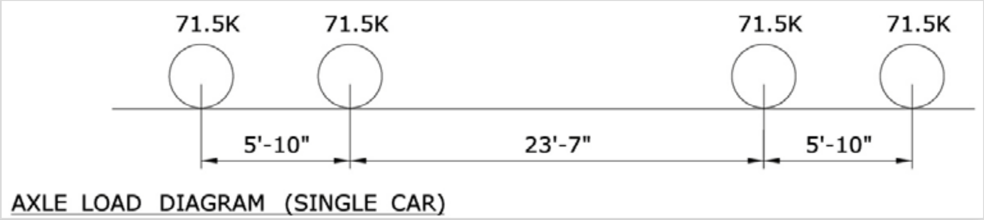


Figure No. 25A



Load chart values are applicable to specific structural members. For limitations, see Executive Summary.

286k AAR Freight Cars In Line Equivalent Cooper Load

SPAN FT	SHEAR	MOMENT
5	E 71.49	E 71.50
10	E 67.52	E 63.56
15	E 63.45	E 56.96
20	E 61.84	E 60.52
25	E 63.75	E 60.20
30	E 62.99	E 61.81
35	E 60.91	E 61.92
40	E 58.36	E 59.89
45	E 56.86	E 57.98
50	E 56.87	E 56.33
60	E 58.12	E 52.57
70	E 58.91	E 51.49
80	E 57.35	E 52.64
90	E 56.15	E 53.00
100	E 55.77	E 53.77

Table No. 25B

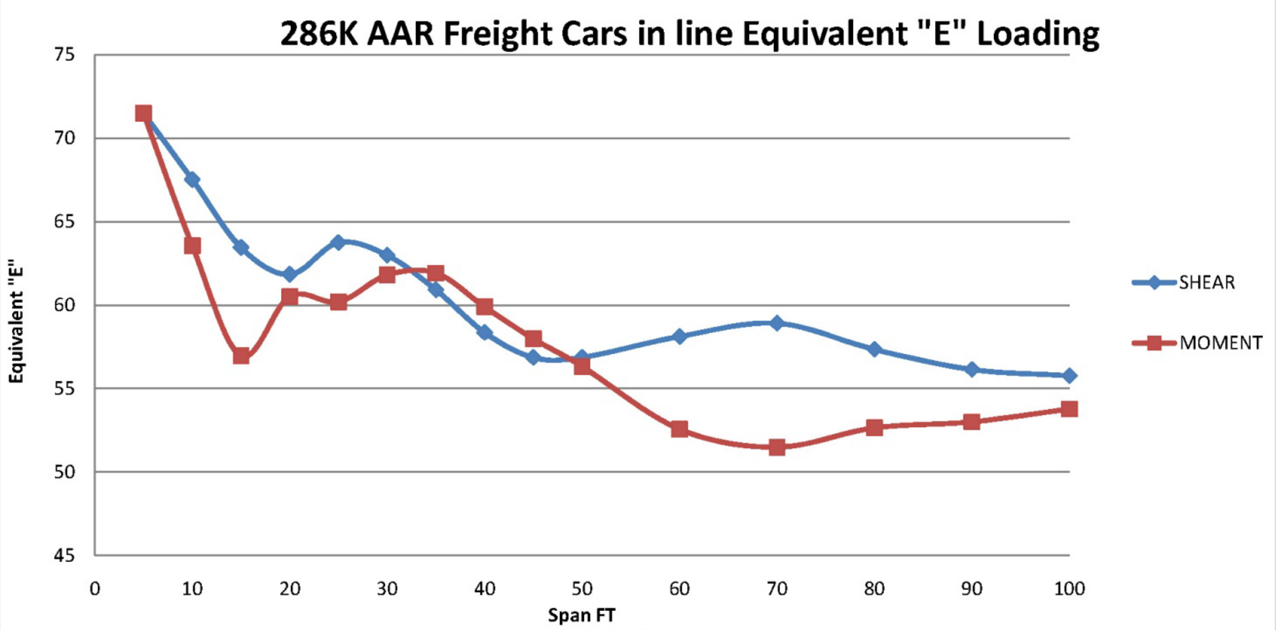
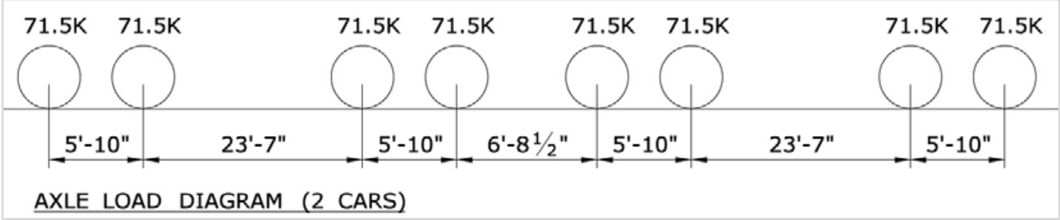


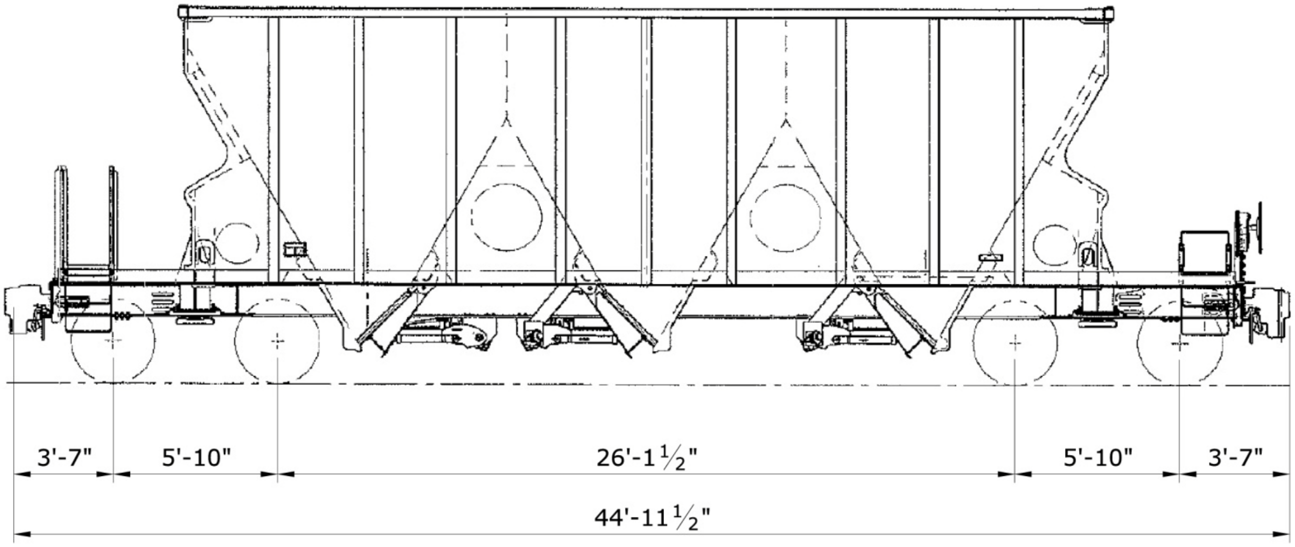
Figure No. 25B

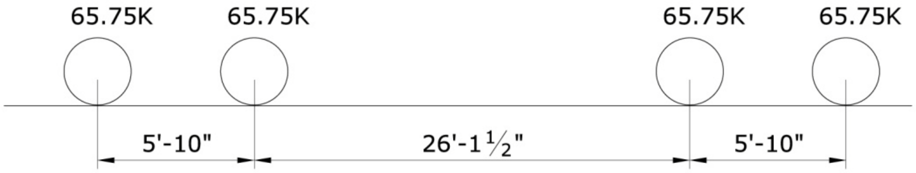


Load chart values are applicable to specific structural members. For limitations, see Executive Summary.

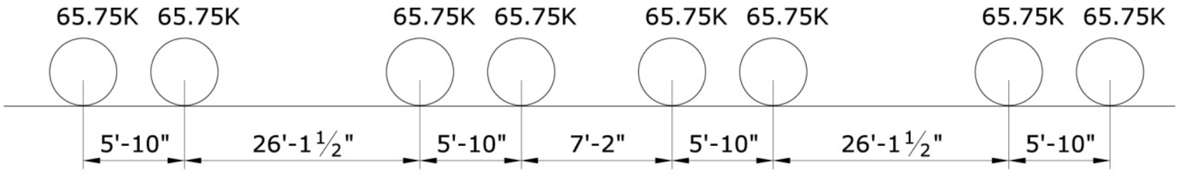
263K TRIPLE HOPPER CAR

WEIGHT: 263,000 LBS GROSS





AXLE LOAD DIAGRAM (SINGLE CAR)



AXLE LOAD DIAGRAM (2 CARS)

FIGURE NO. 26

Single 263k Triple Hopper Car Equivalent Cooper Load

SPAN FT	SHEAR	MOMENT
5	E 65.75	E 65.75
10	E 62.10	E 58.45
15	E 52.97	E 51.14
20	E 44.93	E 46.49
25	E 40.94	E 41.78
30	E 37.69	E 38.93
35	E 36.46	E 36.74
40	E 36.76	E 34.26
45	E 37.32	E 32.17
50	E 37.50	E 30.66
60	E 36.77	E 31.11
70	E 34.75	E 31.15
80	E 32.33	E 30.55
90	E 30.28	E 29.50
100	E 28.44	E 28.40

Table No. 26A

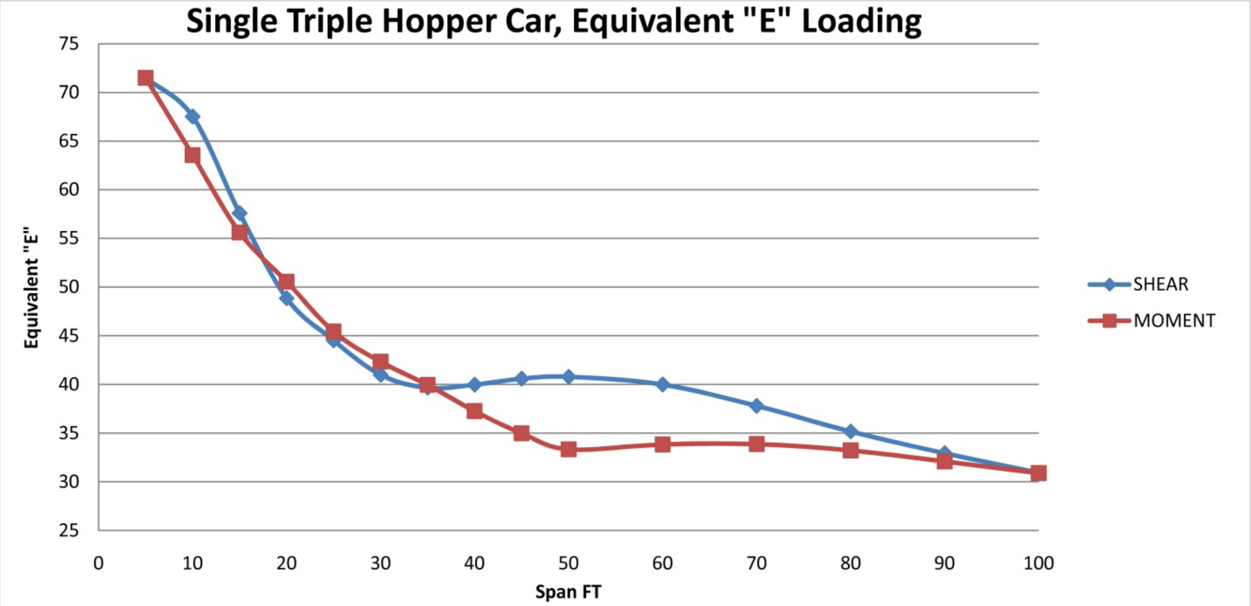
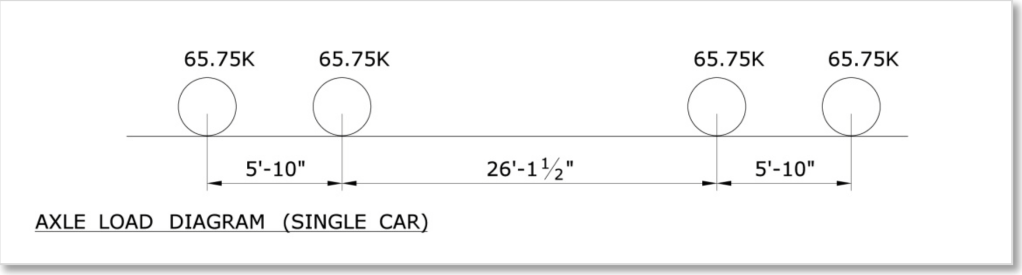


Figure No. 26A



Load chart values are applicable to specific structural members. For limitations, see Executive Summary.

263k Triple Hopper Cars In Line Equivalent Cooper Loa

SPAN FT	SHEAR	MOMENT
5	E 65.74	E 65.75
10	E 62.09	E 58.44
15	E 57.35	E 51.14
20	E 55.67	E 54.19
25	E 57.77	E 53.72
30	E 57.28	E 55.61
35	E 55.52	E 55.98
40	E 53.27	E 54.31
45	E 50.89	E 52.57
50	E 50.45	E 51.16
60	E 51.13	E 47.58
70	E 51.82	E 45.30
80	E 50.91	E 45.27
90	E 49.49	E 46.20
100	E 49.02	E 46.20

Table No. 26B

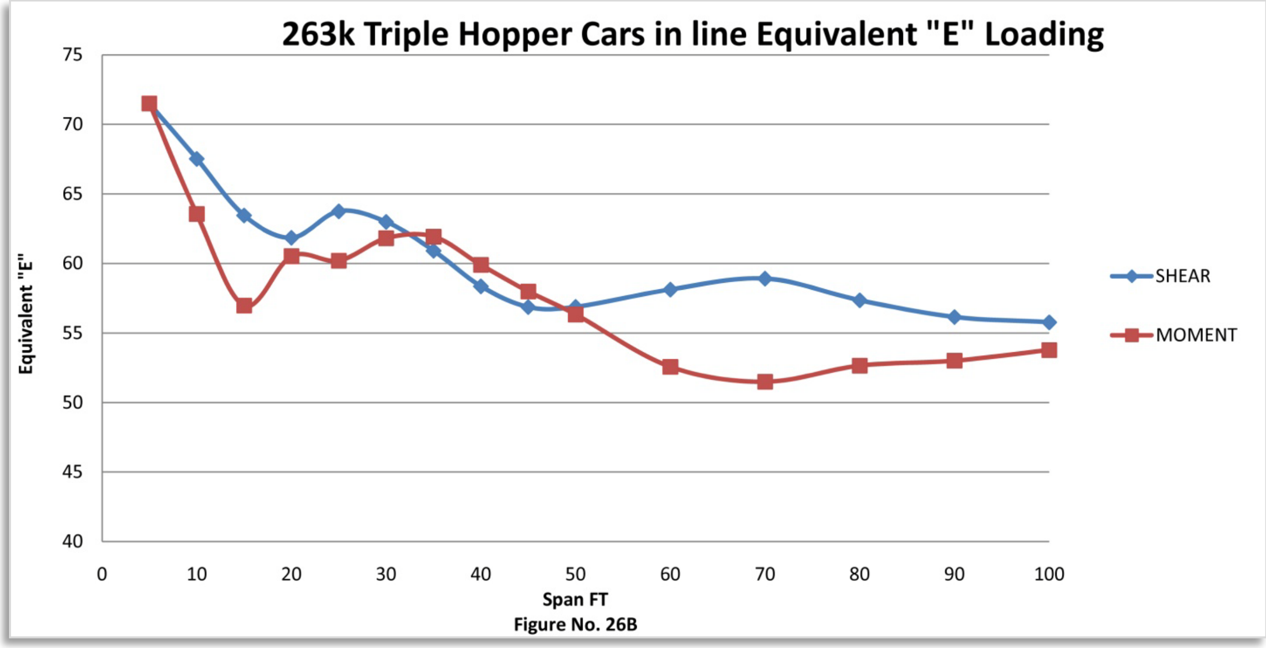
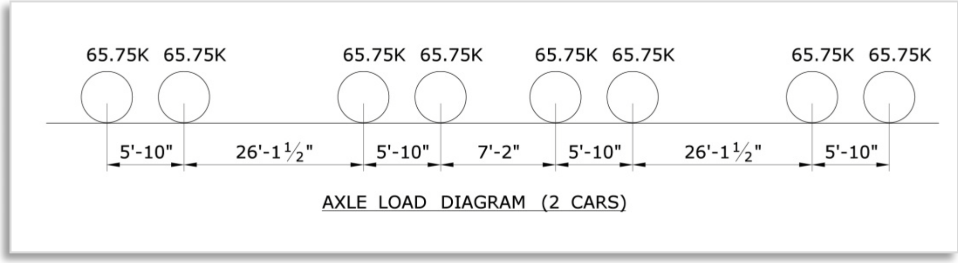
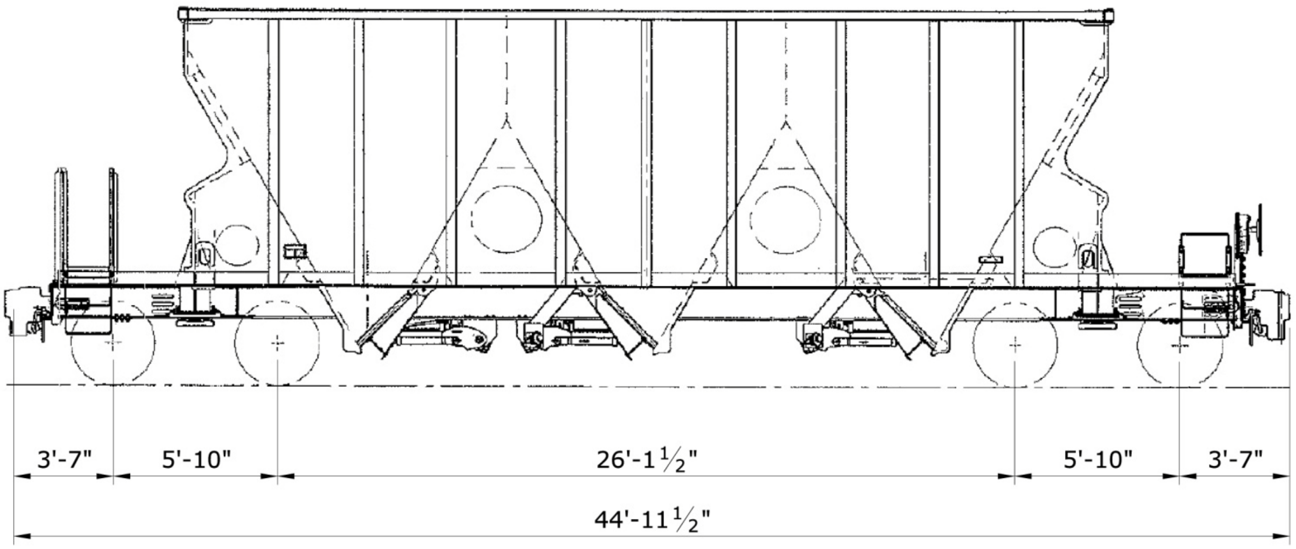


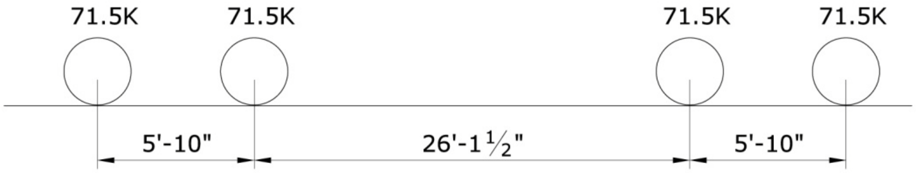
Figure No. 26B



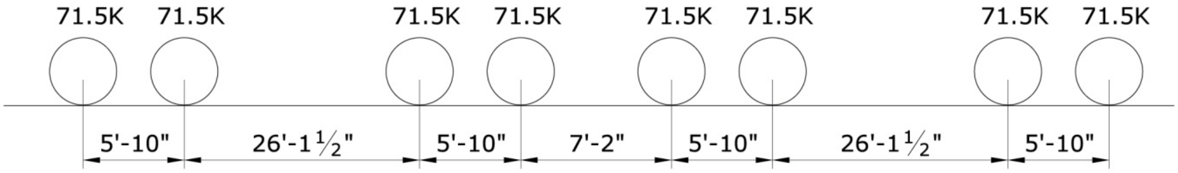
286K TRIPLE HOPPER CAR

WEIGHT: 286,000 LBS GROSS (MAXIMUM)





AXLE LOAD DIAGRAM (SINGLE CAR)



AXLE LOAD DIAGRAM (2 CARS)

FIGURE NO. 27

Single 286k Triple Hopper Car Equivalent Cooper Load

SPAN FT	SHEAR	MOMENT
5	E 71.50	E 71.50
10	E 67.53	E 63.56
15	E 57.60	E 55.61
20	E 48.86	E 50.56
25	E 44.52	E 45.43
30	E 40.98	E 42.34
35	E 39.65	E 39.95
40	E 39.97	E 37.25
45	E 40.59	E 34.98
50	E 40.78	E 33.34
60	E 39.99	E 33.83
70	E 37.79	E 33.88
80	E 35.16	E 33.22
90	E 32.93	E 32.09
100	E 30.93	E 30.89

Table No. 27A

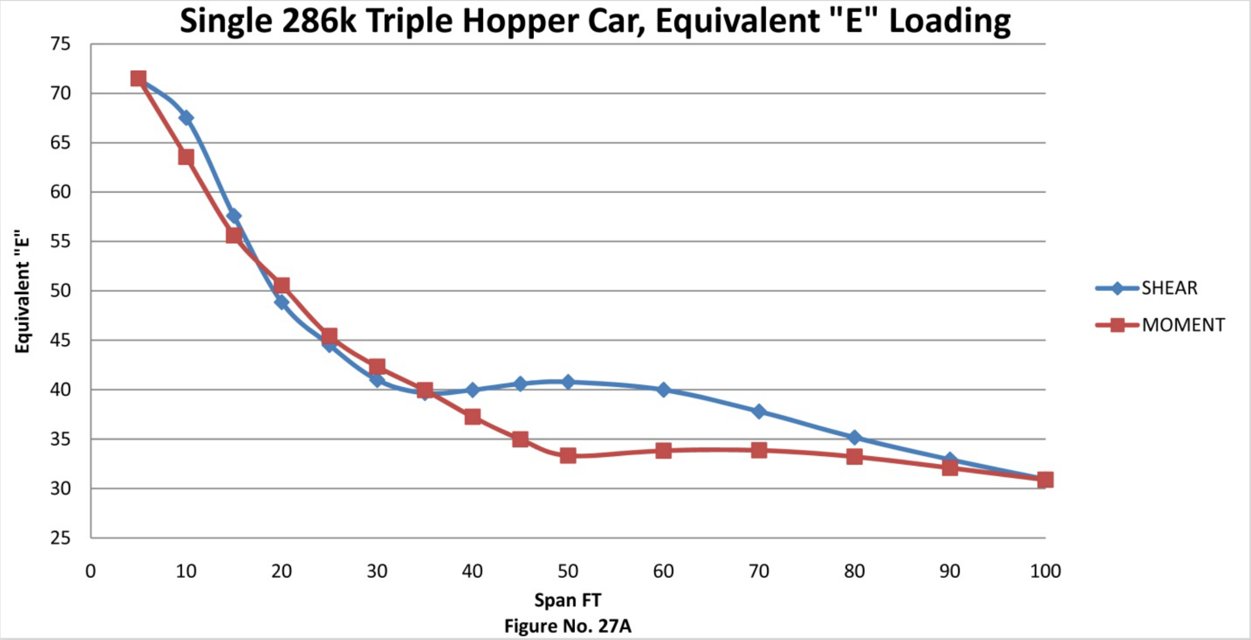
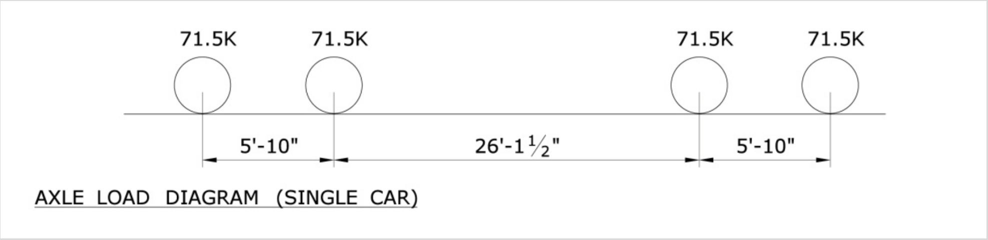


Figure No. 27A



Load chart values are applicable to specific structural members. For limitations, see Executive Summary.

286k Triple Hopper Cars In Line Equivalent Cooper Loa

SPAN FT	SHEAR	MOMENT
5	E 71.49	E 71.50
10	E 67.52	E 63.56
15	E 62.36	E 55.61
20	E 60.53	E 58.93
25	E 62.83	E 58.42
30	E 62.29	E 60.48
35	E 60.37	E 60.88
40	E 57.92	E 59.06
45	E 55.34	E 57.16
50	E 54.86	E 55.64
60	E 55.60	E 51.74
70	E 56.35	E 49.27
80	E 55.36	E 49.23
90	E 53.82	E 50.24
100	E 53.31	E 50.24

Table No. 27B

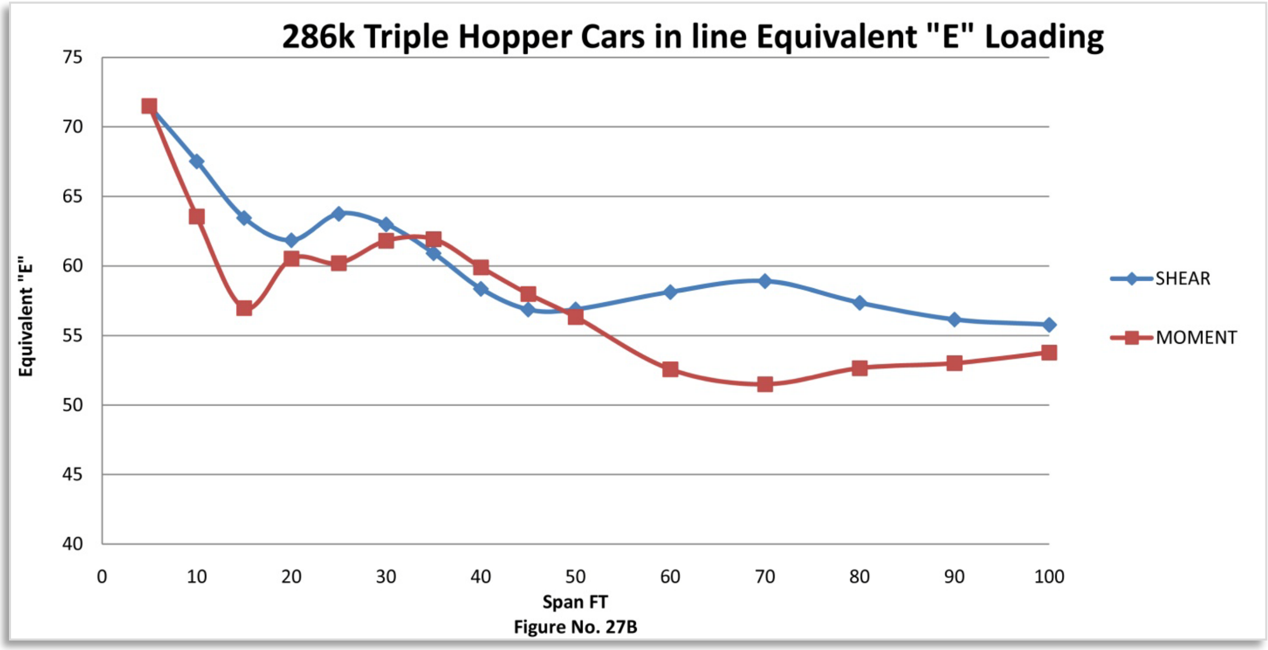
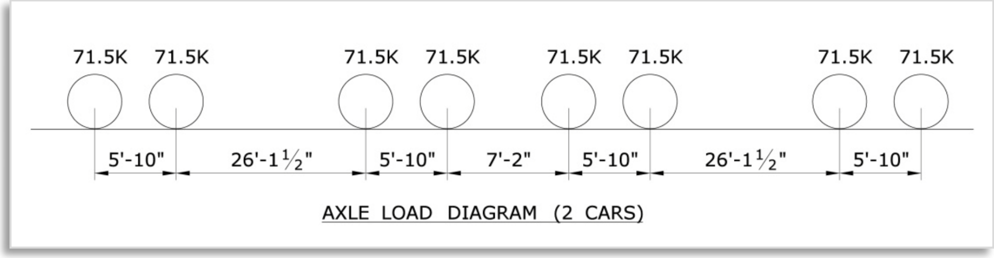


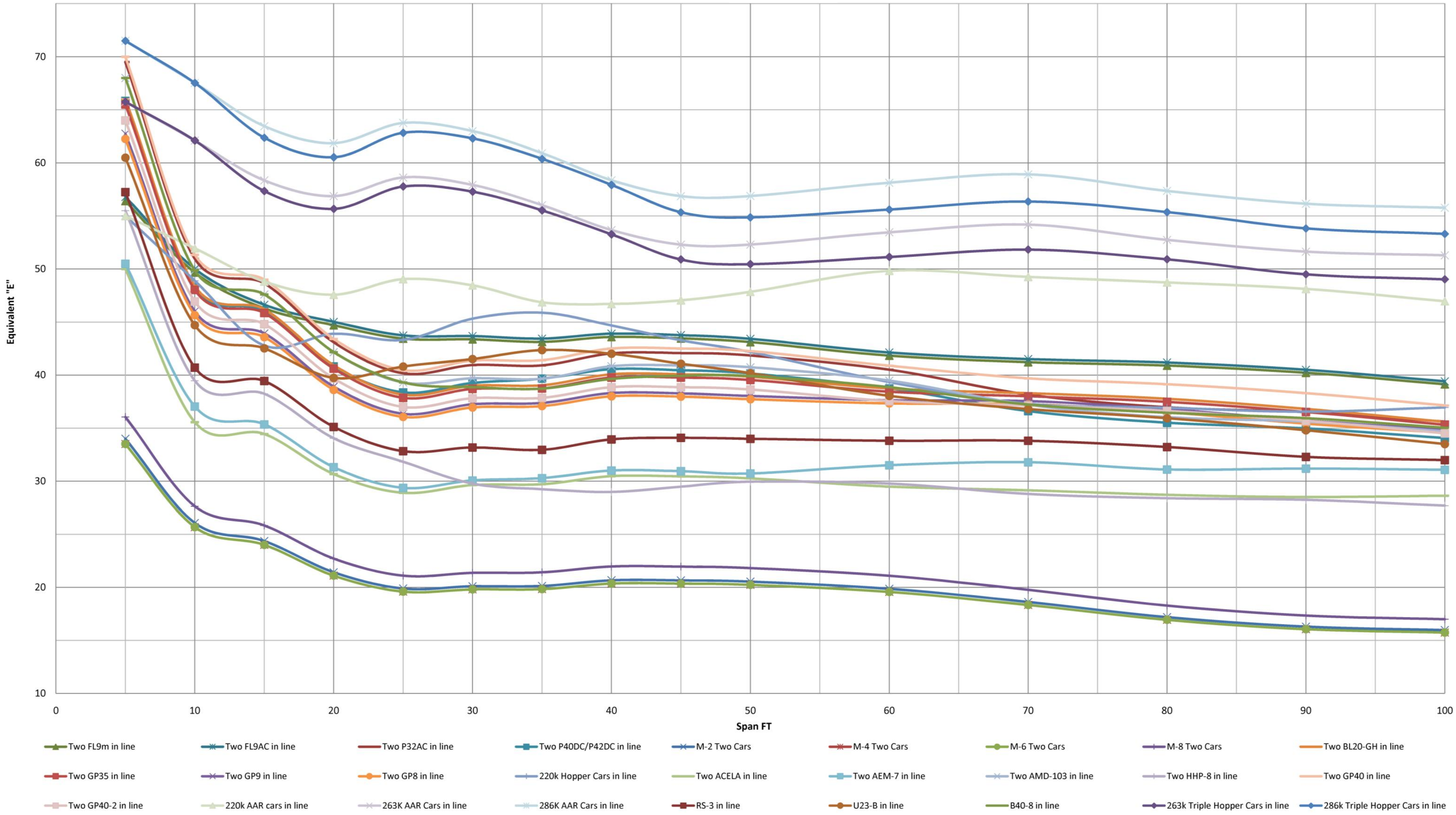
Figure No. 27B



Connecticut Railroad Equipment, Equivalent "E" Loading

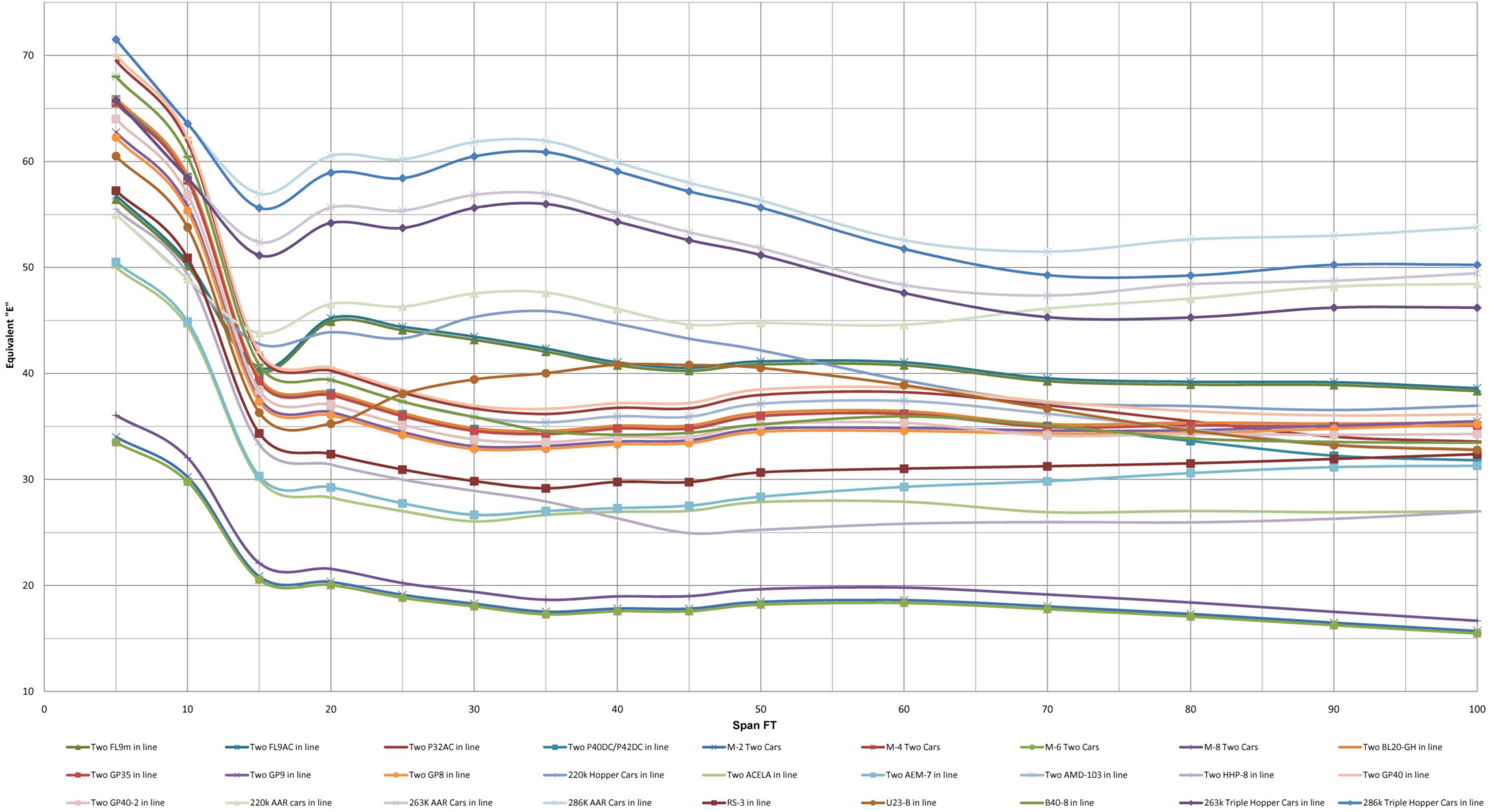
(Shear)

Figure No. 28



Load chart values are applicable to specific structural members. For limitations, see Executive Summary.

Load chart values are applicable to specific structural members. For limitations, see Executive Summary.



Connecticut Railroad Equipment, Equivalent "E" Loading

(Moment) Figure No. 29

ILLUSTRATIVE EXAMPLE NO 1:

The following example will show how to make use of this manual to determine which equipment is safe to run across a specific bridge. Bridge No. 01318R Metro-North (Mainline) over Route 113 (Main Street), mile point 59.01 in Stratford, will be used in the following example. Information is taken from the Railroad Bridge Inspection, Load Rating report for ConnDot Bridge No. 01318R (Metro-North Bridge M.P. 59.01), dated November 12, 2009 and prepared by WSP-SELLS. Copies of the report pages containing information used in this example are attached as Figure Nos. 33, 34 and 35.

STEP 1 To assess the adequacy of the structure to safely support Metro-North equipment, obtain the controlling member E ratings for the Structure from the Rating Summary. The Rating Summary for Bridge 01318R, tells us that the controlling member is Girder 4 (Figure No. 33) with a controlling E rating of E56 for Flexure and in the Girder 4 analysis from the load rating report gives us a controlling E rating of E59.8 for Shear.

STEP 2 Obtain the member span length from bridge structure data in the load rating for the controlling members, which in our case is girder 4. Page 93 of the load rating (Figure No. 35) shows an effective span length of the girder of 40.0'.

STEP 3 Plot the E- rating and the span length on the Railroad equipment Equivalent “E” loading Diagrams for moment and shear. For the Shear diagram, locate the 40.0' span length of the member on the horizontal axis and locate the E59.8 rating on the vertical axis. The intersection of these two lines represents the capacity of the member. Load curves that lie above the intersection point represent equipment that will overstress the member. Load curves that lie below the intersection point represent equipment that can traverse the structure without overstressing the member. See Figure Nos. 30, and 31 for plotted results. From Figure 30, it is evident that two 286K AAR Cars in line produce the maximum Shear within a 40.0' span. This maximum Shear is an Equivalent Cooper Load of E57.97 (Table No. 22B). The E57.97 maximum Equivalent Cooper Load is less than the E59.8 shear capacity of the member. Therefore, the member is not overstressed in shear. From Figure 31, it is evident that the 286K AAR Cars and the Triple Hopper Cars load curves lie above the member capacity point, with their loads generating a moment that relates to Equivalent Cooper loads of E59.88 (Table No. 22B) and E58.97 (Table No. 23B) respectively. Therefore, those two pieces of equipment when operated in line will overstress the girder with a Moment capacity of E56 (Figure No. 34). From the diagram, the largest piece of equipment that traverses the structure without overstressing the girder is the 263K AAR car which produces a Cooper load of E55 for the 40.0’ span (Table No.21B) which is less than the girder moment capacity of E56.

The equivalent Cooper loading summary (Table A) can also be used to determine a member's adequacy.

Locate the table for the specific equipment being checked. The P32AC locomotive (two engines in line) will be used for this example, see Figure No. 32.

STEP 1 Locate the member span in the far left column. Follow that row horizontally to the appropriate E rating column for the specific equipment. The number in that box represents the Equivalent Cooper Load of the specific equipment for the given span. The E rating from the inspection report represents the capacity of the member. If the E rating from the table (load) is higher than the E rating from the Load Rating (capacity), the equipment will overstress the member. See Figure No. 31 for plotted results. The same method should be used for other types of equipment as required.

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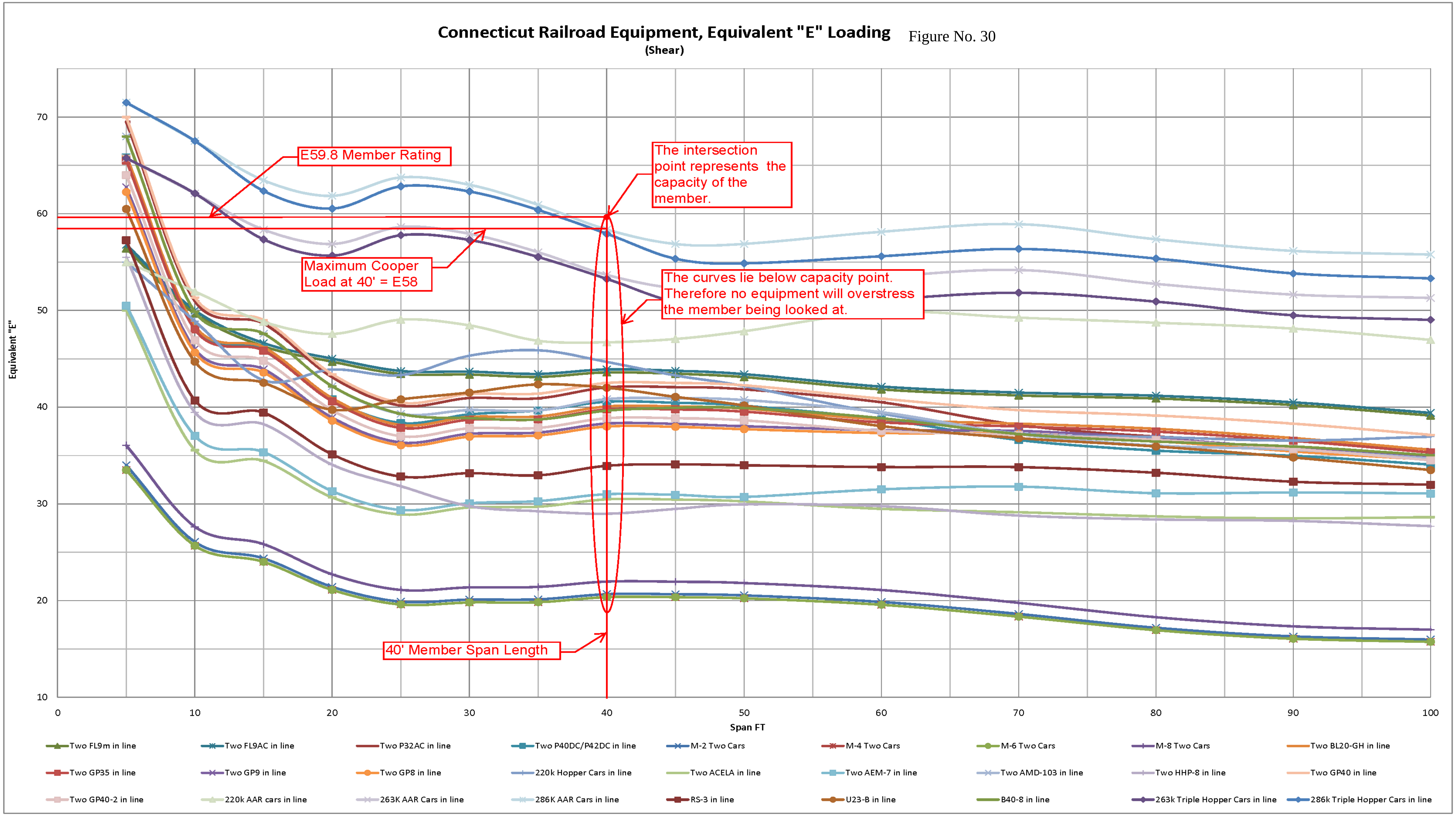


Connecticut Railroad Equipment, Equivalent "E" Loading Figure No. 30

(Shear)

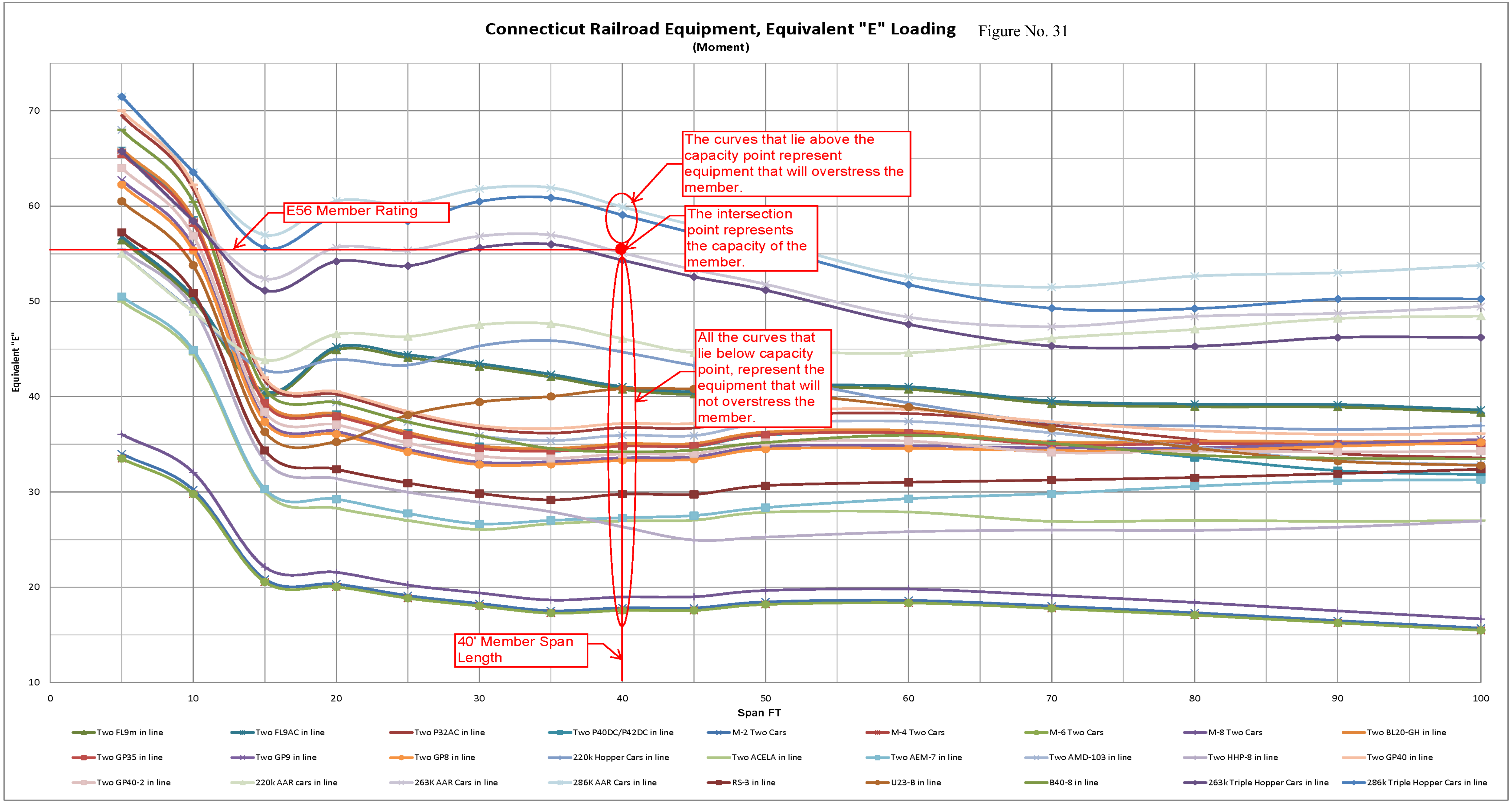
E59.8 Member Rating

Maximum Cooper Load at 40' = E58

The intersection point represents the capacity of the member.

The curves lie below capacity point. Therefore no equipment will overstress the member being looked at.

40' Member Span Length



Connecticut Railroad Equipment, Equivalent "E" Loading Figure No. 31

(Moment)

The curves that lie above the capacity point represent equipment that will overstress the member.

The intersection point represents the capacity of the member.

All the curves that lie below capacity point, represent the equipment that will not overstress the member.

E56 Member Rating

40' Member Span Length

CONNECTICUT RAILROAD BRIDGES

TABLE A

EQUIVALENT COOPER LOADING SUMMARY

	COOPER E80		FL9m Single Engine				Two FL9m in line				Two FL9m Back to Back			
span	Max. Shear	Max. Moment	Max. Shear	Max. Moment	"E" RATING		Max. Shear	Max. Moment	"E" RATING		Max. Shear	Max. Moment	"E" RATING	
(Feet)	(KIP)	(FT KIP)	(KIP)	(FT KIP)	SHEAR	MOMENT	(KIP)	(FT KIP)	SHEAR	MOMENT	(KIP)	(FT KIP)	SHEAR	MOMENT
5	80	100	56	71	E 56	E 56	56	71	E 56	E 56	56	70	E 56	E 56
10	120	225	74	141	E 50	E 50	74	141	E 50	E 50	74	141	E 50	E 50
15	160	500	93	252	E 46	E 40	93	252	E 46	E 40	90	252	E 45	E 40
20	200	825	112	462	E 45	E 45	112	463	E 45	E 45	110	463	E 44	E 45
25	227	1224	123	673	E 43	E 44	123	674	E 43	E 44	122	674	E 43	E 44
30	252	1642	131	885	E 42	E 43	137	886	E 43	E 43	133	886	E 42	E 43
35	277	2088	136	1096	E 39	E 42	149	1097	E 43	E 42	146	1098	E 42	E 42
40	302	2623	146	1308	E 39	E 40	165	1336	E 44	E 41	163	1309	E 43	E 40
45	327	3202	155	1519	E 38	E 38	178	1611	E 43	E 40	180	1592	E 44	E 40
50	349	3804	167	1731	E 38	E 36	188	1942	E 43	E 41	196	1946	E 45	E 41
60	392	5196	186	2212	E 38	E 34	205	2647	E 42	E 41	220	2768	E 45	E 43
70	442	6830	200	2848	E 36	E 33	228	3352	E 41	E 39	241	3588	E 44	E 42
80	497	8638	210	3534	E 34	E 33	254	4204	E 41	E 39	265	4503	E 43	E 42
90	549	10678	218	4233	E 32	E 32	276	5191	E 40	E 39	286	5490	E 42	E 41
100	600	12893	224	4938	E 30	E 31	293	6178	E 39	E 38	302	6610	E 40	E 41

	COOPER E80		FL9AC Single Engine				Two FL9AC in line				Two FL9AC Back to Back			
span	Max. Shear	Max. Moment	Max. Shear	Max. Moment	"E" RATING		Max. Shear	Max. Moment	"E" RATING		Max. Shear	Max. Moment	"E" RATING	
(Feet)	(KIP)	(FT KIP)	(KIP)	(FT KIP)	SHEAR	MOMENT	(KIP)	(FT KIP)	SHEAR	MOMENT	(KIP)	(FT KIP)	SHEAR	MOMENT
5	80	100	57	71	E 57	E 57	57	71	E 57	E 57	57	71	E 57	E 57
10	120	225	75	142	E 50	E 50	75	142	E 50	E 50	75	142	E 50	E 50
15	160	500	93	253	E 47	E 41	93	253	E 47	E 41	91	253	E 45	E 41
20	200	825	113	465	E 45	E 45	113	466	E 45	E 45	111	466	E 44	E 45
25	227	1224	124	678	E 44	E 44	124	679	E 44	E 44	123	679	E 43	E 44
30	252	1642	132	891	E 42	E 43	138	892	E 44	E 43	134	892	E 43	E 43
35	277	2088	137	1104	E 40	E 42	150	1105	E 43	E 42	147	1105	E 43	E 42
40	302	2623	147	1317	E 39	E 40	166	1346	E 44	E 41	164	1318	E 44	E 40
45	327	3202	156	1530	E 38	E 38	179	1622	E 44	E 41	182	1603	E 44	E 40
50	349	3804	168	1743	E 39	E 37	189	1956	E 43	E 41	198	1960	E 45	E 41
60	392	5196	187	2228	E 38	E 34	206	2666	E 42	E 41	222	2788	E 45	E 43
70	442	6830	201	2868	E 36	E 34	229	3376	E 42	E 40	243	3614	E 44	E 42
80	497	8638	212	3559	E 34	E 33	256	4234	E 41	E 39	267	4534	E 43	E 42
90	549	10678	220	4264	E 32	E 32	278	5228	E 40	E 39	288	5528	E 42	E 41
100	600	12893	226	4974	E 30	E 31	296	6222	E 39	E 39	304	6657	E 41	E 41

	COOPER E80		P32AC single Engine				Two P32AC in line				Two P32AC Back to Back			
span	Max. Shear	Max. Moment	Max. Shear	Max. Moment	"E" RATING		Max. Shear	Max. Moment	"E" RATING		Max. Shear	Max. Moment	"E" RATING	
(Feet)	(KIP)	(FT KIP)	(KIP)	(FT KIP)	SHEAR	MOMENT	(KIP)	(FT KIP)	SHEAR	MOMENT	(KIP)	(FT KIP)	SHEAR	MOMENT
5	80	100	69	87	E 69	E 70	69	87	E 69	E 70	69	87	E 69	E 70
10	120	225	76	174	E 51	E 62	76	174	E 51	E 62	76	174	E 51	E 62
15	160	500	97	261	E 49	E 42	97	261	E 49	E 42	97	261	E 49	E 42
20	200	825	108	415	E 43	E 40	108	415	E 43	E 40	[illegible]	[illegible]	[illegible]	[illegible]
25	227	1224	114	584	E 40	E 38	114	584	E 40	E 38	[illegible]	[illegible]	[illegible]	[illegible]
30	252	1642	118	753	E 38	E 37	129	753	E 41	E 37	[illegible]	[illegible]	[illegible]	[illegible]
35	277	2088	121	922	E 35	E 35	142	944	E 41	E 36	145	982	E 42	E 38
40	302	2623	123	1091	E 33	E 33	159	1205	E 42	E 37	162	1242	E 43	E 38
45	327	3202	127	1260	E 31	E 31	172	1469	E 42	[illegible]	[illegible]	[illegible]	[illegible]	E 38
50	349	3804	135	1429	E 31	E 30	183	1805	E 42	[illegible]	[illegible]	[illegible]	[illegible]	E 39
60	392	5196	156	1772	E 32	E 27	198	2483	E 41	[illegible]	[illegible]	[illegible]	[illegible]	E 39
70	442	6830	173	2177	E 31	E 26	211	3158	E 38	[illegible]	[illegible]	[illegible]	[illegible]	E 38
80	497	8638	186	2772	E 30	E 26	230	3832	E 37	E 35	233	3898	E 37	E 36
90	549	10678	197	3448	E 29	E 26	250	4541	E 36	E 34	253	4619	E 37	E 35
100	600	12893	205	4122	E 27	E 26	267	5410	E 36	E 34	270	5488	E 36	E 34

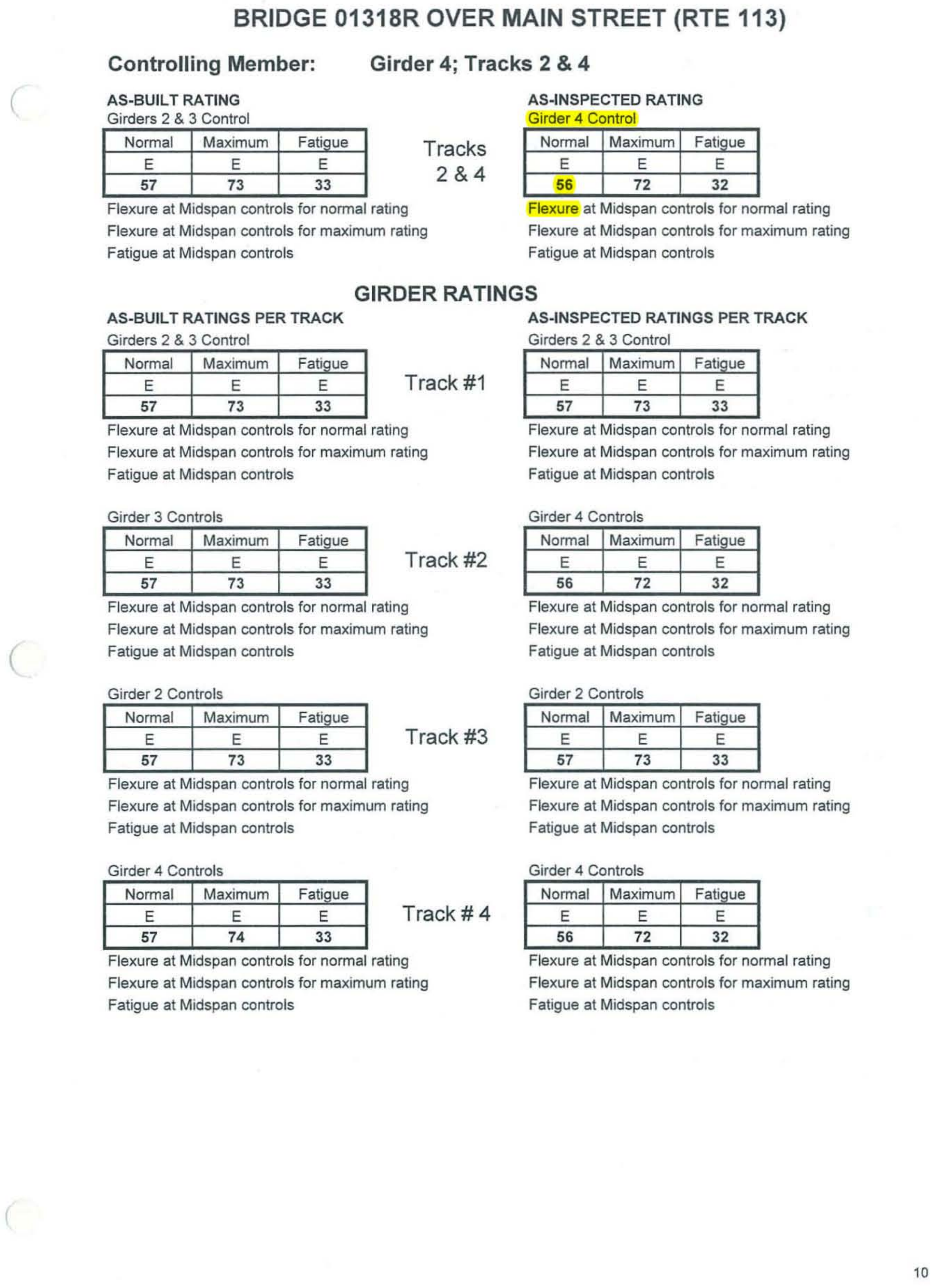
Equivalent Cooper Lead = E42
Capacity from load rating = E59.8

Load (E42) is less than capacity (E59.8), therefore the equipment does not overstress the member

	COOPER E80		P40DC/P42DC single Engine				Two P40DC/P42DC in line				Two P40DC/P42DC Back to Back			
span	Max. Shear	Max. Moment	Max. Shear	Max. Moment	"E" RATING		Max. Shear	Max. Moment	"E" RATING		Max. Shear	Max. Moment	"E" RATING	
(Feet)	(KIP)	(FT KIP)	(KIP)	(FT KIP)	SHEAR	MOMENT	(KIP)	(FT KIP)	SHEAR	MOMENT	(KIP)	(FT KIP)	SHEAR	MOMENT
5	80	100	66	82	E 66	E 66	66	82	E 65	E 66	66	82	E 66	E 66
10	120	225	72	165	E 48	E 59	72	165	E 48	E 59	72	165	E 48	E 59
15	160	500	92	247	E 46	E 40	92	247	E 46	E 40	92	247	E 46	E 40
20	200	825	102	393	E 41	E 38	102	393	E 41	E 38	102	393	E 41	E 38
25	227	1224	108	553	E 38	E 36	108	553	E 38	E 36	109	553	E 38	E 36
30	252	1642	112	713	E 36	E 35	122	713	E 39	E 35	124	713	E 39	E 35
35	277	2088	115	873	E 33	E 33	134	894	E 39	E 34	137	930	E 40	E 36
40	302	2623	117	1033	E 31	E 32	150	1141	E 40	E 35	153	1177	E 41	E 36
45	327	3202	120	1193	E 29	E 30	163	1392	E 40	E 35	165	1454	E 40	E 36
50	349	3804	128	1353	E 29	E 28	173	1710	E 40	E 36	175	1772	E 40	E 37
60	392	5196	148	1679	E 30	E 26	188	2352	E 38	E 36	190	2414	E 39	E 37
70	442	6830	164	2062	E 30	E 24	200	2992	E 36	E 35	202	3056	E 37	E 36
80	497	8638	177	2626	E 28	E 24	218	3630	E 35	E 34	221	3692	E 36	E 34
90	549	10678	186	3266	E 27	E 24	237	4301	E 35	E 32	240	4375	E 35	E 33
100	600	12893	194	3904	E 26	E 24	253	5124	E 34	E 32	255	5198	E 34	E 32

Figure No. 32

Load chart values are applicable to specific structural members. For limitations, see Executive Summary.



BRIDGE 01318R OVER MAIN STREET (RTE 113)

Controlling Member: **Girder 4; Tracks 2 & 4**

Tracks 2 & 4

AS-BUILT RATING

Girders 2 & 3 Control

Normal	Maximum	Fatigue
E	E	E
57	**73**	**33**

Flexure at Midspan controls for normal rating
Flexure at Midspan controls for maximum rating
Fatigue at Midspan controls

AS-INSPECTED RATING

Girder 4 Control

Normal	Maximum	Fatigue
E	E	E
56	**72**	**32**

Flexure at Midspan controls for normal rating
Flexure at Midspan controls for maximum rating
Fatigue at Midspan controls

GIRDER RATINGS

Track #1

AS-BUILT RATINGS PER TRACK

Girders 2 & 3 Control

Normal	Maximum	Fatigue
E	E	E
57	**73**	**33**

Flexure at Midspan controls for normal rating
Flexure at Midspan controls for maximum rating
Fatigue at Midspan controls

AS-INSPECTED RATINGS PER TRACK

Girders 2 & 3 Control

Normal	Maximum	Fatigue
E	E	E
57	**73**	**33**

Flexure at Midspan controls for normal rating
Flexure at Midspan controls for maximum rating
Fatigue at Midspan controls

Track #2

Girder 3 Controls

Normal	Maximum	Fatigue
E	E	E
57	**73**	**33**

Flexure at Midspan controls for normal rating
Flexure at Midspan controls for maximum rating
Fatigue at Midspan controls

Girder 4 Controls

Normal	Maximum	Fatigue
E	E	E
56	**72**	**32**

Flexure at Midspan controls for normal rating
Flexure at Midspan controls for maximum rating
Fatigue at Midspan controls

Track #3

Girder 2 Controls

Normal	Maximum	Fatigue
E	E	E
57	**73**	**33**

Flexure at Midspan controls for normal rating
Flexure at Midspan controls for maximum rating
Fatigue at Midspan controls

Girder 2 Controls

Normal	Maximum	Fatigue
E	E	E
57	**73**	**33**

Flexure at Midspan controls for normal rating
Flexure at Midspan controls for maximum rating
Fatigue at Midspan controls

Track # 4

Girder 4 Controls

Normal	Maximum	Fatigue
E	E	E
57	**74**	**33**

Flexure at Midspan controls for normal rating
Flexure at Midspan controls for maximum rating
Fatigue at Midspan controls

Girder 4 Controls

Normal	Maximum	Fatigue
E	E	E
56	**72**	**32**

Flexure at Midspan controls for normal rating
Flexure at Midspan controls for maximum rating
Fatigue at Midspan controls

10

Figure No. 33

Summary of Shear Ratings at Ends

As-Built Load Rating of: **Shear at Ends of Girder 4, Span 2**

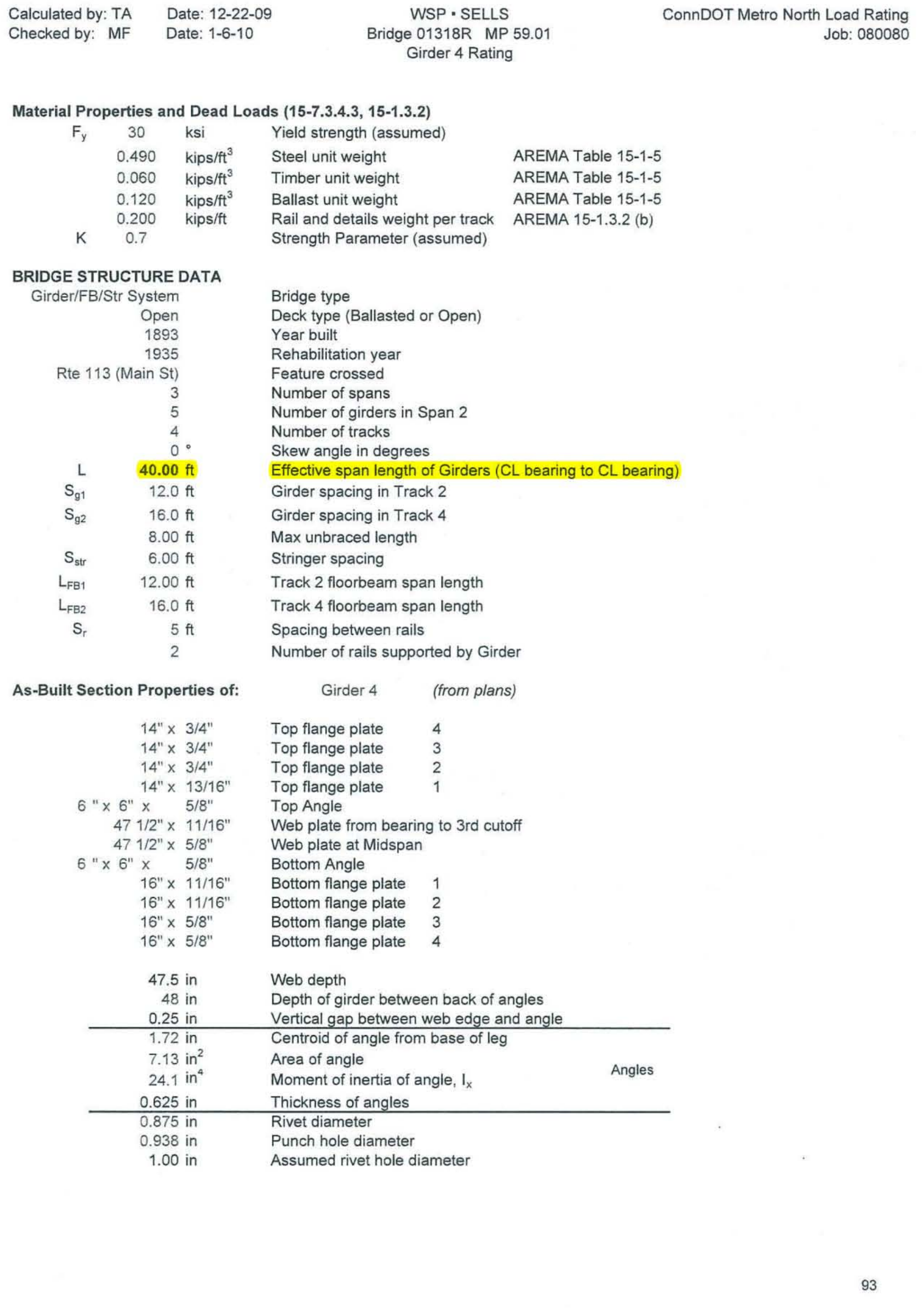
Normal	Maximum
E	E
59.8	**91.1**

As-Inspected Load Rating of: **Shear at Ends of Girder 4, Span 2**

Normal	Maximum
E	E
59.8	**91.1**

**Due to the end stringer bays being partly supported by the end floorbeams which directly transfer the load to the bearings via the girder bearing stiffeners, the live load span length for girder shear is shortened by the average end bay length.*

Figure No. 34



Calculated by: TA Date: 12-22-09
Checked by: MF Date: 1-6-10

WSP • SELLS
Bridge 01318R MP 59.01
Girder 4 Rating

ConnDOT Metro North Load Rating
Job: 080080

Material Properties and Dead Loads (15-7.3.4.3, 15-1.3.2)

F_y	30	ksi	Yield strength (assumed)	
	0.490	$kips/ft^3$	Steel unit weight	AREMA Table 15-1-5
	0.060	$kips/ft^3$	Timber unit weight	AREMA Table 15-1-5
	0.120	$kips/ft^3$	Ballast unit weight	AREMA Table 15-1-5
	0.200	kips/ft	Rail and details weight per track	AREMA 15-1.3.2 (b)
K	0.7		Strength Parameter (assumed)	

BRIDGE STRUCTURE DATA

	Girder/FB/Str System	Bridge type
	Open	Deck type (Ballasted or Open)
	1893	Year built
	1935	Rehabilitation year
	Rte 113 (Main St)	Feature crossed
	3	Number of spans
	5	Number of girders in Span 2
	4	Number of tracks
	0 °	Skew angle in degrees
L	40.00 ft	Effective span length of Girders (CL bearing to CL bearing)
S_{g1}	12.0 ft	Girder spacing in Track 2
S_{g2}	16.0 ft	Girder spacing in Track 4
	8.00 ft	Max unbraced length
S_{str}	6.00 ft	Stringer spacing
L_{FB1}	12.00 ft	Track 2 floorbeam span length
L_{FB2}	16.0 ft	Track 4 floorbeam span length
S_r	5 ft	Spacing between rails
	2	Number of rails supported by Girder

As-Built Section Properties of: Girder 4 *(from plans)*

14" x 3/4"	Top flange plate	4
14" x 3/4"	Top flange plate	3
14" x 3/4"	Top flange plate	2
14" x 13/16"	Top flange plate	1
6 " x 6" x 5/8"	Top Angle	
47 1/2" x 11/16"	Web plate from bearing to 3rd cutoff	
47 1/2" x 5/8"	Web plate at Midspan	
6 " x 6" x 5/8"	Bottom Angle	
16" x 11/16"	Bottom flange plate	1
16" x 11/16"	Bottom flange plate	2
16" x 5/8"	Bottom flange plate	3
16" x 5/8"	Bottom flange plate	4

47.5 in	Web depth	
48 in	Depth of girder between back of angles	
0.25 in	Vertical gap between web edge and angle	
1.72 in	Centroid of angle from base of leg	Angles
7.13 in^2	Area of angle	
24.1 in^4	Moment of inertia of angle, I_x	
0.625 in	Thickness of angles	
0.875 in	Rivet diameter	
0.938 in	Punch hole diameter	
1.00 in	Assumed rivet hole diameter	

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Figure No. 35

GENERAL EXAMPLE NO 2:

The lowest E rating does not always represent the weakest member in the bridge. The capacity of a member depends upon its span length. The following general example will illustrate this. Assume a bridge has a 25'-0" span girder with an E47 rating for moment capacity and a 7'-0” span stringer with an E52 rating for moment capacity. From Figure 36, it can be seen that the Girder is adequate for all the equipment except the three heaviest freight cars. However, Figure 36 also shows that the stringer is overstressed by a majority of equipment except the M series Coaches and the lightest Amtrak equipment. In this case, the member with the lowest E rating (E47) does not control. Not only is it important to check the member with the lowest E-rating, but members with shorter span lengths must be checked as well.

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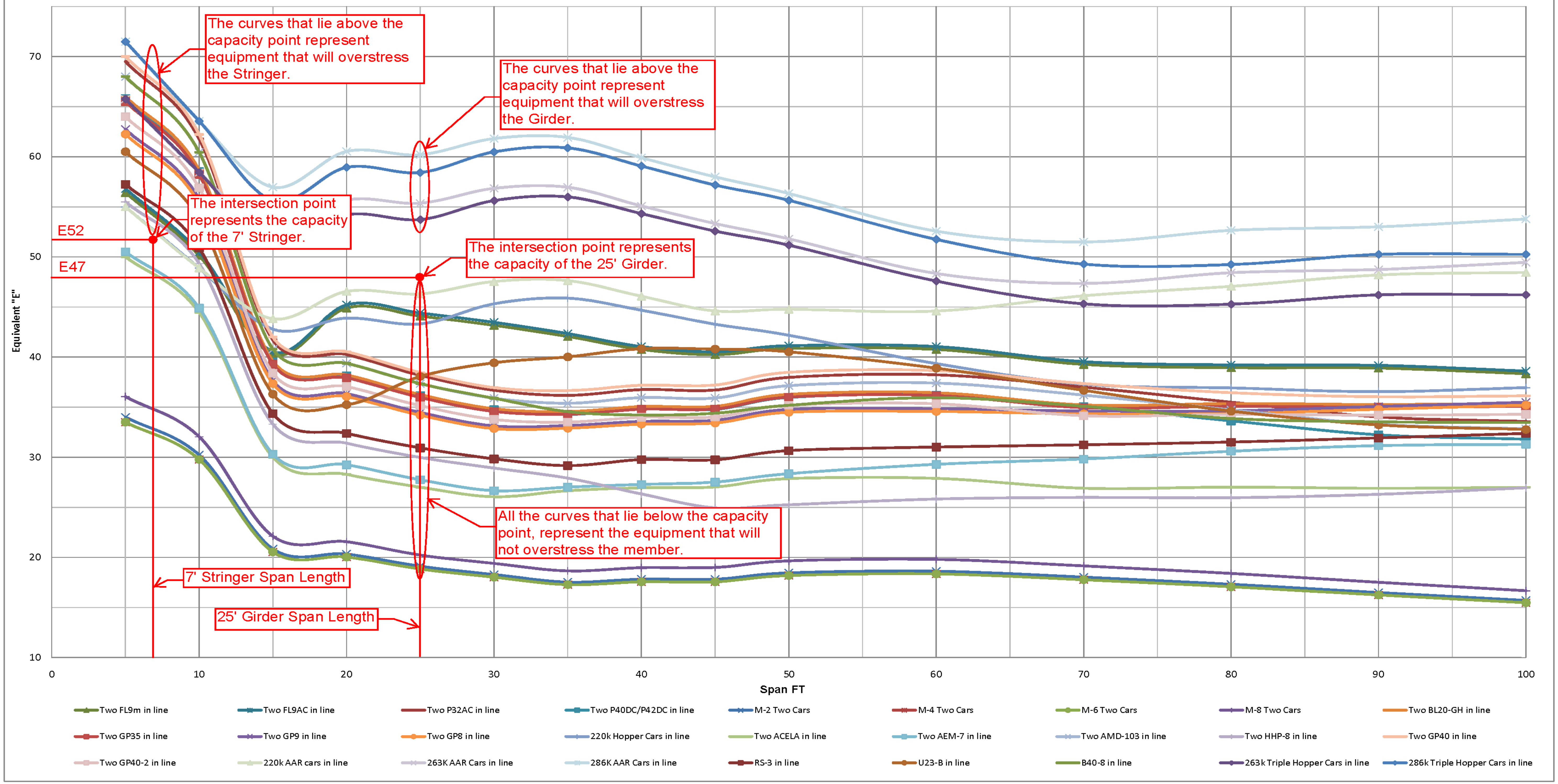
Connecticut Railroad Equipment, Equivalent "E" Loading Figure No. 36

(Moment)



The curves that lie above the capacity point represent equipment that will overstress the Stringer.

The curves that lie above the capacity point represent equipment that will overstress the Girder.

The intersection point represents the capacity of the 7' Stringer.

The intersection point represents the capacity of the 25' Girder.

All the curves that lie below the capacity point, represent the equipment that will not overstress the member.

7' Stringer Span Length

25' Girder Span Length

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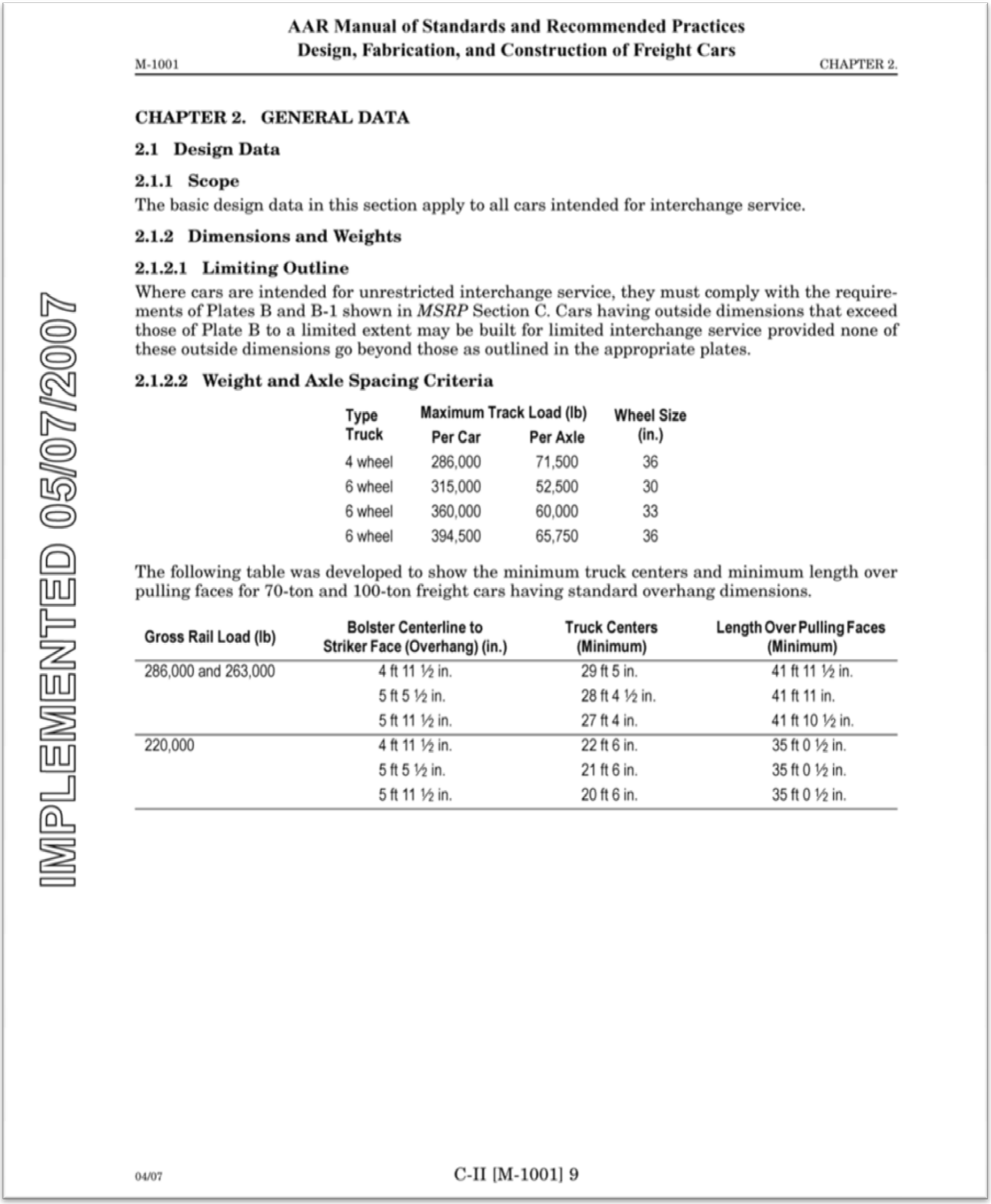


CHAPTER 2. GENERAL DATA

2.1 Design Data

2.1.1 Scope

The basic design data in this section apply to all cars intended for interchange service.

2.1.2 Dimensions and Weights

2.1.2.1 Limiting Outline

Where cars are intended for unrestricted interchange service, they must comply with the requirements of Plates B and B-1 shown in *MSRP* Section C. Cars having outside dimensions that exceed those of Plate B to a limited extent may be built for limited interchange service provided none of these outside dimensions go beyond those as outlined in the appropriate plates.

2.1.2.2 Weight and Axle Spacing Criteria

Type Truck	Maximum Track Load (lb)		Wheel Size (in.)
	Per Car	Per Axle	
4 wheel	286,000	71,500	36
6 wheel	315,000	52,500	30
6 wheel	360,000	60,000	33
6 wheel	394,500	65,750	36

The following table was developed to show the minimum truck centers and minimum length over pulling faces for 70-ton and 100-ton freight cars having standard overhang dimensions.

Gross Rail Load (lb)	Bolster Centerline to Striker Face (Overhang) (in.)	Truck Centers (Minimum)	Length Over Pulling Faces (Minimum)
286,000 and 263,000	4 ft 11 ½ in.	29 ft 5 in.	41 ft 11 ½ in.
	5 ft 5 ½ in.	28 ft 4 ½ in.	41 ft 11 in.
	5 ft 11 ½ in.	27 ft 4 in.	41 ft 10 ½ in.
220,000	4 ft 11 ½ in.	22 ft 6 in.	35 ft 0 ½ in.
	5 ft 5 ½ in.	21 ft 6 in.	35 ft 0 ½ in.
	5 ft 11 ½ in.	20 ft 6 in.	35 ft 0 ½ in.

APPENDIX 10
LIST OF RAILROAD CONTACT PERSONS

Off-System Railroad Contact Numbers

Railroad	Contact Person	Phone Number	Cell Number
Branford Steam Railroad	**1 Forest Road, North Branford, Connecticut 06471**		
Vice President of Operations	Gary E. Wall	(203) 484-1412	
Train Dispatcher	Various	(203) 484-1409	
C & S	Jim Laske	(203) 484-1407	
Track & Bridge	Jim Laske	(203) 484-1407	
Email Address			
Central New England Railroad	**44 Cedar Ridge Road, Newington, Connecticut 06111**		
Railroad Owner	Amedde Belliveau	(860) 666-1636	(860) 841-2802
Train Dispatcher	Amedde Belliveau	(860) 666-1636	(860) 841-2802
C & S	Amedde Belliveau	(860) 666-1636	(860) 841-2802
Track & Bridge	Amedde Belliveau	(860) 666-1636	(860) 841-2802
Email Address	support@cnzrr.com		
Connecticut Southern Railroad	**1 Depot Street, Palmer, Massachusetts 01069**		
General Manager	Steve Coomes	(802) 527-3401	(802) 393-0349
Train Dispatcher	Various	(860) 291-1700	
C & S	Ron Bocash	(802) 527-3461	(802) 373-8397
Track & Bridge	Jim Bahlke	(802) 527-3585	(802) 373-2781
Safety Manager	Tres C. Meyer		(972) 743-0403
Email Address	steve.coomes@railamerica.com		
CSX	**500 Water Street, Jacksonville, Florida 32202**		
Railroad President	Michael Ward		
Train Dispatcher/Railroad Emergency	Various	(800) 232-0144	
Principal Engineer	Carl Roe	(904) 359-1036	
Track & Bridge Supervisor	Roy Squires		(413) 427-9859
Yard Master (North Haven)	Tom Hollingworth	(203) 786-6505	
Email Address	Carl_Roe@csx.com		
Housatonic Railroad	**P.O. Box 1146, Canaan, Connecticut 06018-1146**		
Railroad President	John Hanlon	(860) 824-0850, ext. 16	
Train Dispatcher	Various	(860) 824-0850, ext. 12	
C & S	Mat Boardman	(860) 824-0850, ext. 17	(860) 307-7021
Track & Bridge	Mat Boardman	(860) 824-0850, ext. 17	(860) 307-7021
Email Address	mat.boardman@hrr.com; r.abramson@hrrc.com		
Naugatuck Railroad	**242 East Main Street, Thomaston, Connecticut 06787**		
Railroad Owner	Ralph Harris	(860) 283-7245	
Train Dispatcher	Ralph Harris	(860) 283-7245	
C & S	Ralph Harris	(860) 283-7245	
Track & Bridge	Ralph Harris	(860) 283-7245	
Email Address	president@rmne.org		
New England Central Railroad	**1 Depot Street, Palmer, Massachusetts, 01069**		
General Manager	Steve Coomes	(802) 527-3401	(802) 393-0349
Train Dispatcher	Various	(802) 527-3500	
C & S	Ron Bocash	(802) 527-3461	(802) 373-8397
Track & Bridge	Jim Bahlke	(802) 527-3585	(802) 373-2781
Safety Manager	Tres C. Meyers		(972) 743-0403
Email Address	steve.coomes@railamerica.com		
Pan Am Railways (Boston & Maine)	**1700 Iron Horse Park, North Billerica, Massachusetts 01862**		
Railroad President	David Fink	(978) 663-1131	
Operations Center	Various	(800) 955-9208	
C & S	Tim Kunzuer	(978) 663-6961	
Track & Bridge	George Thayer	(978) 663-6973	
Email Address	customerservice@panamrailways.com		
Providence & Worcester	**75 Hammond Street, Worcester, Massachusetts 01610**		
Railroad President	P. Scott Conti	(508) 755-4000	
Train Dispatcher	Various	(508) 755-4000 ext. 400	
Director of Engineering	Bernie Cartier	(508) 755-4000 ext. 380	(508) 726-9644
C & S	Denis Glaude	(508) 755-4000 ext. 280	(508) 726-8935
Track & Bridge	Dick Ross	(508) 755-4000 ext. 252	(508) 294-9001
Email Address	CustomerServiceResponse@pwrr.com		
Valley Railroad	**1 Railroad Avenue, P.O. Box 452, Essex, Connecticut 06426**		
Railroad President	Robert Bell	(860) 767-0103	
Train Dispatcher	Various	(860) 767-2021	
C & S	Robert Bradway	(860) 767-0103	
Track & Bridge	Robert Bradway	(860) 767-0103	
Email Address	valley.railroad@snet.net		

Metro North Railroad contact numbers

Metro North Railroad (MNR) **347 Madison Avenue, New York, NY 10017-3739**

	Contact Person	**Phone Number**	**Cell Phone Number**	**E-mail address**
Railroad Traffic Control (RTC)		(800) 724-3005		
Track & Structure Department	Leon Kagan	(203) 975-4131		kagan@mnr.org
	Alan Morton	(845) 905-3834	(646) 281-4103	morton@mnr.org
Bridge Strikes - Contact	Thomas McLoughlin	(646) 765-1802	(203) 710-4283	mcloughlin@mnr.org
	Donald Migliozzi	(917) 295-7091	(203) 988-5822	Migliozzi@mnr.org
	Alan Morton	(845) 905-3834	(646) 281-4103	morton@mnr.org

Office of Rail contact numbers

Office of Rail **2800 Berlin Turnpike, Newington, CT 06131-7546**

	Contact Person	Phone Number	E-mail address
Office of Rail Design	Haresh Dholakia	(860) 594-3173	hareshkumar.dholakia@ct.gov
	Gustavo Melo	(860) 594-2888	gustavo.melo@ct.gov
	Rosmery Rodriguez	(860) 594-2127	rosmery.rodriguez@ct.gov
	Jacob Booth	(860) 594-2862	jacob.booth@ct.gov

Version: 1.0 - February, 2012

APPENDIX 11
INSPECTION SCHEDULE FOR METRO-NORTH RAILROAD BRIDGES

Inspection Schedule for Metro-North Railroad Bridges - Routine and Verification Inspections

Track Chart Name	Town	Bridge No.	Location	Mile Point	Deck Area	Last Day of Insp.	2 yr cycle proposed Date of Routine		2 yr cycle proposed Date of Verification inspection		Scheduled Routine Inspection by		Scheduled Verification Inspection by		Last Day of Routine Inspection		Last Day of Verification Inspection	
							2011	2012	2011	2012	2011	2012	2011	2012	2011	2012	2011	2012
DANBURY	NORWALK	04134R	MARSHALL STREET	0.11	530	04/03/09	04/03/11			04/02/12	10/18/11			10/17/12	11/14/11			
DANBURY	NORWALK	08200R	ANN STREET	0.19	2052	05/15/09	05/15/11			05/14/12	10/26/11			10/25/12	11/15/11			
DANBURY	NORWALK	08225R	REED STREET	0.36	2816	--		01/01/12	01/01/11			01/03/12	09/15/11		10/05/11			
DANBURY	NORWALK	08201R	NORWALK RIVER - STEEL GIRDER	1.56	2614	04/01/09	04/01/11			03/31/12	10/13/11			10/12/12	10/21/11			
DANBURY	NORWALK	08202R	NORWALK RIVER - STEEL GIRDER	3.20	2117	03/19/10		03/18/12	03/19/11			05/27/12	10/11/11				10/05/11	
DANBURY	WILTON	08203R	BROOK - MULTIBEAM DECK	5.12	144	06/01/09	06/01/11			05/31/12	11/02/11			11/01/12	10/28/11			
DANBURY	WILTON	08204R	STREAM - MULTIBEAM DECK	6.43	360	06/01/09	06/01/11			05/31/12	11/02/11			11/01/12	10/28/11			
DANBURY	WILTON	08205R	NORWALK RIVER - STEEL GIRDER	6.64	495	06/03/09	06/03/11			06/02/12	11/04/11			11/03/12	10/31/11			
DANBURY	WILTON	08206R	NORWALK RIVER - STEEL GIRDER	8.70	510	06/03/09	06/03/11			06/02/12	11/04/11			11/03/12	10/31/11			
DANBURY	WILTON	08207R	NORWALK RIVER - STEEL GIRDER	9.42	672	03/16/10		03/15/12	03/16/11			05/14/12	10/05/11				09/26/11	
DANBURY	WILTON	08208R	BROOK - CULVERT MASONRY	9.91	252	03/18/10		03/17/12	03/18/11			05/16/12	10/07/11				09/26/11	
DANBURY	WILTON	08209R	OLD MILL ROAD	11.01	320	08/21/09	08/21/11			08/20/12	11/11/11			11/10/12	10/26/11			
DANBURY	WILTON	08210R	NORWALK RIVER - STEEL GIRDER	11.55	1570	04/26/10		04/25/12	04/26/11			07/04/12	11/22/11				10/06/11	
DANBURY	WILTON	08211R	FACTORY POND	12.17	588	04/01/09	04/01/11			03/31/12	10/13/11			10/12/12	10/26/11			
DANBURY	REDDING	08213R	OLD REDDING ROAD	14.16	208	08/21/09	08/21/11			08/20/12	11/11/11			11/10/12	10/26/11			
DANBURY	REDDING	08214R	SIMPAUG TURNPIKE	14.80	199	03/24/10		03/23/12	03/24/11			06/01/12	10/24/11				10/04/11	
DANBURY	REDDING	08215R	UMPAWAUG POND BROOK - STEEL GIRDER	16.41	248	06/02/09	06/02/11			06/01/12	11/03/11			11/02/12	10/17/11			
DANBURY	REDDING	08216R	SAUGATUCK RIVER - STEEL GIRDER	17.09	392	06/02/09	06/02/11			06/01/12	11/03/11			11/02/12	10/17/11			
DANBURY	BETHEL	01020R	GRASSY PLAIN ROAD (ROUTE 53)	19.64	468	03/29/10		03/28/12	03/29/11			06/06/12	10/26/11					
DANBURY	BETHEL	08217R	BROOK - CONCRETE	19.99	390	02/22/10		02/22/12	02/22/11			04/22/12	09/16/11				10/04/11	
DANBURY	BETHEL	08218R	SYMPAUG BROOK - MULTIBEAM DECK	21.41	216	11/20/09	11/20/11			11/19/12	12/20/11			12/19/12	12/07/11			
DANBURY	DANBURY	08219R	SYMPAUG BROOK - CONCRETE SLAB	21.52	216	11/20/09	11/20/11			11/19/12	12/20/11			12/19/12	12/07/11			
DANBURY	DANBURY	08220R	STILL RIVER - STEEL GIRDER	22.39	2520	03/17/10		03/16/12	03/17/11			05/15/12	10/06/11				09/27/11	
DANBURY	DANBURY	05100R	STILL RIVER - CONCRETE CULVERT	22.94	1680	03/04/10		03/03/12	03/04/11			05/02/12	09/22/11				09/27/11	
DANBURY	DANBURY	08223R	STILL RIVER - CONCRETE CULVERT	23.18	8820	03/15/10		03/14/12	03/15/11			05/13/12	10/04/11					
DANBURY	DANBURY	04290R	STILL RIVER - CONCRETE CULVERT	23.42	2537	03/18/10		03/17/12	03/18/11			05/26/12	10/10/11					
MAINLINE	GREENWICH	03943R	NORTH WATER STREET	26.10	2068	03/10/10		03/09/12	03/10/11		03/16/11			03/15/12	05/02/11			
MAINLINE	GREENWICH	08000R	PEDESTRIAN UNDERPASS AT HAMILTON AVENUE	26.79	684	03/10/10		03/09/12	03/10/11		03/17/11			03/16/12	05/02/11			
MAINLINE	GREENWICH	03945R	HAMILTON AVENUE	26.79	1296	03/10/10		03/09/12	03/10/11		03/17/11			03/16/12	05/02/11			
MAINLINE	GREENWICH	03947R	FIELD POINT ROAD	27.77	2160	03/13/09	03/13/11			03/12/12	03/10/11			03/09/12	05/02/11			
MAINLINE	GREENWICH	03673R	ARCH STREET (SR 742)	28.06	5304	11/04/09	11/04/11			11/03/12	03/25/11			03/24/12	05/02/11			
MAINLINE	GREENWICH	08002R	PEDESTRIAN OVERPASS FOOTBRIDGE	28.16	385	04/06/09	04/06/11			04/05/12	04/25/11			04/24/12	04/25/11			
MAINLINE	GREENWICH	03946R	STEAMBOAT ROAD	28.22	3068	03/10/10		03/09/12	03/10/11		03/18/11			03/17/12	04/25/11			
MAINLINE	GREENWICH	08003R	DAVIS AVENUE #2	28.48	1824	03/10/10		03/09/12	03/10/11		03/21/11			03/20/12	05/04/11			
MAINLINE	GREENWICH	08004R	INDIAN HARBOR (DAVIS MILL POND)	28.68	3400	03/11/10		03/10/12	03/11/11			05/09/12	10/03/11				10/11/11	
MAINLINE	GREENWICH	08005R	SACHEM ROAD	29.50	2240	03/13/09	03/13/11			03/12/12	03/15/11			03/14/12	05/04/11			
MAINLINE	GREENWICH	08006R	LUKES CROSSING (SOUND SHORE DRIVE)	29.68	1672	03/13/09	03/13/11			03/12/12	03/16/11			03/15/12	05/04/11			
MAINLINE	GREENWICH	08008R	MIANUS RIVER (COS COB BRIDGE) - MOVABLE	29.90	58262	11/02/09	11/02/11			11/01/12	09/12/11			09/11/12	11/02/01			
MAINLINE	GREENWICH	08009R	ARCH STREET #2 - MASONRY ARCH	31.03	1330	11/05/09	11/05/11			11/04/12	03/11/11			03/10/12	05/04/11			
MAINLINE	GREENWICH	08010R	STREAM - MASONRY CULVERT	31.12	1120	11/10/09	11/10/11			11/09/12	04/26/11			04/25/12	04/26/11			
MAINLINE	GREENWICH	03948R	SOUND BEACH AVENUE	31.29	3416	03/26/10		03/25/12	03/26/11		03/17/11			03/16/12	05/03/11			
MAINLINE	GREENWICH	03955R	TOMAC AVENUE	31.62	1800	03/09/10		03/08/12	03/09/11		03/18/11			03/17/12	05/03/11			
MAINLINE	STAMFORD	03680R	GREENWICH AVENUE	32.81	3465	10/20/08	10/20/10			10/20/11	03/15/11			03/14/12	05/03/11			
MAINLINE	STAMFORD	08011R	RIPPOWAM RIVER - TRUSS	32.85	7280	04/30/09	04/30/11			04/29/12	04/27/11			04/26/12	04/28/11			

Inspection Schedule for Metro-North Railroad Bridges - Routine and Verification Inspections

Track Chart Name	Town	Bridge No.	Location	Mile Point	Deck Area	Last Day of Insp.	2 yr cycle proposed Date of Routine		2 yr cycle proposed Date of Verification inspection		Scheduled Routine Inspection by		Scheduled Verification Inspection by		Last Day of Routine Inspection		Last Day of Verification Inspection	
							2011	2012	2011	2012	2011	2012	2011	2012	2011	2012	2011	2012
MAINLINE	STAMFORD	03683R	WASHINGTON BOULEVARD (STATE ROUTE 493)	32.97	7700	03/13/09	03/13/11			03/12/12	03/01/11			02/29/12	05/03/11			
MAINLINE	STAMFORD	08012R	ATLANTIC STREET	33.19	4580	10/21/08	10/21/10			10/21/11	03/03/11			03/02/12	05/05/11			
MAINLINE	STAMFORD	03678R	CANAL STREET	33.41	5850	10/20/08	10/20/10			10/20/11	03/07/11			03/06/12	05/05/11			
MAINLINE	STAMFORD	03686R	ELM STREET	33.75	6144	10/20/08	10/20/10			10/20/11	03/08/11			03/07/12	05/06/11			
MAINLINE	STAMFORD	02237R	EAST MAIN STREET (U.S. ROUTE 1)	34.17	6825	10/21/08	10/21/10			10/21/11	04/12/11			04/11/12	05/05/11			
MAINLINE	STAMFORD	08013R	HAMILTON AVENUE	34.72	3060	03/09/10		03/08/12	03/09/11		03/14/11			03/13/12	05/05/11			
MAINLINE	STAMFORD	08014R	NOROTON RIVER - MASONRY ARCH	35.58	2646	04/05/10		04/04/12	04/05/11			06/13/12	10/28/11				10/12/11	
MAINLINE	DARIEN	08015R	NOROTON STATION PEDESTRIAN OVERPASS	36.24	525	10/22/09	10/22/11			10/21/12	11/21/11			11/20/12	11/08/11			
MAINLINE	DARIEN	08016R	STONY BROOK - MASONRY CULVERT	37.16	812	04/05/10		04/04/12	04/05/11			06/13/12	10/27/11				12/15/11	
MAINLINE	DARIEN	08017R	CUMMINGS BROOK - MASONRY CULVERT	37.36	360	08/13/09	08/13/11			08/12/12	10/12/11			10/11/12	05/18/11			
MAINLINE	DARIEN	04142R	LEROY AVENUE #1	37.59	1616	03/08/10		03/07/12	03/08/11			05/06/12	09/26/11				12/19/11	
MAINLINE	DARIEN	00316R	BOSTON POST ROAD (U.S. ROUTE 1)	37.82	3840	04/26/10		04/25/12	04/26/11			07/04/12	11/28/11				12/15/11	
MAINLINE	DARIEN	08018R	GOODWIVES RIVER - CONCRETE DECK	38.00	1144	08/13/09	08/13/11			08/12/12	10/12/11			10/11/12	05/18/11			
MAINLINE	DARIEN	08020R	TOKENEKE BROOK - 2 STONE CULVERTS	38.53	720	12/07/09	12/07/11			12/06/12	12/27/11			12/26/12	05/19/11			
MAINLINE	DARIEN	08021R	TOKENEKE BROOK #2 - MASONRY CULVERT	38.68	600	08/13/09	08/13/11			08/12/12	10/12/11			10/11/12	05/19/11			
MAINLINE	DARIEN	04271R	RAYMOND STREET	38.93	1392	12/08/09	12/08/11			12/07/12	12/28/11			12/27/12				
MAINLINE	DARIEN	08022R	FIVE MILE RIVER - BRICK ARCH	39.07	2795	02/11/09	02/11/11			02/11/12	06/11/11			06/10/12				
MAINLINE	NORWALK	08023R	DRY STREAM - MASONRY CULVERT	39.08	384	03/08/10		03/07/12	03/08/11			05/06/12	09/23/11				10/10/11	
MAINLINE	NORWALK	04132R	ROWAYTON AVENUE	39.11	1778	02/17/09	02/17/11			02/17/12	09/22/11			09/21/12	12/19/11			
MAINLINE	NORWALK	08025R	FRANKLIN STREET (SPRING STREET)	40.89	3000	05/14/09	05/14/11			05/13/12	10/25/11			10/24/12				
MAINLINE	NORWALK	08026R	STATION UNDERPASS	41.02	500	11/06/09	11/06/11			11/05/12	12/06/11			12/05/12	05/17/11			
MAINLINE	NORWALK	08027R	MONROE STREET	41.12	7040	03/08/10		03/07/12	03/08/11			05/06/12	09/27/11					
MAINLINE	NORWALK	03693R	WASHINGTON & MAIN STREETS	41.28	7008	04/15/10		04/14/12	04/15/11			06/23/12	11/18/11					
MAINLINE	NORWALK	04288R	NORTH WATER STREET & NORWALK RIVER - MOVABLE	41.51	33840	03/22/10		03/21/12	03/22/11			05/30/12	10/13/11					
MAINLINE	NORWALK	04131R	FORT POINT STREET	41.79	2000	03/11/09	03/11/11			03/10/12	10/07/11			10/06/12	11/09/11			
MAINLINE	NORWALK	08028R	OSBORNE AVENUE	41.96	2064	02/17/09	02/17/11			02/17/12	09/23/11			09/22/12	10/27/11			
MAINLINE	NORWALK	03691R	EAST AVENUE	42.14	1968	03/13/09	03/13/11			03/12/12	10/10/11			10/09/12	11/10/11			
MAINLINE	NORWALK	08029R	BROOK - MASONRY CULVERT	42.26	480	01/13/09	01/13/11			01/13/12	04/15/11			04/14/12	05/20/11			
MAINLINE	NORWALK	03692R	STRAWBERRY HILL AVENUE	42.37	1767	02/17/09	02/17/11			02/17/12	07/26/11			07/25/12	09/09/11			
MAINLINE	WESTPORT	08290R	INDIAN RIVER - TWO CONCRETE PIPES 7' DIAMETER	43.80	3233	01/13/09	01/13/11			01/13/12	09/19/11			09/18/12	10/18/11			
MAINLINE	WESTPORT	01348R	SAUGATUCK AVENUE (ROUTE 136)	43.97	3024	02/18/09	02/18/11			02/18/12	08/02/11			08/01/12	09/09/11			
MAINLINE	WESTPORT	08105R	NEW STATION UNDERPASS	44.12	1021	01/11/10		01/11/12	01/11/11			03/11/12	09/15/11				10/10/11	
MAINLINE	WESTPORT	08031R	STATION UNDERPASS - CONCRETE CULVERT	44.20	785	04/02/09	04/02/11			04/01/12	10/14/11			10/13/12	09/06/11			
MAINLINE	WESTPORT	08032R	FERRY LANE & SAUGATUCK RIVER - MOVABLE	44.32	25190	02/08/09	02/08/11			02/08/12	07/25/11			07/24/12	09/16/11			
MAINLINE	WESTPORT	03963R	COMPO ROAD	44.70	2200	03/04/09	03/04/11			03/03/12	10/06/11			10/05/12	10/19/11			
MAINLINE	WESTPORT	08033R	SHERWOOD MILL POND - CONCRETE CULVERT	45.75	336	10/13/09	10/13/11			10/12/12	11/21/11			11/20/12	12/19/11			
MAINLINE	WESTPORT	08034R	MUDDY BROOK - CONCRETE CULVERT	46.11	436	10/13/09	10/13/11			10/12/12	11/21/11			11/20/12	12/19/11			
MAINLINE	WESTPORT	08035R	NEW CREEK ROAD	47.15	1954	02/18/09	02/18/11			02/18/12	07/28/11			07/27/12	09/09/11			
MAINLINE	WESTPORT	08036R	GREENS FARMS BROOK - METAL PIPE CULVERT	47.29	600	10/13/09	10/13/11			10/12/12	11/21/11			11/20/12	12/19/11			
MAINLINE	WESTPORT	08037R	MAPLE LANE	47.44	2100	02/18/09	02/18/11			02/18/12	09/26/11			09/25/12	11/11/11			
MAINLINE	WESTPORT	08038R	SASCO RIVER - MULTIBEAM DECK	48.29	2000	08/10/09	08/10/11			08/09/12	11/10/11			11/09/12	12/19/11			
MAINLINE	FAIRFIELD	08039R	WESTWAY ROAD	48.65	2697	02/23/09	02/23/11			02/23/12	07/06/11			07/05/12	12/19/11			
MAINLINE	FAIRFIELD	04200R	CENTER STREET	48.81	1925	02/24/09	02/24/11			02/24/12	10/03/11			10/02/12	10/19/11			
MAINLINE	FAIRFIELD	08041R	SPRUCE STREET	48.91	1584	02/25/09	02/25/11			02/25/12	10/04/11			10/03/12	10/19/11			
MAINLINE	FAIRFIELD	08042R	OLD POST ROAD	49.01	1700	02/26/09	02/26/11			02/26/12	10/05/11			10/04/12	10/19/11			

Inspection Schedule for Metro-North Railroad Bridges - Routine and Verification Inspections

Track Chart Name	Town	Bridge No.	Location	Mile Point	Deck Area	Last Day of Insp.	2 yr cycle proposed Date of Routine		2 yr cycle proposed Date of Verification inspection		Scheduled Routine Inspection by		Scheduled Verification Inspection by		Last Day of Routine Inspection		Last Day of Verification Inspection	
							2011	2012	2011	2012	2011	2012	2011	2012	2011	2012	2011	2012
MAINLINE	FAIRFIELD	08043R	MILL RIVER - MULTIBEAM DECK	49.66	3744	08/11/09	08/11/11			08/10/12	10/10/11			10/09/12				
MAINLINE	FAIRFIELD	08044R	NORTH PINE CREEK ROAD	50.02	1680	03/30/09	03/30/11			03/29/12	10/11/11			10/10/12	10/24/11			
MAINLINE	FAIRFIELD	04197R	MILL PLAIN ROAD	50.29	1968	03/30/09	03/30/11			03/29/12	10/11/11			10/10/12	10/24/11			
MAINLINE	FAIRFIELD	04198R	ROUND HILL ROAD	50.90	1650	03/30/09	03/30/11			03/29/12	10/11/11			10/10/12	10/24/11			
MAINLINE	FAIRFIELD	01344R	NORTH BENSON ROAD (ROUTE 135)	51.12	1724	04/07/10		04/06/12	04/07/11			06/15/12	11/01/11					
MAINLINE	FAIRFIELD	08045R	FAIRFIELD CREEK - MULTIBEAM DECK	51.68	960	04/07/09	04/07/11			04/06/12	10/19/11			10/18/12				
MAINLINE	FAIRFIELD	08047R	ASH CREEK - MULTIBEAM DECK	53.00	1900	05/13/09	05/13/11			05/12/12	10/24/11			10/23/12				
MAINLINE	BRIDGEPORT	03635R	FAIRFIELD AVENUE (ROUTE 130)	53.42	5724	04/07/10		04/06/12	04/07/11			06/15/12	11/07/11					
MAINLINE	BRIDGEPORT	08048R	BOSTWICK AVENUE	53.60	3200	11/18/09	11/18/11			11/17/12	12/18/11			12/17/12				
MAINLINE	BRIDGEPORT	08049R	HANCOCK AVENUE	53.72	3400	04/07/10		04/06/12	04/07/11			06/15/12	11/02/11					
MAINLINE	BRIDGEPORT	08050R	HOWARD AVENUE	53.84	3264	09/28/09	09/28/11			09/27/12	11/02/11			11/01/12				
MAINLINE	BRIDGEPORT	08051R	WORDIN AVENUE	54.07	3564	04/07/10		04/06/12	04/07/11			06/15/12	11/04/11				10/24/11	
MAINLINE	BRIDGEPORT	08052R	IRANISTAN AVENUE	54.22	3496	04/07/10		04/06/12	04/07/11			06/15/12	11/03/11					
MAINLINE	BRIDGEPORT	08053R	SOUTH AVENUE	54.44	4224	04/08/10		04/07/12	04/08/11			06/16/12	11/11/11				10/26/11	
MAINLINE	BRIDGEPORT	03638R	PARK AVENUE	54.58	4752	04/08/10		04/07/12	04/08/11			06/16/12	11/14/11				10/25/11	
MAINLINE	BRIDGEPORT	08054R	MYRTLE AVENUE	54.70	2928	09/29/09	09/29/11			09/28/12	11/03/11			11/02/12				
MAINLINE	BRIDGEPORT	08055R	WARREN STREET	54.77	2436	02/22/10		02/22/12	02/22/11			04/22/12	09/16/11				10/14/11	
MAINLINE	BRIDGEPORT	08056R	LAFAYETTE STREET	54.84	2436	02/22/10		02/22/12	02/22/11			04/22/12	09/19/11				10/14/11	
MAINLINE	BRIDGEPORT	08057R	BROAD STREET	54.93	2990	03/24/10		03/23/12	03/24/11			06/01/12	10/25/11				12/15/11	
MAINLINE	BRIDGEPORT	08058R	MAIN STREET #1	54.98	3400	02/22/10		02/22/12	02/22/11			04/22/12	09/19/11				10/24/11	
MAINLINE	BRIDGEPORT	08059R	HOUSATONIC CROSSING	55.13	6090	11/19/09	11/19/11			11/18/12	12/19/11			12/18/12				
MAINLINE	BRIDGEPORT	08107R	SOUTH PEDESTRIAN OVERPASS	55.35	5653	04/29/10		04/28/12	04/29/11			07/07/12	12/13/11				12/05/11	
MAINLINE	BRIDGEPORT	08060R	UNION STREET	55.40	2552	03/30/09	03/30/11			03/29/12	10/12/11			10/11/12	11/21/11			
MAINLINE	BRIDGEPORT	08061R	BRIDGEPORT HARBOR - REINFORCED CONCRETE SLAE	55.41	51308	03/05/10		03/04/12	03/05/11			05/03/12	09/23/11					
MAINLINE	BRIDGEPORT	08108R	NORTH PEDESTRIAN OVERPASS	55.41	5211	04/29/10		04/28/12	04/29/11			07/07/12	12/08/11				12/05/11	
MAINLINE	BRIDGEPORT	08104R	BRIDGEPORT HARBOR - PEDESTRIAN TUNNEL	55.50	1078	09/08/08	09/08/10			09/08/11	06/07/11			06/06/12				
MAINLINE	BRIDGEPORT	08062R	STATION VIADUCT	55.51	22500	10/23/08	10/23/10			10/23/11	06/09/11			06/08/12	07/14/11			
MAINLINE	BRIDGEPORT	03636R	STRATFORD AVENUE (ROUTE 130)	55.61	9110	10/23/08	10/23/10			10/23/11	06/08/11			06/07/12	07/11/11			
MAINLINE	BRIDGEPORT	08063R	VIADUCT - PARKING LOT NORTH	55.69	70860	10/23/08	10/23/10			10/23/11	06/10/11			06/09/12	07/11/11			
MAINLINE	BRIDGEPORT	08064R	PEQUONNOCK RIVER - MOVABLE	55.90	32941	08/16/09	08/16/11			08/15/12	07/27/11			07/26/12	07/29/11			
MAINLINE	BRIDGEPORT	08065R	VIADUCT	55.91	12875	01/09/09	01/09/11			01/09/12	06/21/11			06/20/12	09/09/11			
MAINLINE	BRIDGEPORT	08066R	PULASKI STREET	55.95	4410	12/05/08	12/05/10			12/05/11	06/17/11			06/16/12	07/12/11			
MAINLINE	BRIDGEPORT	08067R	VIADUCT	55.97	5735	11/18/08	11/18/10			11/18/11	06/13/11			06/12/12	07/12/11			
MAINLINE	BRIDGEPORT	08068R	NOBLE AVENUE	55.98	5717	12/05/08	12/05/10			12/05/11	06/20/11			06/19/12	07/12/11			
MAINLINE	BRIDGEPORT	08101R	VIADUCT	55.99	7788	11/20/08	11/20/10			11/20/11	06/14/11			06/13/12	07/13/11			
MAINLINE	BRIDGEPORT	08102R	CLARENCE STREET	56.00	4173	12/05/08	12/05/10			12/05/11	06/16/11			06/15/12	07/13/11			
MAINLINE	BRIDGEPORT	08069R	KOSSUTH STREET	56.10	2402	12/05/08	12/05/10			12/05/11	06/15/11			06/14/12	07/13/11			
MAINLINE	BRIDGEPORT	03639R	EAST MAIN STREET (ROUTE 127)	56.20	3400	04/08/10		04/07/12	04/08/11			06/16/12	11/10/11				12/08/11	
MAINLINE	BRIDGEPORT	08070R	PEMBROKE STREET	56.35	3100	04/08/10		04/07/12	04/08/11			06/16/12	11/09/11				12/15/11	
MAINLINE	BRIDGEPORT	08071R	HALLETT STREET	56.46	2950	04/08/10		04/07/12	04/08/11			06/16/12	11/08/11				12/15/11	
MAINLINE	BRIDGEPORT	08072R	YELLOW MILL POND - BRICK ARCH	56.68	1056	08/12/09	08/12/11			08/11/12	10/11/11			10/10/12				
MAINLINE	BRIDGEPORT	08074R	SEAVIEW AVENUE	56.77	3534	09/30/09	09/30/11			09/29/12	11/16/11			11/15/12				
MAINLINE	BRIDGEPORT	08075R	BISHOP AVENUE	57.46	4320	10/01/09	10/01/11			09/30/12	11/05/11			11/04/12				
MAINLINE	BRIDGEPORT	08076R	BRUCE BROOK - CONCRETE PIPE 9' DIAMETER	57.54	3380	10/09/09	10/09/11			10/08/12	11/08/11			11/07/12				
MAINLINE	STRATFORD	08077R	BRUCE AVENUE	57.62	2573	08/20/09	08/20/11			08/19/12	10/19/11			10/18/12				
MAINLINE	STRATFORD	08078R	WEST BROAD STREET	58.72	1919	08/20/09	08/20/11			08/19/12	10/19/11			10/18/12				

Inspection Schedule for Metro-North Railroad Bridges - Routine and Verification Inspections

Track Chart Name	Town	Bridge No.	Location	Mile Point	Deck Area	Last Day of Insp.	2 yr cycle proposed Date of Routine		2 yr cycle proposed Date of Verification inspection		Scheduled Routine Inspection by		Scheduled Verification Inspection by		Last Day of Routine Inspection		Last Day of Verification Inspection	
							2011	2012	2011	2012	2011	2012	2011	2012	2011	2012	2011	2012
MAINLINE	STRATFORD	08079R	KING STREET	58.88	1850	08/20/09	08/20/11			08/19/12	10/19/11			10/18/12				
MAINLINE	STRATFORD	01318R	MAIN STREET (ROUTE 113)	59.01	3692	11/12/09	11/12/11			11/11/12	12/12/11			12/11/12				
MAINLINE	STRATFORD	01312R	EAST MAIN STREET (ROUTE 110)	59.96	3308	08/20/09	08/20/11			08/19/12	10/19/11			10/18/12				
MAINLINE	STRATFORD	08080R	HOUSATONIC RIVER (DEVON BRIDGE) - MOVABLE	60.42	76433	09/23/09	09/23/11			09/22/12	08/08/11			08/07/12				
MAINLINE	MILFORD	08081R	BEAVER CREEK - MASONRY ARCH	61.62	384	02/12/09	02/12/11			02/12/12	09/20/11			09/19/12	10/25/11			
MAINLINE	MILFORD	08082R	BEARDSLEY AVENUE	62.94	1850	02/16/09	02/16/11			02/16/12	09/21/11			09/20/12				
MAINLINE	MILFORD	03640R	HIGH STREET	63.27	3135	02/19/09	02/19/11			02/19/12	09/28/11			09/27/12				
MAINLINE	MILFORD	03644R	RIVER STREET	63.44	3840	02/18/09	02/18/11			02/18/12	09/27/11			09/26/12				
MAINLINE	MILFORD	08083R	WEPAWAUG RIVER & PROSPECT STREET	63.53	6500	02/25/10		02/25/12	02/25/11			04/25/12	09/21/11					
MAINLINE	MILFORD	08084R	GULF STREET	63.83	900	05/18/09	05/18/11			05/17/12	10/27/11			10/26/12				
MAINLINE	MILFORD	08085R	PEDESTRIAN UNDERPASS AT GULF STREET	63.84	549	05/18/09	05/18/11			05/17/12	10/27/11			10/26/12				
MAINLINE	MILFORD	08086R	INDIAN RIVER - MULTIBEAM DECK	64.59	1748	11/10/09	11/10/11			11/09/12	12/10/11			12/09/12				
MAINLINE	MILFORD	08087R	OLD GATE LANE	64.74	1600	05/18/09	05/18/11			05/17/12	11/01/11			10/31/12				
MAINLINE	MILFORD	08088R	QUIRK POND BROOK - MASONRY CULVERT	66.29	600	10/29/09	10/29/11			10/28/12	11/28/11			11/27/12				
MAINLINE	MILFORD	08090R	DEPOT ROAD	66.66	971	10/29/09	10/29/11			10/28/12	11/28/11			11/27/12				
MAINLINE	ORANGE	08091R	OYSTER RIVER - MASONRY CULVERT	67.50	1360	03/10/10		03/09/12	03/10/11			05/08/12	09/29/11				11/18/11	
MAINLINE	WEST HAVEN	08092R	STREAM - STONE/CONCRETE CULVERT	67.98	540	02/25/10		02/25/12	02/25/11			04/25/12	09/20/11				11/17/11	
MAINLINE	WEST HAVEN	08093R	MORGAN LANE	68.11	1550	05/18/09	05/18/11			05/17/12	10/31/11			10/30/12				
MAINLINE	WEST HAVEN	08096R	COVE RIVER - MASONRY CULVERT	69.19	1160	03/10/10		03/09/12	03/10/11			05/08/12	09/28/11				11/18/11	
MAINLINE	WEST HAVEN	01403R	SAW MILL ROAD (ROUTE 162)	69.66	3185	04/09/10		04/08/12	04/09/11			06/17/12	11/17/11				12/14/11	
MAINLINE	WEST HAVEN	08097R	CAMPBELL AVENUE	70.19	3050	04/09/10		04/08/12	04/09/11			06/17/12	11/16/11				12/14/11	
MAINLINE	WEST HAVEN	08098R	WASHINGTON AVENUE	70.36	2900	04/09/10		04/08/12	04/09/11			06/17/12	11/15/11					
MAINLINE	WEST HAVEN	08099R	WEST RIVER - CONCRETE BOX	71.26	7192	03/22/10		03/21/12	03/22/11			05/30/12	10/12/11				12/14/11	
MAINLINE	NEW HAVEN	08100R	STATION UNDERPASS	72.28	2880	06/02/10		06/01/12	06/02/11			08/10/12	12/15/11				12/09/11	
MAINLINE	NEW HAVEN	08106R	STATE STREET STATION OVERPASS	72.80	1413	04/30/10		04/29/12	04/30/11			07/08/12	12/14/11				11/23/11	
NEW CANAAN	STAMFORD	08150R	VIADUCT ROAD	2.81	1885	04/06/10		04/05/12	04/06/11		03/22/11			03/21/12	05/06/11			
NEW CANAAN	STAMFORD	08151R	NOROTON RIVER - MULTIBEAM DECK	3.77	296	03/31/09	03/31/11			03/30/12	07/29/11			07/28/12	04/29/11			
NEW CANAAN	NEW CANAAN	00710R	MERRITT PARKWAY (ROUTE 15)	5.76	1008	04/01/10		03/31/12	04/01/11		04/14/11			04/13/12	05/06/11			
NEW CANAAN	NEW CANAAN	01302R	OLD STAMFORD ROAD (ROUTE 106)	6.16	795	04/21/10		04/20/12	04/21/11		03/25/11			03/24/12	05/06/11			
NEW CANAAN	NEW CANAAN	08154R	WATERWAY - MASONRY CULVERT	7.00	787	04/21/10		04/20/12	04/21/11			06/29/12	11/21/11				10/07/11	
WATERBURY	MILFORD	08252R	UNNAMED STREAM - CONCRETE & RAIL DECK	3.80	160	10/12/09	10/12/11			10/11/12	11/18/11			11/17/12	12/06/11			
WATERBURY	MILFORD	08253R	BROOK - MASONRY CULVERT	4.14	552	10/12/09	10/12/11			10/11/12	11/18/11			11/17/12	12/06/11			
WATERBURY	MILFORD	08254R	BEARDS FARMWAY	4.55	528	06/04/09	06/04/11			06/03/12	11/07/11			11/06/12	11/04/11			
WATERBURY	MILFORD	08255R	FARMWAY CROSSING	4.88	572	06/04/09	06/04/11			06/03/12	11/07/11			11/06/12	11/04/11			
WATERBURY	MILFORD	08257R	GOLF CROSSING - REINFORCED CONCRETE SLAB	5.01	442	06/04/09	06/04/11			06/03/12	11/07/11			11/06/12	11/04/11			
WATERBURY	ORANGE	08258R	DAVIS BROOK - 2 CONCRETE CULVERTS	7.02	1696	10/12/09	10/12/11			10/11/12	11/18/11			11/17/12	12/06/11			
WATERBURY	ORANGE	08260R	TWO MILE BROOK (TURKEY BROOK) - CONCRETE CULV	7.36	560	04/28/10		04/27/12	04/28/11			07/06/12	12/06/11				12/13/11	
WATERBURY	DERBY	08261R	STREAM - UNNAMED STREAM	7.92	660	04/28/10		04/27/12	04/28/11			07/06/12	12/07/11				12/13/11	
WATERBURY	DERBY	08262R	NAUGATUCK RIVER - STEEL TRUSS	8.62	3948	12/11/09	12/11/11			12/10/12	08/08/11			08/07/12				
WATERBURY	DERBY	08263R	NAUGATUCK RIVER FLOOD PLAIN	8.68	4680	07/06/09	07/06/11			07/05/12	11/09/11			11/08/12	12/05/11			
WATERBURY	ANSONIA	08264R	NAUGATUCK RIVER - STEEL TRUSS	10.30	9827	09/16/09	09/16/11			09/15/12	08/11/11			08/10/12				
WATERBURY	ANSONIA	08266R	RACEWAY FARREL COMPANY - MASONRY ARCH	10.85	768	10/26/09	10/26/11			10/25/12	08/25/11			08/24/12	12/01/11			
WATERBURY	ANSONIA	08267R	SPILLWAY	11.36	2366	10/26/09	10/26/11			10/25/12	08/26/11			08/25/12				
WATERBURY	SEYMOUR	08268R	CANAL - STEEL GIRDER	12.57	1170	05/18/09	05/18/11			05/17/12	10/28/11			10/27/12	11/01/11			
WATERBURY	SEYMOUR	08269R	MUD BROOK - MASONRY CULVERT	13.20	396	04/27/10		04/26/12	04/27/11			07/05/12	11/29/11				12/13/11	
WATERBURY	SEYMOUR	01321R	MAIN STREET (ROUTES 115 & 313)	14.29	1664	04/08/09	04/08/11			04/07/12	10/20/11			10/19/12	11/22/11			

Inspection Schedule for Metro-North Railroad Bridges - Routine and Verification Inspections

Track Chart Name	Town	Bridge No.	Location	Mile Point	Deck Area	Last Day of Insp.	2 yr cycle proposed Date of Routine		2 yr cycle proposed Date of Verification inspection		Scheduled Routine Inspection by		Scheduled Verification Inspection by		Last Day of Routine Inspection		Last Day of Verification Inspection	
							2011	2012	2011	2012	2011	2012	2011	2012	2011	2012	2011	2012
WATERBURY	SEYMOUR	08270R	JAMES STREET FOOTBRIDGE	14.45	608	04/08/09	04/08/11			04/07/12	10/20/11			10/19/12	11/03/11			
WATERBURY	SEYMOUR	01063R	DERBY AVENUE (ROUTE 67)	14.61	754	04/27/10		04/26/12	04/27/11			07/05/12	11/30/11					
WATERBURY	SEYMOUR+A1	08272R	NAUGATUCK RIVER - MULTIBEAM DECK	14.64	2763	04/02/09	04/02/11			04/01/12	10/17/11			10/16/12	11/15/11			
WATERBURY	BEACON FALLS	08274R	OLD PINE'S BRIDGE ROAD	16.79	150	06/05/09	06/05/11			06/04/12	11/08/11			11/07/12	11/02/11			
WATERBURY	BEACON FALLS	08275R	HEMP SWAMP BROOK - MASONRY CULVERT	16.81	1140	06/05/09	06/05/11			06/04/12	11/08/11			11/07/12	11/02/11			
WATERBURY	BEACON FALLS	08276R	SPRUCE BROOK - MULTIBEAM DECK	19.21	180	07/07/09	07/07/11			07/06/12	11/08/11			11/07/12	12/01/11			
WATERBURY	NAUGATUCK	08277R	SUGAR BUSH BROOK - MULTIBEAM DECK	20.11	180	10/27/09	10/27/11			10/26/12	11/26/11			11/25/12	12/02/11			
WATERBURY	NAUGATUCK	08278R	US RUBBER COMPANY - PEDESTRIAN TUNNEL	21.22	336	09/14/09	09/14/11			09/13/12	11/14/11			11/13/12	11/30/11			
WATERBURY	NAUGATUCK	08279R	PRIVATE ROAD AT UNIROYAL	21.36	504	09/14/09	09/14/11			09/13/12	11/14/11			11/13/12	11/30/11			
WATERBURY	NAUGATUCK	08280R	LONGMEADOW POND BROOK - CONCRETE ARCH	21.48	6240	10/02/09	10/02/11			10/01/12	11/17/11			11/16/12	12/01/11			
WATERBURY	NAUGATUCK	08281R	OVERFLOW - CONCRETE SLAB	21.65	5440	02/22/10		02/22/12	02/22/11			04/22/12	09/20/11				11/22/11	
WATERBURY	NAUGATUCK	04224R	MAPLE STREET	21.74	972	11/02/09	11/02/11			11/01/12	12/02/11			12/01/12	12/12/11			
WATERBURY	NAUGATUCK	08283R	HOP BROOK - MULTIBEAM DECK	22.42	359	10/27/09	10/27/11			10/26/12	11/26/11			11/25/12	11/30/11			
WATERBURY	NAUGATUCK	08284R	BRIDGE STREET (GENERAL PULASKI WALK)	22.74	754	09/14/09	09/14/11			09/13/12	11/15/11			11/14/12	12/12/11			
WATERBURY	WATERBURY	03723R	BRISTOL STREET #1	24.10	611	09/14/09	09/14/11			09/13/12	11/15/11			11/14/12	12/14/11			
WATERBURY	WATERBURY	08285R	STREAM - STONE/CONCRETE CULVERT	24.34	1320	04/27/10		04/26/12	04/27/11			07/05/12	12/05/11				11/22/11	
WATERBURY	WATERBURY	04232R	WASHINGTON AVENUE #1	26.18	2144	04/09/09	04/09/11			04/08/12	1021/11			12/30/00	12/14/11			
WATERBURY	WATERBURY	04235R	BANK STREET #1	26.35	2054	04/09/09	04/09/11			04/08/12	1021/11			12/30/00	12/13/11			
WATERBURY	WATERBURY	08286R	NAUGATUCK RIVER - STEEL GIRDER	26.42	3435	11/17/09	11/17/11			11/16/12	09/08/11			09/07/12	12/02/11			
WATERBURY	WATERBURY	08287R	JACKSON STREET	26.50	2074	04/09/09	04/09/11			04/08/12	1021/11			12/30/00	12/13/11			

Version: 1.0 - February, 2012

APPENDIX 12
INSPECTION SCHEDULE FOR OFF-SYSTEM RAILROAD BRIDGES

State of Connecticut-Department of Transportation-Office of Rails
Inspection Schedule for Offsystem Railroad Bridges-Routine and Verification Inspection

BRIDGE NO.	M.P.	RAILROAD	TRACK CHART NAME	TOWN	LOCATION	Deck Area	Last Day of Inspection	2 yr cycle proposed Date of Routine inspection		Proposed Date of Verification inspection	Scheduled Date of Insp.by Purcell	Last for Verification Insp.by PB	Last Day of Inspection Routine	2 yr cycle proposed Date of Verification inspection		2 yr cycle proposed Date of Routine inspection	Last Day of Insp.by PB	Last Day of Insp.by Purcell
								2011	2012	from 7/1/2011	Routine	Verification		2012	2013	2013	Routine	Verification
00430R	32.25	RAILS TO TRAILS*	AVON SECONDARY	FARMINGTON	FARMINGTON AVENUE	**1098**												
00479R	3.20	PROV & WORCESTER	WETHERSFIELD SEC.	HARTFORD	AIRPORT ROAD (SR 530)	**1037**	02/26/09	02/26/11			03/17/11		03/17/11	03/17/12		03/17/13		
00522R	21.18	PROV & WORCESTER	MIDDLETOWN SEC.	MIDDLETOWN	ROUTE 66	**4400**	06/18/10		06/17/12	09/01/11	06/17/12							
00600R	24.16	BOSTON & MAINE	TORRINGTON SEC.	WATERBURY	WEST MAIN STREET (SR 847)	**4929**	06/03/10		06/02/12	09/07/11	06/02/12	10/31/11			10/31/13			
00639R	0.19	PROV & WORCESTER	PORTLAND IND. TRK.	MIDDLETOWN	RT. 9 & CONNECTICUT RIVER	**19520**	11/03/10		11/02/12	11/03/11	11/02/12							
00863R	16.01	PROV & WORCESTER	CROMWELL IND. TRACK	MIDDLETOWN	HARTFORD AVENUE	**1093**	08/12/09	08/12/11			08/12/11		09/19/11	09/19/12		09/19/13		
01373R	16.92	PROV & WORCESTER	MIDDLETOWN SEC.	MIDDLEFIELD	RTE 147 (BAILEYVILLE ROAD)	**880**	03/04/10		03/03/12	07/20/11	03/03/12	11/14/11			11/14/13			
01624R	36.65	RAILS TO TRAILS*	AVON SECONDARY	AVON	ARCH ROAD	**1299**												
01849R	22.55	PROV & WORCESTER	WILLIMANTIC BRANCH	WINDHAM	ABANDONED RD/PEDESTRIAN	**1571**	12/01/09	12/01/11			12/01/11		12/01/11	12/01/12		12/01/13		
04234R	24.34	BOSTON & MAINE	TORRINGTON SEC.	WATERBURY	FREIGHT STREET	**6717**	09/10/09	09/10/11			09/10/11		09/21/11	09/21/12		09/21/13		
04242R	4.68	INACTIVE	NEW BRITAIN SEC.	NEW BRITAIN	ROUTE 9 **(BUSWAY)**	**13754**	07/10/09	07/10/11			07/10/11		07/29/11	07/29/12		07/28/13		
09000R	15.26	PROV & WORCESTER	CROMWELL IND. TRACK	MIDDLETOWN	SEBETHE RIVER	**2483**	06/23/09	06/23/11			06/23/11		07/10/11	07/10/12		07/09/13		
09001R	0.79	PROV & WORCESTER	EAST BERLIN IND. TRACK	MIDDLETOWN	COGINCHAUG RIVER	**1030**	06/24/09	06/24/11			06/24/11		10/11/11	10/11/12		10/10/13		
09002R	0.19	PROV & WORCESTER	LAUREL IND. TRACK	MIDDLETOWN	GREEN STREET	**500**	01/27/09	01/27/11			01/26/11		01/26/11	01/26/12		01/25/13		
09003R	0.79	PROV & WORCESTER	LAUREL IND. TRACK	MIDDLETOWN	SUMNER BROOK	**1518**	08/17/09	08/17/11			08/17/11		10/10/11	10/10/12		10/09/13		
09004R	1.20	PROV & WORCESTER	LAUREL IND. TRACK	MIDDLETOWN	EASTERN DRIVE	**230**	01/27/09	01/27/11			02/18/11		02/18/11	02/18/12		02/17/13		
09005R	1.99	PROV & WORCESTER	LAUREL IND. TRACK	MIDDLETOWN	RESERVOIR BROOK	**306**	07/23/09	07/23/11			07/23/11		06/28/11	06/28/12		06/27/13		
09006R	2.32	PROV & WORCESTER	LAUREL IND. TRACK	MIDDLETOWN	INDIAN HILL BROOK	**320**	07/29/09	07/29/11			07/29/11		06/29/11	06/29/12		06/28/13		
09007R	2.97	PROV & WORCESTER	LAUREL IND. TRACK	MIDDLETOWN	FOREST CREEK	**246**	02/12/09	02/12/11			01/20/11		01/20/11	01/20/12		01/19/13		
09008R	3.23	PROV & WORCESTER	LAUREL IND. TRACK	MIDDLETOWN	ASYLUM CREEK	**280**	01/26/09	01/26/11			01/20/11		01/20/11	01/20/12		01/19/13		
09009R	3.70	PROV & WORCESTER	LAUREL IND. TRACK	MIDDLETOWN	MAROMAS CREEK	**240**	03/19/09	03/19/11			02/24/11		02/24/11	02/24/12		02/23/13		
09010R	16.75	PROV & WORCESTER	MIDDLETOWN SEC.	MIDDLEFIELD	CATTLE PASS	**150**	02/01/10		02/01/12	07/19/11	02/01/12	11/18/11			11/18/13			
09011R	17.86	PROV & WORCESTER	MIDDLETOWN SEC.	MIDDLEFIELD	COGINCHAUG RIVER	**682**	08/18/09	08/18/11			08/18/11		10/12/11	10/12/12		10/11/13		
09012R	18.76	PROV & WORCESTER	MIDDLETOWN SEC.	MIDDLEFIELD	FARMWAY	**390**	04/15/10		04/14/12	07/15/11	04/14/12	11/11/11			11/11/13			
09013R	18.77	PROV & WORCESTER	MIDDLETOWN SEC.	MIDDLEFIELD	COGINCHAUG RIVER	**1243**	04/15/10		04/14/12	07/12/11	04/14/12	10/27/11			10/27/13			
09014R	19.93	PROV & WORCESTER	MIDDLETOWN SEC.	MIDDLETOWN	COGINCHAUG RIVER	**1419**	10/29/09	10/29/11			10/29/11		12/02/11	12/02/12		12/01/13		
09015R	20.58	PROV & WORCESTER	MIDDLETOWN SEC.	MIDDLETOWN	UNKNOWN STREAM	**108**	10/01/09	10/01/11			10/01/11							
09100R	24.20	BOSTON & MAINE	TORRINGTON SEC.	WATERBURY	CRANE STREET	**2883**	09/21/09	09/21/11			09/21/11		09/22/11	09/22/12		09/21/13		
09101R	0.12	BOSTON & MAINE	TORRINGTON SEC.	WATERBURY	CONC. BOX/PIPE CULVERT	**840**	09/14/10		09/13/12	09/14/11	09/13/12	10/25/11			10/25/13			
09104R	0.81	NAUGATUCK	TORRINGTON SEC.	WATERBURY	MAHAN CANAL	**260**	05/27/09	05/27/11			05/27/11		05/24/11	05/24/12		05/23/13		
09105R	1.31	NAUGATUCK	TORRINGTON SEC.	WATERBURY	BROOK	**340**												
09106R	1.45	NAUGATUCK	TORRINGTON SEC.	WATERBURY	HANCOCK BROOK	**1714**	08/14/09	08/14/11			08/14/11							
09107R	2.16	NAUGATUCK	TORRINGTON SEC.	WATERBURY	AMERICAN PIN FOOTBRIDGE	**1166**	01/21/09	01/21/11			02/23/11		02/23/11	02/23/12		02/22/13		
09108R	3.16	NAUGATUCK	TORRINGTON SEC.	WATERBURY	NAUGATUCK RIVER	**2924**	08/31/09	08/31/11			08/31/11		11/16/11	11/16/12		11/15/13		
09109R	3.98	NAUGATUCK	TORRINGTON SEC.	WATERTOWN	CULVERT	**582**	01/22/09	01/22/11			02/17/11		02/17/11	02/17/12		02/16/13		
09110R	5.41	NAUGATUCK	TORRINGTON SEC.	WATERTOWN	NAUGATUCK RIVER	**3624**	08/31/09	08/31/11			08/31/11		11/17/11	11/17/12		11/16/13		
09111R	9.05	NAUGATUCK	TORRINGTON SEC.	THOMASTON	BROOK	**534**	01/22/09	01/22/11			02/17/11		02/17/11	02/17/12		02/16/13		
09112R	9.11	NAUGATUCK	TORRINGTON SEC.	THOMASTON	RAILROAD STREET ANNEX	**322**	02/04/10		02/04/12	07/11/11	02/04/12	10/27/11			10/27/13			
09113R	9.18	NAUGATUCK	TORRINGTON SEC.	THOMASTON	BROOK - CULVERT	**393**	09/27/10		09/26/12	09/27/11	09/26/12	10/27/11			10/27/13			
09114R	10.01	NAUGATUCK	TORRINGTON SEC.	THOMASTON	NAUGATUCK RIVER DAM SP.	**2718**	08/20/09	08/20/11			08/20/11		11/15/11	11/15/12		11/14/13		
09115R	10.16	NAUGATUCK	TORRINGTON SEC.	THOMASTON	DAM CONTROL	**3880**	07/02/09	07/02/11			07/02/11		07/20/11	07/20/12		07/19/13		
09116R	11.34	NAUGATUCK	TORRINGTON SEC.	LITCHFIELD	BROOK - CULVERT-CONC. PIPE	**460**	05/07/09	05/07/11			04/12/11		04/12/11	04/12/12		04/11/13		
09117R	12.47	NAUGATUCK	TORRINGTON SEC.	LITCHFIELD	CULVERT	**1130**	03/03/10		03/02/12	07/06/11	03/02/12	10/26/11			10/26/13			
09118R	12.90	NAUGATUCK	TORRINGTON SEC.	LITCHFIELD	BROOK	**855**	05/07/09	05/07/11			04/12/11		04/12/11	04/12/12		04/11/13		
09119R	13.12	NAUGATUCK	TORRINGTON SEC.	LITCHFIELD	CULVERT													
09120R	14.97	NAUGATUCK	TORRINGTON SEC.	LITCHFIELD	SPRUCE BROOK	**765**	09/28/09	09/28/11			09/28/11		11/21/11	11/21/12		11/20/13		
09121R	17.57	NAUGATUCK	TORRINGTON SEC.	TORRINGTON	BROOK - CULVERT	**290**	04/09/09	04/09/11			04/15/11		04/15/11	04/15/12		04/14/13		
09122R	18.37	NAUGATUCK	TORRINGTON SEC.	TORRINGTON	GULF STREAM	**478**	04/09/09	04/09/11			04/15/11		04/15/11	04/15/12		04/14/13		
09123R	18.98	NAUGATUCK	TORRINGTON SEC.	TORRINGTON	SUMMER STREET	**1971**	10/30/09	10/30/11			10/30/11		09/28/11	09/28/12		09/27/13		
09124R	19.04	NAUGATUCK	TORRINGTON SEC.	TORRINGTON	PASSWAY	**623**	10/30/09	10/30/11			10/30/11		09/28/11	09/28/12		09/27/13		
09125R	19.10	NAUGATUCK	TORRINGTON SEC.	TORRINGTON	NAUGATUCK RIVER	**2128**	09/15/09	09/15/11			09/15/11		11/18/11	11/18/12		11/17/13		
09200R	15.00	HOUSATONIC	NEW MILFORD SEC.	NEW MILFORD	STREAM - STONE CULVERT	**516**	05/20/09	05/20/11			05/20/11		05/26/11	05/26/12		05/25/13		
09201R	16.20	HOUSATONIC	NEW MILFORD SEC.	NEW MILFORD	BROOK - STONE CULVERT	**252**	05/20/09	05/20/11			05/20/11		05/26/11	05/26/12		05/25/13		
09202R	16.70	HOUSATONIC	NEW MILFORD SEC.	NEW MILFORD	BROOK - CULVERT	**140**	11/09/09	11/09/11			11/09/11							
09203R	18.90	HOUSATONIC	NEW MILFORD SEC.	NEW MILFORD	BROOK - CULVERT	**287**	11/09/09	11/09/11			11/09/11							
09204R	54.88	HOUSATONIC	NEW MILFORD SEC.	KENT	SWAMP (CULVERT)	**254**	03/16/09	03/16/11			05/18/11		05/17/11	05/17/12		05/16/13		
09206R	25.80	HOUSATONIC	NEW MILFORD SEC.	KENT	COBBLE BROOK	**634**	08/05/10		08/04/12	08/05/11	08/04/12	10/17/11			10//17/13			
09207R	26.80	HOUSATONIC	NEW MILFORD SEC.	KENT	MAUWEE BROOK	**159**	11/10/09	11/10/11			11/10/11							
09208R	28.20	HOUSATONIC	NEW MILFORD SEC.	KENT	KENT FALLS BROOK-CULVERT	**776**	11/10/09	11/10/11			11/10/11							
09209R	28.80	HOUSATONIC	NEW MILFORD SEC.	KENT	CULVERT-DBL 4' CULVERTS													
09210R	29.50	HOUSATONIC	NEW MILFORD SEC.	CORNWALL	DEEP BROOK	**221**	08/03/10		08/02/12	08/03/11	08/02/12	10/17/11			10/17/13			
09211R	30.10	HOUSATONIC	NEW MILFORD SEC.	CORNWALL	MILLARD BROOK	**221**	07/22/09	07/22/11			07/22/11		07/12/11	07/11/12		07/11/13		
09212R	31.20	HOUSATONIC	NEW MILFORD SEC.	CORNWALL	GUNN BROOK	**175**	08/03/10		08/02/12	08/03/11	08/02/12	10/18/11			10/18/13			
09213R	32.20	HOUSATONIC	NEW MILFORD SEC.	CORNWALL	BONNEY BROOK	**1147**	08/04/10		08/03/12	08/04/11	08/03/12	10/18/11			10/18/13			
09214R	32.60	HOUSATONIC	NEW MILFORD SEC.	CORNWALL	FURNACE BROOK	**910**	09/21/10		09/20/12	09/21/11	09/20/12	10/18/11			10/18/13			
09215R	32.80	HOUSATONIC	NEW MILFORD SEC.	CORNWALL	BROOK	**225**	08/04/10		08/03/12	08/04/11	08/03/12	10/18/11			10/18/13			
09217R	36.60	HOUSATONIC	NEW MILFORD SEC.	CORNWALL	MILL BROOK	**310**	09/22/10		09/21/12	09/22/11	09/21/12	10/19/11			10/19/13			

State of Connecticut-Department of Transportation-Office of Rails
Inspection Schedule for Offsystem Railroad Bridges-Routine and Verification Inspection

BRIDGE NO.	M.P.	RAILROAD	TRACK CHART NAME	TOWN	LOCATION	Deck Area	Last Day of Inspection	2 yr cycle proposed Date of Routine inspection		Proposed Date of Verification inspection	Scheduled Date of Insp.by Purcell	Last for Verification Insp.by PB	Last Day of Inspection Routine	2 yr cycle proposed Date of Verification inspection		2 yr cycle proposed Date of Routine inspection	Last Day of Insp.by PB	Last Day of Insp.by Purcell
								2011	2012	from 7/1/2011	Routine	Verification		2012	2013	2013	Routine	Verification
09218R	40.10	HOUSATONIC	NEW MILFORD SEC.	CORNWALL	STREAM	210	10/14/09	10/14/11			10/14/11		11/11/11	11/11/12		11/10/13		
09219R	41.50	HOUSATONIC	NEW MILFORD SEC.	CANAAN	CHILD POND BROOK	332	07/22/09	07/22/11			07/22/11		07/12/11	07/12/12		07/11/13		
09220R	41.70	HOUSATONIC	NEW MILFORD SEC.	CANAAN	BROOK - STONE SLAB	414	05/21/09	05/21/11			05/21/11	10/19/11	05/27/11	05/27/12		05/26/13		
09221R	42.80	HOUSATONIC	NEW MILFORD SEC.	CANAAN	WATER STREET	320	10/13/09	10/13/11			10/13/11		11/10/11	11/10/12		11/09/13		
09222R	43.90	HOUSATONIC	NEW MILFORD SEC.	CANAAN	BRANCH HOUSATONIC RIVER	580	08/10/10		08/09/12	08/10/11	08/09/12	10/19/11			10/19/13			
09223R	44.50	HOUSATONIC	NEW MILFORD SEC.	CANAAN	HOLLENBECK RIVER	1073	08/11/10		08/10/12	08/11/11	08/10/12	10/20/11			10/20/13			
09224R	48.30	HOUSATONIC	NEW MILFORD SEC.	NORTH CANAAN	BLACKBERRY RIVER	1264	09/23/10		09/22/12	09/23/11	09/22/12	10/24/11			10/24/13			
09225R	49.10	HOUSATONIC	NEW MILFORD SEC.	NORTH CANAAN	NORTH BLACKBERRY RIVER	315	10/14/09	10/14/11			10/14/11		11/11/11	11/11/12		11/10/13		
09300R	1.10	RAILS TO TRAILS*	KENDALL'S IND. TRACK	WINDHAM	NATCHAUG RIVER	2471												
09301R	15.23	PROV & WORCESTER	WILLIMANTIC BRANCH	SPRAGUE	WALDO BROOK	680	11/01/10		10/31/12	11/01/11	10/31/12	11/15/11			11/15/13			
09302R	15.93	PROV & WORCESTER	WILLIMANTIC BRANCH	SCOTLAND	MERRICK BROOK	600	02/02/10		02/02/12	08/10/11	02/02/12	11/03/11			11/03/13			
09303R	17.36	PROV & WORCESTER	WILLIMANTIC BRANCH	WINDHAM	FROG BROOK	120	03/17/09	03/17/11			05/18/11	11/15/11	05/18/11	05/18/12	11/15/13	05/17/13		
09304R	20.93	PROV & WORCESTER	WILLIMANTIC BRANCH	WINDHAM	SHETUCKET RIVER	2450	05/26/10		05/25/12	08/08/11	05/25/12	11/21/11			11/21/13			
09305R	21.28	PROV & WORCESTER	WILLIMANTIC BRANCH	WINDHAM	PLAINS ROAD	836	02/19/10		02/19/12	08/04/11	02/19/12	11/02/11			11/02/13			
09306R	22.76	PROV & WORCESTER	WILLIMANTIC BRANCH	WINDHAM	WILLIMANTIC RIVER	5427	05/27/10		05/26/12	08/01/11	05/26/12	11/16/11			11/16/13			
09307R	22.89	PROV & WORCESTER	WILLIMANTIC BRANCH	WINDHAM	STATION FOOTBRIDGE	2388	02/25/09	02/25/11			03/25/11		03/25/11	03/25/12		03/24/13		
09800R	28.97	RAILS TO TRAILS*	AVON SECONDARY	FARMINGTON	SCOTT SWAMP BROOK	750												
09802R	32.00	RAILS TO TRAILS*	AVON SECONDARY	FARMINGTON	FARMINGTON RIVER	3960												
09803R	34.05	RAILS TO TRAILS*	AVON SECONDARY	AVON	THOMPSON BROOK	465												
09804R	37.79	RAILS TO TRAILS*	AVON SECONDARY	AVON	NOD BROOK	845												
09805R	37.81	RAILS TO TRAILS*	AVON SECONDARY	AVON	ROSEWOOD ROAD	516												
09806R	41.38	RAILS TO TRAILS*	AVON SECONDARY	SIMSBURY	HOP BROOK	336												
09807R	44.91	RAILS TO TRAILS*	AVON SECONDARY	SIMSBURY	ROBERT'S CATTLE PASS	150												
09808R	46.25	RAILS TO TRAILS*	AVON SECONDARY	EAST GRANBY	FARMINGTON CANAL													
09809R	46.44	RAILS TO TRAILS*	AVON SECONDARY	EAST GRANBY	SALMON RIVER	3270												
09810R	49.46	RAILS TO TRAILS*	AVON SECONDARY	EAST GRANBY	GRIFFIN'S BROOK	280												
09811R	50.06	RAILS TO TRAILS*	AVON SECONDARY	SUFFIELD	MUDDY RIVER-CONC. ARCH	1464												
09812R	51.07	RAILS TO TRAILS*	AVON SECONDARY	SUFFIELD	FARMINGTON CANAL	340												
09813R	51.27	RAILS TO TRAILS*	AVON SECONDARY	SUFFIELD	STREAM	211												
09814R	10.81	CENTRAL NEW ENGLAND	E. LONGMEADOW SEC.	SOUTH WINDSOR	DRY BROOK	221	04/20/10		04/19/12	08/12/11	04/19/12	11/07/11			11/07/13			
09815R	12.26	CENTRAL NEW ENGLAND	E. LONGMEADOW SEC.	EAST WINDSOR	KETCH BROOK	281	03/02/10		03/01/12	08/15/11	03/01/12	11/07/11			11/07/13			
09816R	15.81	CENTRAL NEW ENGLAND	E. LONGMEADOW SEC.	EAST WINDSOR	BROAD BROOK AND PRIV. RD.	880	03/01/10		02/29/12	08/16/11	02/29/12	11/08/11			11/08/13			
09817R	15.91	CENTRAL NEW ENGLAND	E. LONGMEADOW SEC.	EAST WINDSOR	CULVERT	605	03/02/10		03/01/12	08/18/11	03/01/12	11/08/11			11/08/13			
09818R	19.44	CENTRAL NEW ENGLAND	E. LONGMEADOW SEC.	ENFIELD	SCANTIC RIVER	2340	12/21/09	12/21/11			12/21/11							
09819R	19.45	CENTRAL NEW ENGLAND	E. LONGMEADOW SEC.	ENFIELD	WATER STREET	1020	11/24/09	11/24/11			11/24/11							
09820R	19.70	CENTRAL NEW ENGLAND	E. LONGMEADOW SEC.	ENFIELD	TERRY BRK-2 CULVERTS	1615	03/17/09	03/17/11			03/09/11		03/09/11	03/09/12		03/08/13		
09821R	21.04	CENTRAL NEW ENGLAND	E. LONGMEADOW SEC.	ENFIELD	STREAM	208	11/23/09	11/23/11			11/23/11							
09823R	0.00	CENTRAL NEW ENGLAND	GRIFFIN'S INDUST. TRK.	HARTFORD	CULVERT													
09824R	2.56	CENTRAL NEW ENGLAND	GRIFFIN'S INDUST. TRK.	HARTFORD	STREAM	330	04/19/10		04/18/12	08/22/11	04/18/12	11/09/11			11/09/13			
09825R	6.81	CENTRAL NEW ENGLAND	GRIFFIN'S INDUST. TRK.	BLOOMFIELD	STREAM (WASH BROOK)	280	04/19/10		04/18/12	08/23/11	04/18/12	11/09/11			11/09/13			
09826R	5.59	INACTIVE	NEW BRITAIN SEC.	NEW BRITAIN	CEMETERY UNDERPASS**(BW)**	645	10/15/09	10/15/11			10/15/11		11/09/11	11/09/12		11/08/13		
09827R	5.82	INACTIVE	NEW BRITAIN SEC.	NEW BRITAIN	PIPER BROOK **(BUSWAY)**	1782	01/19/08	01/18/10			01/11/11		01/11/11	01/11/12		01/10/13		
09828R	14.30	PROV & WORCESTER	WETHERSFIELD SEC.	CROMWELL	SOUTH STREET	308	03/04/10		03/03/12	07/05/11	03/03/12	11/01/11			11/01/13			
09829R	12.70	PROV & WORCESTER	WETHERSFIELD SEC.	CROMWELL	NOOKS HILL ROAD	319	03/20/09	03/20/11			03/23/11							
09830R	9.60	PROV & WORCESTER	WETHERSFIELD SEC.	ROCKY HILL	EVAN'S ROAD	139	02/13/09	02/13/11			01/25/11		01/25/11	01/25/12		01/24/13		
09831R	7.10	PROV & WORCESTER	WETHERSFIELD SEC.	ROCKY HILL	GOFF'S BROOK	600	03/19/09	03/19/11			04/18/11		04/18/11	04/18/12		04/17/13		
09832R	5.20	PROV & WORCESTER	WETHERSFIELD SEC.	WETHERSFIELD	BEAVER BROOK-CULVERT													
09833R	3.80	PROV & WORCESTER	WETHERSFIELD SEC.	HARTFORD	FOLLY BROOK-CULVERT	1980	03/20/09	03/20/11			02/22/11		05/12/11	05/12/12		05/11/13		
09834R	42.85	PROV & WORCESTER	WETHERSFIELD SEC.	HARTFORD	THRASHER'S CROSSING	594	04/08/09	04/08/11			02/22/11		02/22/11	02/22/12		02/21/13		
09835R	35.71	PROV & WORCESTER	WETHERSFIELD SEC.	CROMWELL	FIRE ACCESS ROAD	190	04/08/09	04/08/11			03/22/11							
09836R	10.50	PROV & WORCESTER	WETHERSFIELD SEC.	ROCKY HILL	DIVIDEND BROOK	864	02/24/09	02/24/11			01/25/11		01/25/11	01/25/12		01/24/13		
09901R	30.39	ABANDONED	AIRLINE VL MAP 54-64/29	EAST HAMPTON	MINE BROOK-STONE CULV.	3667	01/10/09	01/10/11			01/07/11		01/07/11	01/07/12		01/10/13		
09902R	31.53	ABANDONED	AIRLINE VL MAP 54-64/30	EAST HAMPTON	PINE BROOK	76	01/12/09											
09903R	32.20	ABANDONED	AIRLINE VL MAP 54-64/31	EAST HAMPTON	MUDDY GUTTER BROOK	1919	01/10/09	01/10/11			01/07/11		01/07/11	01/07/12		01/10/13		
09904R	33.09	ABANDONED	AIRLINE VL MAP 54-64/32	EAST HAMPTON	MAIN STREET	86	01/13/09	01/13/11			01/07/11		01/07/11	01/07/12		01/06/13		
09905R	33.17	ABANDONED	AIRLINE VL MAP 54-64/32	EAST HAMPTON	BROOK	760	01/13/09	01/13/11			01/11/11		01/11/11	01/11/12		01/10/13		
09908R	32.54	ABANDONED	MOOSUP V MAP 54-67/13	PLAINFIELD	MOOSUP RIVER	1447	03/18/09	03/18/11			04/07/11							
09909R	31.53	ABANDONED	MOOSUP V MAP 54-67/15	PLAINFIELD	HORSE BROOK													
09911R	32.81	RAILS TO TRAILS*	FARMINGTON VALLEY GREENWAY	FARMINGTON	HYDE BROOK-STONE ARCH													
09912R	33.09	RAILS TO TRAILS*	VAL MAP 56-60/4	FARMINGTON	OLD BROOK-ARCH CULVERT	704												
09913R	33.17	RAILS TO TRAILS*	VAL MAP 56-60/8	CANTON	FARMINGTON RIVER	7716												
09914R	33.19	RAILS TO TRAILS*	VAL MAP 56-60/8	CANTON	FARMINGTON CANAL													
09916R	53.61	INACTIVE	VAL. MAP 57-72/54	WINCHESTER	STILL RIVER	281	01/20/09	01/20/11			01/28/11		01/28/11	01/28/12		01/27/13		
09921R	5.61	RAILS TO TRAILS*	VAL MAP 56-60/6	BURLINGTON	BARNES BROOK - DEP													
09922R	6.14	RAILS TO TRAILS*	VAL MAP 56-60/7	BURLINGTON	CEDAR BROOK - DEP													
09923R	6.37	RAILS TO TRAILS*	VAL MAP 56-60/7	BURLINGTON	BROOK - DEP													

APPENDIX 13
OFFICE OF RAIL INSPECTION FORMS

BRI- 9	Construction Punch List
BRI-10	Concrete Deterioration Worksheet
BRI-11	Seismic Data Sheet
BRI-12	Fracture Critical Data Sheet
BRI-13	Photo Log
BRI-14	Sliding Bearing Measurement Sheet
BRI-15	Rocker Bearing Measurement Sheet
BRI-16	Pot Bearing Measurement Sheet
BRI-17	Joint Measurement Sheet
BRI-18	Bridge Inspection Report Form
BRI-24	Incident Report Form
BRI-25	Under Entry Structure Inventory & Appraisal Form
BRI-27	Inspection Report Transmittal Form
BRI-29	Pin & Hanger Data/Analysis Form
BRI-30	Hinge Data/Analysis Form
BRI-39	Structure Inventory & Appraisal Form
BRI-58	Underwater Inspection Report Form
BRI-59	Underwater Inspection Structure Data Form

BUREAU OF PUBLIC
TRANSPORTATION
OFFICE OF RAIL

DATE: _________

CONSTRUCTION PUNCH LIST

FormBRI-9, Rev. 01/12

PAGE 1 of 2

Construction Project Number: ____

Bridge No. ______________ Town: _____________________ Route: ________________

Feature Intersected: ____

Bridge Type: ____

Mile Point: ______________________________ Construction District: ________________

Construction Company Name: ____

D.O.T. Construction Inspectors Name: ______________________________________

List of Items to be Corrected or Completed:

1. ____

2. ____

3. ____

4. ____

5. ____

6. ____

7. ____

8. ____

9. ____

10. ____

BUREAU OF PUBLIC
TRANSPORTATION
OFFICE OF RAIL

DATE: _________

CONSTRUCTION PUNCH LIST FormBRI-9, Rev. 01/12 PAGE 2 of 2

Bridge No. ______________

Photo Log:

1. ____

2. ____

3. ____

4. ____

5. ____

Additional Comments (If any):

____

____

____

____

____

____

Date copy sent to Construction: ____

Submitted By: ____ Date:___________

Checked By: ____ Date:___________

CONCRETE DECK DETERIORATION WORKSHEET

Purpose: This form is used to tally the deteriorated areas on both the topside (of bare concrete decks) and underside of the deck. The areas tallied are then used to calculate what percentage of the deck is deteriorated. The maximum % deterioration in any one span and the total % deterioration for the structure are then reviewed to determine the concrete deck condition rating in accordance with Section 10.1.

Instructions for completing Form BRI-10:

1. Estimate the area (in square feet) of each type of deterioration in each span. This can be done by totaling all the individual areas drawn on a deck sketch or by some rational method of estimating the area.

   Example: 25% of each 6' x 20' bay has map cracking with efflorescence. Assume there are 8 bays. The number to be recorded under "Map Cracking: w/Efflorescence" = 25% x 6' x 20' x 8 bays = 240 sq. ft.

   For multi-span structures, total the deteriorations for the whole bridge across each row to the column on the right side of the form.

2. Calculate the deck area of each span using the plans. This should be the out-to-out of deck dimension multiplied by the center to center of deck joints dimension. For multi-span structures, total the deck area for the whole bridge across to the column on the right side of the form.

3. Calculate the % spalled and delaminated on the topside of bare decks in each span by dividing the spalled and delaminated area by the total span area. Do the same in the total column (total % deterioration is calculated by summing the areas of deterioration and dividing by the total deck area, not by summing the individual span %'s).

4. Calculate the % deterioration on the bottom by adding the spalled, delaminated, scaled, cracked and honeycomb areas, and dividing by the total span area in each span. Do the same in the total column (total % deterioration is calculated by summing the areas of deterioration and dividing by the total deck area, not by summing the individual span %'s).

Bridge No.: _______ Date: _________ Prepared By: ________________ Checked By: ________________

CONCRETE DETERIORATION WORKSHEET

Form BRI-10, Rev. 9/01

	Deterioration By Span - In Square Feet										
	Span Number										
Deterioration Type	1	2	3	4	5	6	7	8	9	10	Total
Spalled and Delaminated Areas	Top:	Top:	Top:	Top:	Top:	Top:	Top:	Top:	Top:	Top:	Top:
	Bot:	Bot:	Bot:	Bot:	Bot:	Bot:	Bot:	Bot:	Bot:	Bot:	Bot:
Scale (Moderate to Severe Only)	Top:	Top:	Top:	Top:	Top:	Top:	Top:	Top:	Top:	Top:	Top:
	Bot:	Bot:	Bot:	Bot:	Bot:	Bot:	Bot:	Bot:	Bot:	Bot:	Bot:
Cracks: w/Efflorescence (use 6 in. width x length)	Bot:	Bot:	Bot:	Bot:	Bot:	Bot:	Bot:	Bot:	Bot:	Bot:	Bot:
w/o Efflo. (use 3 in. width x length)	Bot:	Bot:	Bot:	Bot:	Bot:	Bot:	Bot:	Bot:	Bot:	Bot:	Bot:
Map Cracking: w/Efflorescence (use full area)	Bot:	Bot:	Bot:	Bot:	Bot:	Bot:	Bot:	Bot:	Bot:	Bot:	Bot:
w/o Efflo. (use 50% of area)	Bot:	Bot:	Bot:	Bot:	Bot:	Bot:	Bot:	Bot:	Bot:	Bot:	Bot:
Honeycombed Areas (only areas more than 1 1/2 in. deep)	Bot:	Bot:	Bot:	Bot:	Bot:	Bot:	Bot:	Bot:	Bot:	Bot:	Bot:
Total Span Area (Square Feet)											
% Spalled and Delaminated on Top											
% Deterioration on Bottom											

Revised March 27, 2000 BRI-11

SEISMIC DATA SHEET FOR RAILROAD BRIDGES

Prepared By:____Date:__________________

Entered By:_______Date:______________

Bridge # ____________ **Mile Point:**_____________
Town:____________________
Feature Crossed:________________
Line Name: ____________________
Operator: _____________________

Feature Crossed Information:
ADT_____________ year of ADT____________________
Community Lifeline_____________ (y/n)
Major River Crossing________(y/n)

Feature Carried Information:
Utilization
Freight Service only_______
Less than 10 passenger trains/day__________
More than 10 passenger trains/day____

Detour available______________Yes______Inconvenient______None
Alternate Service (Bus) available______(y/n)

Structure Information:
Bridge Construction
Continuous W/Integral abuts___________
Single span or continuous multiple spans____
Multiple simple spans_______

Number of Spans_________
Number of longitudinal girders __________
Ballasted Deck______(y/n)
Moveable Bridge_______(y/n)
Total Bridge length ____ft
Max single span___________ft
Bridge width_________________ ft
Skew______________________degrees
Abutment height______ftIs abut masonry or unreinforced conc. _______(y/n)

Bearing and Bridge Seat Construction
Expansion Bearing Type _________________ If rocker, Height_________Inches
Are Bearings on Pedestals (pad > 6"' high)________(y/n)
Expansion Bearings Transversely Restrained__________(y/n)

Vulnerable Bearing Information
Expansion Bearing Longitudinal Support Length____________Inches
Expansion Bearing Transverse Support Length____________Inches

Effective Length ________ft, Effective Height______________ft

Pier Construction ___ No pier (single span bridge)
Steel or ductile conc. Multi-column bent __________
Steel or ductile conc. single column _____________
Wall type Pier__________

Is pier founded on battered pile______(y/n)
Is material masonry or unreinforced concrete___________(y/n)
Is transverse movement between pier and beams accommodated____________(y/n)

CDOT Office of Rail

CONNECTICUT DEPARTMENT OF TRANSPORTATION
FRACTURE CRITICAL MEMBERS/FATIGUE PRONE DETAILS
INSPECTION DATA SHEET

Form BRI12, Rev 9/97

Fracture Critical Inspection Date: ☐

FC Insp Freq: ☐ Months **FC Type Code:** ☐

Bridge No: ☐

Year Built: ☐

Town: ☐

ADT: ☐ Year of ADT: ☐

Facility Carried: ☐

Structure Type: ☐ % Truck: ☐

Feature Intersected: ☐

Access Equipment Needed: ☐

Traffic Control Required: ☐

Reference to Plans: ☐

MEMBER/DETAIL TYPE # ☐

Member/Detail Type: ☐

☐ Fracture Critical

Fatigue Category: ☐ Steel Type: ☐

☐ Fatigue Prone

Description: ☐

Inspection Procedure: ☐

MEMBER/DETAIL TYPE # ☐

Member/Detail Type: ☐

☐ Fracture Critical

Fatigue Category: ☐ Steel Type: ☐

☐ Fatigue Prone

Description: ☐

Inspection Procedure: ☐

CONNECTICUT DEPARTMENT OF TRANSPORTATION
FRACTURE CRITICAL MEMBERS/FATIGUE PRONE DETAILS
INSPECTION DATA SHEET

Form BRI12, Rev 9/97

MEMBER/DETAIL TYPE # ☐

Member/Detail Type: ☐ Fracture Critical

Fatigue Category: Steel Type: ☐ Fatigue Prone

Description:

Inspection Procedure:

MEMBER/DETAIL TYPE # ☐

Member/Detail Type: ☐ Fracture Critical

Fatigue Category: Steel Type: ☐ Fatigue Prone

Description:

Inspection Procedure:

MEMBER/DETAIL TYPE # ☐

Member/Detail Type: ☐ Fracture Critical

Fatigue Category: Steel Type: ☐ Fatigue Prone

Description:

Inspection Procedure:

MEMBER/DETAIL TYPE # ☐

Member/Detail Type: ☐ Fracture Critical

Fatigue Category: Steel Type: ☐ Fatigue Prone

Description:

Inspection Procedure:

PHOTO LOG

Form BRI-13, Rev. 9/97

Bridge Information System

Image Inventory

Bridge No. ____________ Date ____________

Town: ____________ Photographer: ____________

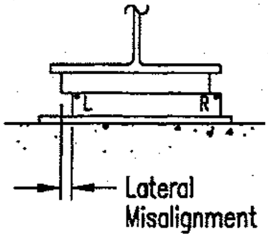
Carried / Crossed: ____________

Film Frame #	Image Description

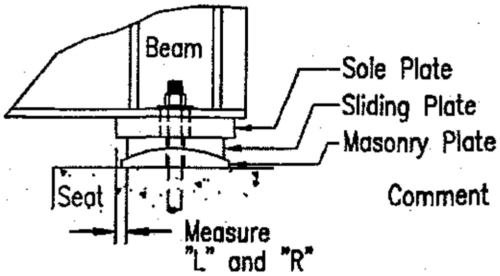
FIELD NOTES	BRIDGE NO.	DATE:
	CREW:	SHEET

SLIDING BEARING MEASUREMENTS

Form BRI-14, Rev. 9/01



FRONT VIEW



SIDE VIEW

Span No. = _____

Substructure Unit = ____________

Temperature = _____°F

Comment On:
- Presence of keepers or work done on bearings.
- Undermining of bearing. Attach sketch with dimensions.
- Cracking of plates or welds.
- Condition of anchor bolts.

Beam	Movement				Condition			Comments
	"L"	"R"	Mode Exp. or Contr.	Lateral Misalign.	Bearing Frozen?	Normal Mov't?	Rust ? H/M/L	

FIELD NOTES

BRIDGE NO.

DATE:

CREW:

SHEET

ROCKER BEARING MEASUREMENTS

Form BRI-15, Rev. 9/97

Span No. = ______

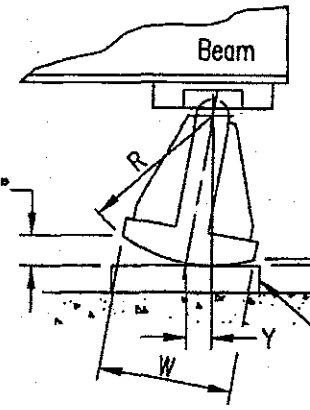
Substructure Unit = ______________________

Temperature = ____°F

$\theta = \mathrm{Sin}^{-1}\,(F-B)/W$

$Y = R\ \mathrm{TAN}\ \theta$

The "Front" of the bearing is the side facing the fixed bearing.



R = ______

W = ______

NOTE:

"F" & "B" should be measured at the left side corners of the rocker or on the side closest to to the front face of the substructure on skewed bridges.

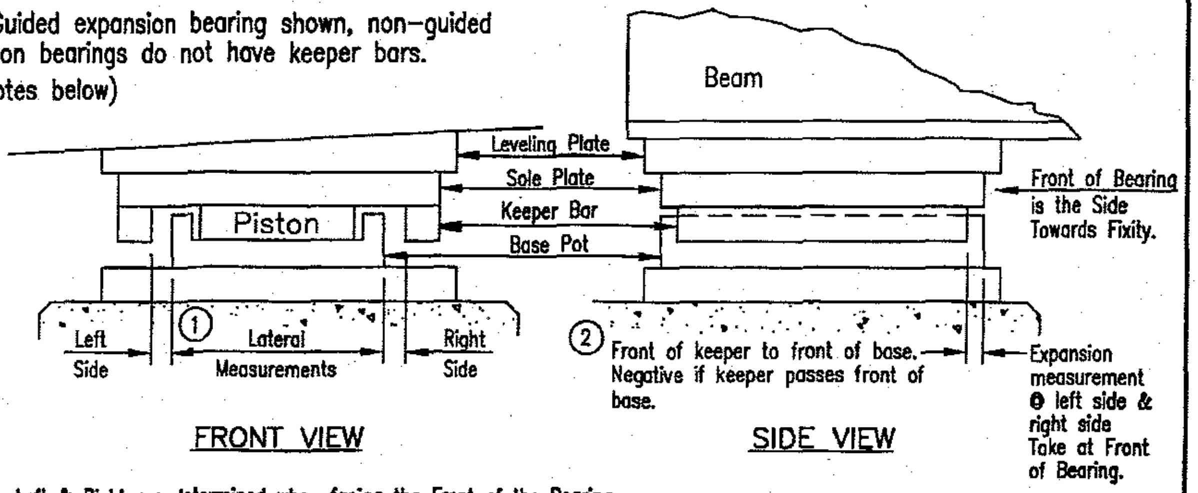
Beam	"F"	"B"	Y	Cont. or Exp.	Comments

FIELD NOTES	BRIDGE NO.	DATE:
	CREW:	SHEET

POT BEARING MEASUREMENTS

Form BRI-16, Rev. 9/97

Note: Guided expansion bearing shown, non-guided expansion bearings do not have keeper bars.
(see notes below)



① –Left & Right are determined when facing the Front of the Bearing.
–For non-guided bearings, measure from side of sole plate to side of piston @ center line of piston.

② –For non-guided bearings, measure expansion from front of sole plate to front of piston @ center line of bearing.

Span No. & Substructure Unit = ______________________ Temperature = ____°F

Beam	Expansion			Lateral		Comments
	Exp. Measurement		Side of Brg.	Left	Right	
	L	R	(N,S,E,W)			

JOINT MEASUREMENTS

Form BRI-17, Rev. 9/97

Bridge No.: ______ **Town:** ______

Measurements Taken By: ______

Measurements Reviewed By: ______

Deck Joint Location	Deck Joint Type[1]	Effect Span[2] (ft.)	Winter Measurements			Summer Measurements			Differential Movements			Comments	Difference Between Actual & Calc'd Mov't	
			Temp °F	Date:		Temp °F	Date:		Actual		by Formula			
				Left (in.)	Right (in.)		Left (in.)	Right (in.)	Left (in.)	Right (in.)			Left (in.)	Right (in.)

1. The "Deck Joint Type" should be "plug" for Asphaltic Plug joints, "strip" for Strip Seals, "seg." for Segmental Joints, etc.
2. The "Effective Span" is the length contributing to expansion at the joint. This should be 0 at fixed joints of single span bridges.

File: JTBLANK.XLS(English), Printed: 9/5/97

Connecticut Department of Transportation
Bridge Inspection Report BRI-18

BRIDGE #:

INSPECTION DATE:

INSPECTION TYPE:

PREVIOUS INSPECTION DATE:

SNOOPER REQUIRED:

INSPECTION PERFORMED BY:

SNOOPER USED:

TOWN:

FEATURE CARRIED:

YEAR BUILT:

LOCATION:

FEATURE INTERSECTED

YEAR REBUILT:

MAIN MATERIAL:

MAIN DESIGN:

INSPECTION VISITS:

INSPECTORS:

---

58. DECK

OVERALL RATING

	RATING	
OVERLAY		
DECK STR. CONDITION		
CURBS		
MEDIAN		
SIDEWALKS		
PARAPET		
RAILING		
PAINT		
FENCE		
DRAINS		
LIGHTING STANDARD		
UTILITIES TYPE/SIZE		
CONSTRUCTION JOINTS		
EXPANSION JOINTS		

59. SUPERSTRUCTURE

OVERALL RATING

	RATING	
BEARING DEVICES		
STRINGERS		
GIRDERS		
FLOOR BEAMS		
TRUSSES-GENERAL		
TRUSSES-PORTALS		
TRUSSES-BRACING		
PAINT		
RUST		
MACHINERY MOV SPAN		

Connecticut Department of Transportation
Bridge Inspection Report BRI-18

BRIDGE #: ☐ **INSPECTION DATE:** ☐

RIVETS & BOLTS ☐
WELDS & CRACKS ☐
TIMBER DECAY ☐
CONCRETE CRACKING ☐
COLLISION DAMAGE ☐
MEMBER ALIGNMENT ☐
DEFLECT. UNDER LOAD ☐
VIBR. UNDER LOAD ☐
STAND PIPES ☐
BARREL LADDERS ☐

ARE BARREL LADDERS OSHA COMPLIANT? ☐

---

60. SUBSTRUCTURE **OVERALL RATING** ☐

RATING

ABUTMENTS-STEM ☐
ABUTMENTS-BACKWALL ☐
ABUTMENTS-FOOTINGS ☐
ABUT.-SETTLEMENT ☐
ABUTMENTS-WINGWALLS ☐
PIERS/BENTS-CAPS ☐
PIERS/BENTS-PILE BENT ☐
PIERS/BENTS-COLUMN ☐
PIERS/BENTS-FOOTINGS ☐
PIERS/BENTS-SETTLEMent ☐
EROSION-SCOUR ☐
CONCRETE CRACK-SPALL ☐
STEEL CORROSION ☐
PAINT ☐
TIMBER DECAY ☐
COLLISION DAMAGE ☐
DEBRIS ☐

---

61. CHANNEL PROTECTION **OVERALL RATING** ☐

RATING

CHANNEL SCOUR ☐
EMBANKMENT EROSION ☐
DEBRIS ☐
VEGETATION ☐

Connecticut Department of Transportation

Bridge Inspection Report BRI-18

BRIDGE #: ☐ **INSPECTION DATE:** ☐

CHANNEL CHANGE ☐
FENDER SYSTEM ☐
SPUR DIKES & JETTIES ☐
RIP RAP ☐

---

62. CULVERTS & RETAINING WALL ☐ **OVERALL RATING** ☐

RATING

BARREL ☐
CONCRETE ☐
STEEL ☐
TIMBER ☐
HEADWALL ☐
CUTOFF WALL ☐
DEBRIS ☐
RETAINING WALL STEM ☐
FOOTING ☐

APPROACH CONDITION ☐ **OVERALL RATING** ☐

RATING

APPROACH SLAB ☐
RELIEF JOINTS ☐
APPROACH GUIDE RAIL ☐
APPROACH PAVEMENT ☐
APPROACH EMBANKMENT ☐

TRAFFIC SAFETY FEATURES:

BRIDGE RAILINGS ☐
TRANSITIONS ☐
APPROACH GUARDRAILS ☐
APPR. GUARDRAIL ENDS ☐

LOAD POSTING

SINGLE UNIT (TONS) ☐
HS (TONS) ☐
4 AXLE (TONS) ☐
2S3 (TONS) ☐
ADVANCE WARNING Y/N ☐
LEGIBILITY ☐
VISIBILITY/LOCATION ☐

Connecticut Department of Transportation
Bridge Inspection Report BRI-18

BRIDGE #:

INSPECTION DATE:

MISC.

MIN VERT. UNDERCLR. ' "

POSTED CLR. UNDER BRIDGE ' "

POSTED CLR. ON BRIDGE ' "

ADVANCE WARNING (Y/N)

SPEED LIMIT (IF ANY) MPH

CHARACTER OF TRAFFIC

ADDITIONAL NOTES

ADDITIONAL COMMENTS:

Inspectors' Signatures: 1) ______ Date: __/__/__

2) ______ Date: __/__/__

3) ______ Date: __/__/__

4) ______ Date: __/__/__

P.E. Signature: ______ Date: __/__/__

P.E.#: ______

Reviewed by: ______ CDOT Date: __/__/__

State of Connecticut
Department of Transportation
Bureau of Public Transportation
Office of Rail

Sheet _____Of_____
Form BRI-24, Rev. 01/12

INCIDENT REPORT

Town: __________________________________ Bridge No. ____________________

Route/Street: ____

Over: ___________________________________ Type: __________________________

Inspected by: _____________________________ Date: ___/___/______

Date of Incident: ___/___/______ Time of Incident: ____________ "D" no.: __________

Details of Incident: ____

____

____

____

____

____

____

____

____

____

____

____

____

____

____

____

____

____

Immediate Actions Taken: ____

____

____

____

Additional Remarks: ____

____

____

BRIDGE NUMBER	TOWN NAME	NBIS BRG LGTH

FACILITY CARRIED	FEATURE CROSSED

INSPECTED BY: ______________________

____

REVIEWED BY: ______________________ DATE:

STATE OF CONNECTICUT
DEPARTMENT OF TRANSPORTATION
DIVISION OF BRIDGE SAFETY EVALUATION

INVENTORY ROUTE
UNDER STRUCTURE EVALUATION

FORM BRI-25 REV 10/00

SHEET_____ OF_____ (INSP. REPORT)

IDENTIFICATION

DESCRIPTION:

5) INVENTORY ROUTE:

A) RECORD TYPE

B) ROUTE SIGNING PREFIX

C) DESIGNATED LEVEL OF SERVICE

D) ROUTE NO.

11) MILE POINT (INV.RTE) .

AGE & SERVICE

\+ 28B) NUMBER OF INV.ROUTE LANES

* 29) ADT (INV. RTE)

* 109) TRUCK ADT % (INV.RTE)

* 30) YEAR OF ADT (INV. RTE)

* 41) INV ROUTE OPERATIONAL STATUS

19) BYPASS DETOUR LENGTH Miles

GEOMETRIC DATA

\+ 10) INV. RTE. MIN. VERT. CLEARANCE ft in ft in

\+ 47) LOG INV. RTE. TOTAL HORIZ CLR. ft . ft

\+ 47) RLOG INV. RTE. TOTAL HORIZ CLR. ft . ft

\+ 53) LOG MIN VERT CLR OVER BRG RDWAY ft in ft in

\+ 53) RLOG MIN VERT CLR OVER BRG RDWAY ft in ft in

\+ 55) MIN LAT UNDERCLR ON RIGHT ft . ft

\+ 56) MIN LAT UNDERCLR ON LEFT ft . ft

CLASSIFICATION

26) INV. RTE. FUNCT CLASSIFICATION

100) DEFENSE HIGHWAY DESIGNATION

** 102) DIRECTION OF TRAFFIC

104) HIGHWAY SYSTEM OF INV. ROUTE

110) DESIGNATED NATIONAL NETWORK

POSTED SIGNS

\+ POSTED VERT. CLR UNDER BRIDGE ft in ft in

COMMENTS:

* FILL OUT ON EVERY INSPECTION 29, 109, 30, 41

\+ VERIFY EVERY INSPECTION 28B, 10, 47, 53, 55, 56 & POSTED VERT CLEARANCE UNDER THE BRIDGE

** MUST BE FILLED OUT OR VERIFIED ON THE FIRST INSPECTION MADE BASED ON THE NEW FHWA GUIDE 102

STATE OF CONNECTICUT
DEPARTMENT OF TRANSPORTATION
BUREAU OF PUBLIC TRANSPORTATION
OFFICE OF RAIL

INSPECTION REPORT TRANSMITTAL FORM
FORM BRI-27, REV. 01/12

Structure No Town :

Inspectors: Date:

TABLE OF CONTENTS

PIN & HANGER DATA SHEET

Form BRI-29, Rev. 6/99

Measurements Taken By: ____________ Date: ________

Bridge No.: ______ ____________________ Town: __________

Hanger Location: ____________________ Effective span for Movement: ______ (ft)

Page: ________ of ________

Beam No.	V (in)	J (in)	Tr (in)	Br (in)	Tℓ (in)	Bℓ (in)	Out to Out (in)	Secondary System Type	Gap[1] (Y/N)	Nut Restraint System	Temp	Comments
1												
2												
3												
4												
5												
6												
7												
8												
9												
10												

Notes:

1) For Pin & Hanger assemblies with a redundant support system, indicate if there is a gap between the redundant system (bearing) and the bottom flange of the suspended girder.

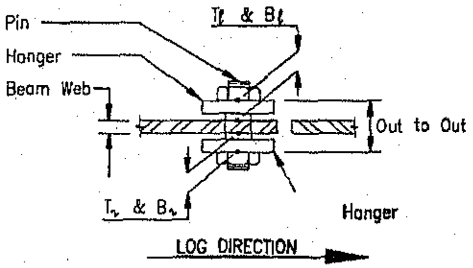
2) All measurements are taken in reference to log direction.

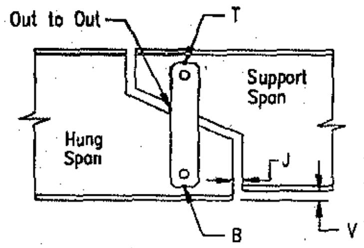
   V : Vertical misalignment of girders @ left edge of girder's bottom flange.

   J : Joint opening between webs, measured just above the bottom flange fillet, on the left face of the girder's web.

   Out to Out : The out-to-out of hangers taken at the leading edge, based on log direction.

3) Use a permanent marker to indicate locations of field measurements.





File: P&h_form.xls(Data1), Printed: 9/24/01

PIN & HANGER DATA SHEET

Form BRI-29, Rev. 6/99

Measurements Taken By: ____________ Date: ________

Bridge No.: 0 0 Town: 0

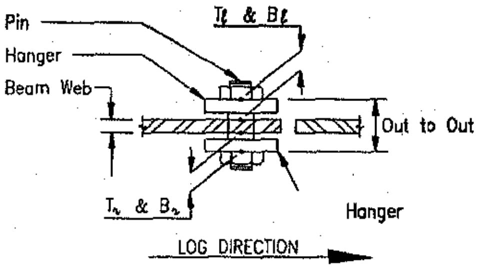
Hanger Location: 0 Effective span for Movement: 0

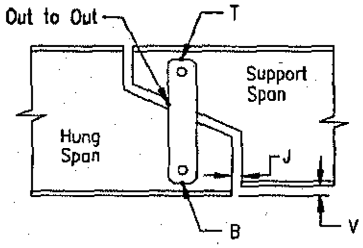
Page: ________ of ________

Beam No.	V (in)	J (in)	Tr (in)	Br (in)	T/ (in)	B/ (in)	Out to Out (in)	Secondary System Type	Gap^1 (Y/N)	Nut Restraint System	Temp	**Comments**
1												
2												
3												
4												
5												
6												
7												
8												
9												
10												

Notes:

1) For Pin & Hanger assemblies with a redundant support system, indicate if there is a gap between the redundant system (bearing) and the bottom flange of the suspended girder.
2) All measurements are taken in reference to log direction.
   - **V** : Vertical misalignment of girders @ left edge of girder's bottom flange.
   - **J** : Joint opening between webs, measured just above the bottom flange fillet, on the left face of the girder's web.
   - **Out to Out** : The out-to-out of hangers taken at the leading edge, based on log direction.
3) Use a permanent marker to indicate locations of field measurements.





File: P&h_form.xls(Data2), Printed: 9/24/01

PIN & HANGER ANALYSIS SHEET

Form BRI-29, Rev. 6/99

Measurements Reviewed By: ____________ Date: ________

Bridge No.: 0   0   Town: 0

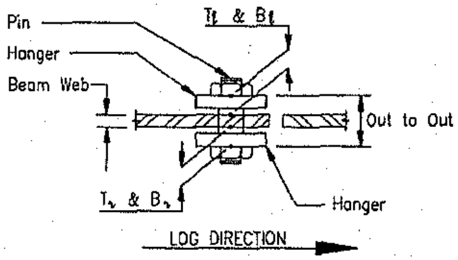
Hanger Location: 0

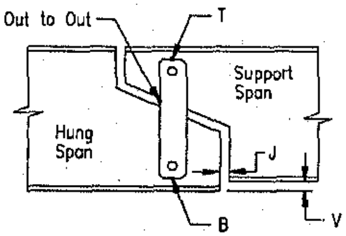
Effective span for Movement: 0 (ft)

page: ________ of ________

Beam No.	CALCULATED DIFFERENCES BETWEEN MEASUREMENTS ON DATA1 & DATA2							Differential Movement by Formula "J" (in)	Difference Between Actual & Calc. J (in)	Reviewer's Comments
	V (in)	J (in)	T↗ (in)	B↗ (in)	T↙ (in)	B↙ (in)	Out to Out (in)			
1	0	0	0	0	0	0	0	0	0	
2	0	0	0	0	0	0	0	0	0	
3	0	0	0	0	0	0	0	0	0	
4	0	0	0	0	0	0	0	0	0	
5	0	0	0	0	0	0	0	0	0	
6	0	0	0	0	0	0	0	0	0	
7	0	0	0	0	0	0	0	0	0	
8	0	0	0	0	0	0	0	0	0	
9	0	0	0	0	0	0	0	0	0	
10	0	0	0	0	0	0	0	0	0	

Additional Review Comments:





File: P&h_form.xls(Analysis), Printed: 9/24/01

HINGE DATA SHEET

Form BRI-30, Rev. 9/97

Measurements Taken By: ____________ Date: ____________

____________ Date: ____________

Bridge No.: ____________ ______________________________ Town: ____________

Hinge Located: ______________________________ Effective span for Movement: ________ (ft)

Page: ____ of ____

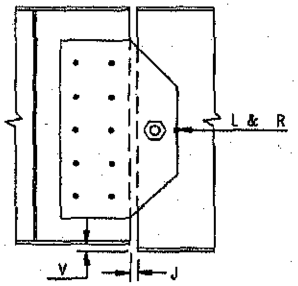
Beam No.	V (in)	J (in)	R (in)	L (in)	Secondary System Type	Gap[1] (Y/N)	Nut Restraint System	Comments
1								
2								
3								
4								
5								
6								
7								
8								
9								
10								

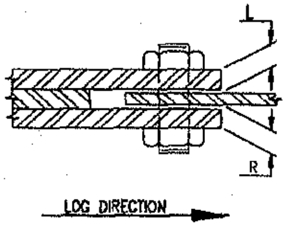
Notes:

1) For Hinge assemblies with a redundant support system, indicate if there is a gap between the redundant system (bearing) and the bottom flange of the suspended girder.

2) All measurements are taken in reference to log direction.
   - **V** : Vertical misalignment of girders @ left edge of girder's bottom flange.
   - **J** : Joint opening between webs, measured just above the bottom flange fillet, on the left face of the girder's web.

3) Use a permanent marker to indicate locations of field measurements.





File: Hng_form.xls(Data1), Printed: 9/24/01

HINGE DATA SHEET

Form BRI-30, Rev. 6/99

Measurements Taken By: ________ Date: ________

Bridge No.: ________ ____________________ Town: ________

Hinge Located: ____________________ Effective span for Movement: ________ (ft) Page: ________ of ________

Beam No	V (in)	J (in)	R (in)	L (in)	Secondary System Type	Gap[1] (Y/N)	Nut Restraint System	Comments
1								
2								
3								
4								
5								
6								
7								
8								
9								
10								

Notes:

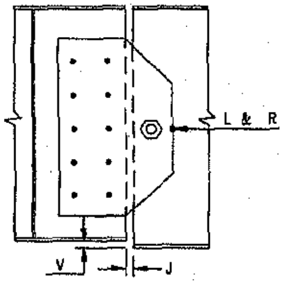
1) For Hinge assemblies with a redundant support system, indicate if there is a gap between the redundant system (bearing) and the bottom flange of the suspended girder.

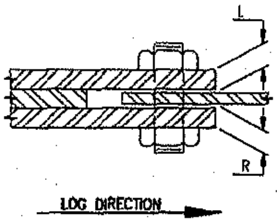
2) All measurements are taken in reference to log direction.

V : Vertical misalignment of girders @ left edge of girder's bottom flange.

J : Joint opening between webs, measured just above the bottom flange fillet, on the left face of the girder's web.

3) Use a permanent marker to indicate locations of field measurements.





File: Hng_form.xls(Data2), Printed: 9/24/01

HINGE ANALYSIS SHEET

Form BRI-30, Rev. 9/97

Measurements Reviewed By:

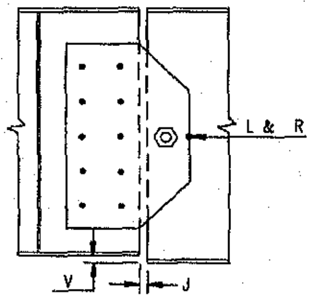
Date:

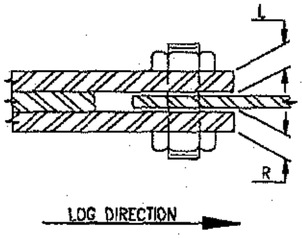
Bridge No.: 0 0 Town: 0

Hanger Location: 0 Effective span for Movement: 0 (ft) Page: of

Beam No.	CALCULATED DIFFERENCES BETWEEN MEASURMENTS ON DATA1 & DATA2				**Reviewer's Comments**
	V (mm)	J (mm)	R (mm)	L (mm)	
1	0	0	0	0	
2	0	0	0	0	
3	0	0	0	0	
4	0	0	0	0	
5	0	0	0	0	
6	0	0	0	0	
7	0	0	0	0	
8	0	0	0	0	
9	0	0	0	0	
10	0	0	0	0	

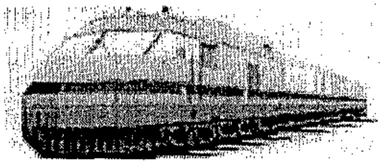
Additional Review Comments:





BRIDGE #: [redacted] TOWN: [redacted]
OPERATOR: [redacted]
LINE NAME:
FEATURE INTERSECTED:
PREVIOUSLY INSPECTED ON:

STATE OF CC TICUT
DEPARTMENT OF T SPORTATION
BRIDGE SAFETY & EVALUATION
RAILROAD STRUCTURE INVENTORY
SHEET 1 OF 1 FORM BRI-39 10/99



REI

TEAM: [redacted] INSPECTED BY: & INSPECTION DATE: [redacted]
PROJECT NUMBER: [redacted] 91) FREQUENCY: [redacted] FLAG MAN: [redacted] ACCESS: [redacted] IN-DEPTH INSPECTION: [redacted]

CRITICAL FEATURES INSPECTIONS	A) FRACTURE CRITICAL B) UNDERWATER C) SPECIAL TYPE: [redacted] TYPE: [redacted]	92A) FRAC. CRITICAL FREQ: 92B) UNDERWATER FREQ: 93C) OTHER FREQ: [redacted]	93A) INSPECTION DATE: 93B) UNDERWATER: 93C) OTHER: [redacted]

IDENTIFICATION

300) OWNER: [redacted]
303) MILEPOST:
9) LOCATION: [redacted]
304) OTHER TRACKAGE RIGHTS:
A) [redacted] B) [redacted] C) [redacted] D) [redacted]
16) LATITUDE: [redacted] ° [redacted] '
17) LONGITUDE: [redacted] ° [redacted] '
305) CO-OWNER BRIDGE: [redacted]
ADJACENT OWNER BRIDGE:

GEOMETRIC DATA

48) LENGTH OF MAX. SPAN: [redacted] FT
49) STRUCTURE LENGTH: FT
52) DECK WIDTH, OUT TO OUT: FT
306) CATWALK WIDTHS: LEFT FT
RIGHT FT
DECK AREA: [redacted] SQ FT
34) SKEW ANGLE: DEG
53) MIN VERT CLEAR OVER: [redacted] ' [redacted] "
54) MIN VERT UNDER CLR: [redacted] ' [redacted] "
55) MIN LAT UNDER CLR R: [redacted] '
56) MIN LAT UNDER CLR L: '

RESTRICTIONS + UTILITIES

318) PASSENGER TRACK SPEED: [redacted] MPH
319) FREIGHT TRACK SPEED: MPH
UTILITIES CARRIED BY THE BRIDGE: [redacted] [redacted] [redacted] [redacted] [redacted]

APPRAISALS

67) STRUCTURE EVALUATION: [redacted]
69) UNDER CLR VERT AND HORIZ:
71) WATERWAY ADEQUACY:

AGE AND SERVICE

27) YEAR BUILT: [redacted]
106) YEAR RECONSTRUCTED:
42) TYPE OF SERVICE: A) ON
B) UNDER
307) ELECTRIFICATION:
308) # OF TRACKS STRUC. DESIGNED FOR:
309) # OF TRACKS PRESENTLY ON STRUC:
310) NUMBER OF TRACKS IN SERVICE:
311) NUMBER OF TRAINS:
A) PASSENGER TRAINS/DAY [redacted]
B) FREIGHT TRAINS/MONTH
312) YEAR OF CENSUS:
313) AVERAGE PASSENGERS/DAY:
314) FREIGHT CARLOADS/YEAR:

WATERWAY

W9) DRAINAGE BASIN WATERWAY CODE: [redacted]
38) NAVIGATION CONTROL:
39) NAVIGATION VERT CONTROL:
40) NAVIGATION HORIZ CLEARANCE:
116) VERT-LIFT BRG NAV MIN:
111) PIER NAV PROTECTION:
113) SCOUR CRITICAL BRIDGE:

CONDITION

		Rating	By
58) DECK:	[redacted]		
59) SUPERSTRUCTURE:			
60) SUBSTRUCTURE:			
61) CHANNEL/ PROTECTION:			
62) CULVERTS:			

COMMENTS:

STRUCTURE TYPE AND MATERIAL

43) STRUCTURE TYPE, MAIN:
A) MATERIAL [redacted] [redacted]
B) DESIGN TYPE
315) DECK TYPE:
316) DEPTH OF BALLAST:
44) STRUCTURE TYPE, APPROACH:
A) MATERIAL [redacted] [redacted]
B) DESIGN TYPE [redacted]
45) NUMBER OF SPANS, MAIN UNIT:
46) NUMBER OF APPROACH SPANS:
317) SUBSTRUCTURE TYPE:
A) MATERIAL [redacted] [redacted]
B) FOUNDATION TYPE

CLASSIFICATION + R-O-W INFORMATION

101) PARALLEL STRUCTURE: [redacted]
103)TEMPORARY STRUCTURE:
21) MAINTAINER:
322)R-O-W FILE LOCATION OF MAPS AND PLANS:
[redacted]

LOAD RATING

31) DESIGN LOAD: [redacted]
41) STRUCTURE OPERATIONAL STATUS:
323)COOPER E RATING BY TRACK NUMBER:

	MAXIMUM	NORMAL		MAXIMUM	NORMAL
1)	[redacted]	[redacted]	5)	[redacted]	[redacted]
2)	[redacted]	[redacted]	6)	[redacted]	[redacted]
3)	[redacted]	[redacted]	7)	[redacted]	[redacted]
4)	[redacted]	[redacted]	8)	[redacted]	[redacted]

REVIEWED BY DATE ___/___/___

Monday, September 24, 2001 9:21:5

Connecticut Department of Transportation

UNDERWATER INSPECTION

BRI-58 Form

Bridge No: 00001
Inspection Date: 06/22/02

Town: GREENWICH
Route Carried: 00095
Feature Crossed: RAM RIVER,S WATER ST

ITEM	*RATING*	*REMARKS*
60. SUBSTRUCTURE		
ABUTMENT 1:		
STEM		
FOOTING		
EROSION		
SETTLEMENT		
SCOUR		
WINGWALLS		
General remarks:		
ABUTMENT 2:		
STEM		
FOOTING		
EROSION		
SETTLEMENT		
SCOUR		
WINGWALLS		
General remarks:		
PIER NO. 1		
PILES		
STEM		
FOOTING		
SCOUR		
SETTLEMENT		
General remarks:		
61. CHANNEL& CHANNEL PROTECTION:		
CHANNEL SCOUR		
EMBANKMENT EROSION		
.BRIS		

Connecticut Department of Transportation

UNDERWATER INSPECTION

BRI-58 Form

Bridge No: 00001

Inspection Date: 06/22/02

Town: GREENWICH

Route Carried: 00095

Feature Crossed: RAM RIVER,S WATER ST

ITEM	RATING	REMARKS
VEGETATION		
CHANNEL CHANGE		
FENDER SYSTEM		
SPUR DIKES & JETTIE		
RIP RAP		
General remarks:		

Inspected by: ______________________ **Date:** ______________________

Inspected by: ______________________ **Date:** ______________________

D.O.T. reviewed by: ______________________ **Date:** ______________________

Connecticut Department of Transportation
UNDERWATER INSPECTION

BRI-59 Form

Bridge No: 00001 **Date Inspected:** 06/22/02

Job Number:

Client: Connecticut D.O.T.

Route: 00095 **Mile point:** 0.00

City: GREENWICH

FeatureCrossed: BYRAM RIVER,S WATER ST

State: CT

Inspector:

Assistants:

Time Arrived:

Time Departed:

Time In Water:

Time Out of Water:

Type of Inspection:

Year built: 0 **Total Length:** 1262 **No. Spans:** 3

Bridge Type:

Total Number of Piers: 0 **Piers in the Water:**

Type of Piers:

Abutments:

Bottom Composition:

Previous U/W Insp:

Marine Growth:

Max. Water Depth:

Max. Depth at Pier/Abut.:

Current Strength:

U/W Visibility:

Type of Water:

Access to Bridge:

Remarks:

Inspection Equipment

Number of Boats: 0 **RR Protection:** No

Boat Size: 0 **Equipment Comments:**

Dive Station: No

Inspected by: ______________________ **Date:** ______________________

Inspected by: ______________________ **Date:** ______________________

.T. reviewed by: ______________________ **Date:** ______________________

APPENDIX 14
TYPICAL BRIDGE INSPECTION REPORT

STATE OF CONNECTICUT
DEPARTMENT OF TRANSPORTATION

Sample

Memorandum

Subject: RMM No. 11-08068R
Metro-North Mainline
Bridge No. 08068R over
Noble Street
Mile Point 55.98, Bridgeport
Routine Inspection Report

Date:

To: Mr. James E. Fox
Transportation Principal Engineer
Bureau of Public Transportation

From: Jayantha Mather 594-2885
Transportation Principal Engineer
Bureau of Public Transportation

Attached are four copies of the most recent routine inspection report for the subject structure. The deficiencies reported for this structure are as follows. Four light fixtures for the roadway under the bridge were found with broken diffusers and bulbs. There are cracks in the welds connecting the ballast retainer plates to knee braces. Girder 2 expansion bearing at pier 0 was found to be frozen (No change in position at 40 degrees Fahrenheit (2008) and 75 degrees Fahrenheit (2011).

The Office of Rails' Design Unit has the following recommendations:

1. Replace the light fixtures and cover each light with a steel mesh to prevent further damage (4 EA) (Priority D). See Photo No. 11. **(Previous RMM No. 08-08068R)**.

2. Repair the cracked welds (LS) (Priority D). See Photos Nos. 7-10 and field note sheet 6. **(Previous RMM No. 08-08068R)**.

3. Reset the expansion bearing (1 EA) (Priority D). See Photo No. 13.

If you have any further questions concerning this matter, please contact Mr. Lev Laber at (860) 594-2890.

Attachments

cc: Mr. David B. Willard (1 Set)

Michael Lee/ml

cc: Jayantha Mather
Lev Laber – Jay Young – Haresh Dholakia – Jen Scott – Abraham Monger (1 Set)
Rail File
Bruce Woogen – Michael Lee (WSP ▪ SELLS)

RAILROAD BRIDGE INSPECTION (SAMPLE)
STATE PROJECT NO. 300-097

CONNDOT BRIDGE NO. 08068R
(METRO-NORTH BRIDGE M.P. 55.98)

METRO-NORTH RAILROAD (MAINLINE)
OVER
NOBLE AVENUE
BRIDGEPORT, CONNECTICUT

THROUGH GIRDER

ROUTINE INSPECTION

July 12, 2011

Prepared By:
WSP - SELLS
Transportation & Infrastructure
Danbury, Connecticut

STATE OF CONNECTICUT
DEPARTMENT OF TRANSPORTATION
BUREAU OF PUBLIC TRANSPORTATION
OFFICE OF RAIL

INSPECTION REPORT TRANSMITTAL FORM
FORM BRI-27, REV. 01/12

Structure No ____________ Town : ____________________

Inspectors: ____ Date: ____________

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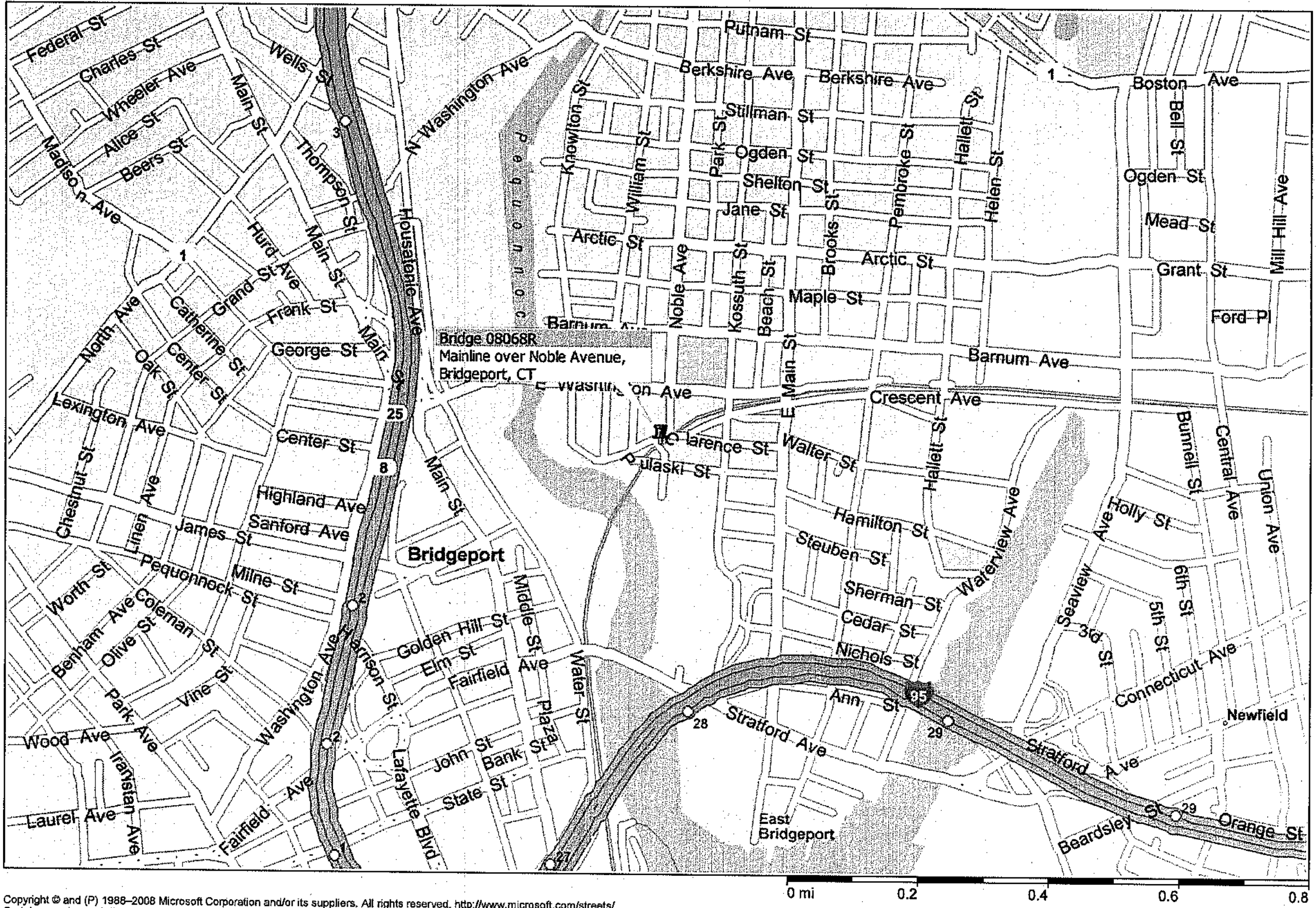
Sample Form

08068R



EXECUTIVE SUMMARY (SAMPLE)

07/12/2011

Bridge No. 08068R (Mile Point 55.98) carries four Metro-North Railroad Mainline tracks over Noble Street in the City of Bridgeport. This one-span bridge was built in 1998 and has an overall length of 78 feet and a deck width of 73.3 feet. The superstructure consists of a steel deck on girder-floorbeam system, which is supported by reinforced concrete piers. This structure abuts Bridge No. 08067R to the south and Bridge No. 08101R to the north. The minimum field vertical clearance under the bridge was measured to be 15 feet – 8 inches.

WSP ▪ SELLS, under CONNDOT contract 300-097, conducted a routine inspection of this structure on June 20 and July 12, 2011.

The bridge was found to be in good condition (Overall Rating = 7). The deck was found to be in good condition (Overall Rating = 7). The underside of deck contains scattered areas of missing paint and light rust on the welds. The superstructure was found to be in good condition (Overall Rating = 7). The superstructure contains minor scrapes in the steel members, two loose bolts, light rust on bolts and one expansion bearing frozen (No change in position at 40 degrees Fahrenheit (2008) and 75 degrees Fahrenheit (2011)). The substructure was found to be in very good condition (Overall Rating = 8).

The recommendations for this bridge are as follows:

Repair Recommendations

1. Four light fixtures for the roadway under the bridge were found with broken diffusers and bulbs. Repair the light fixtures and cover each light with a steel mesh to prevent further damage (4 EA).

2. There are cracks in the welds connecting the retainer plates to knee braces. A few cracks have extended since the last inspection but none have propagated into the base metal. Repair the cracks (LS).

3. Girder 2 expansion bearing at pier 0 was found to be frozen. Reset the bearing (1 EA).

Rehabilitation Measures

No rehabilitation measures are recommended.

TIME AT SITE

Project No.

Bridge No.

Sheet

Date:

Crew:

Equipment Used:

Time:

Police:
(Name/Time)

Flagman:
(Name/Time)

Work Done:

Date:

Crew:

Equipment Used:

Time:

Police:
(Name/Time)

Flagman:
(Name/Time)

Work Done:

Date:

Crew:

Equipment Used:

Time:

Police:
(Name/Time)

Flagman:
(Name/Time)

Work Done:

Date:

Crew:

Equipment Used:

Time:

Police:
(Name/Time)

Flagman:
(Name/Time)

Work Done:

Date:

Crew:

Equipment Used:

Time:

Police:
(Name/Time)

Flagman:
(Name/Time)

Work Done:

Date:

Crew:

Equipment Used:

Time:

Police:
(Name/Time)

Flagman:
(Name/Time)

Work Done:

BUREAU OF PUBLIC
TRANSPORTATION
OFFICE OF RAIL

DATE: _________

CONSTRUCTION PUNCH LIST FormBRI-9, Rev. 01/12 PAGE 1 of 2

Construction Project Number: ____

Bridge No. _____________ Town: ____________________ Route: _______________

Feature Intersected: ____

Bridge Type: ____

Mile Point: _____________________________ Construction District: _______________

Construction Company Name: ____

D.O.T. Construction Inspectors Name: ____________________________________

List of Items to be Corrected or Completed:

1. ____

2. ____

3. ____

4. ____

5. ____

6. ____

7. ____

8. ____

9. ____

10. ____

BUREAU OF PUBLIC
TRANSPORTATION
OFFICE OF RAIL

DATE: _________

CONSTRUCTION PUNCH LIST

FormBRI-9, Rev. 01/12

PAGE 2 of 2

Bridge No. ______________

Photo Log:

1. ____

2. ____

3. ____

4. ____

5. ____

Additional Comments (If any):

____

____

____

____

____

____

Date copy sent to Construction: ____

Submitted By: ____ Date:___________

Checked By: ____ Date:___________

Revised March 27, 2000 BRI-11

SEISMIC DATA SHEET FOR RAILROAD BRIDGES

Prepared By:____Date:____________________

Entered By:________Date:________________

Bridge # _____________ **Mile Point:**_____________
Town:_______________________
Feature Crossed:____________________
Line Name: _________________________
Operator: _________________________

Feature Crossed Information:
ADT_______________ year of ADT______________________
Community Lifeline_____________ (y/n)
Major River Crossing________(y/n)

Feature Carried Information:
Utilization
Freight Service only_______
Less than 10 passenger trains/day___________
More than 10 passenger trains/day____

Detour available_______________Yes_______Inconvenient_______None
Alternate Service (Bus) available______(y/n)

Structure Information:
Bridge Construction
Continuous W/Integral abuts____________
Single span or continuous multiple spans____
Multiple simple spans_______

Number of Spans__________
Number of longitudinal girders ___________
Ballasted Deck______(y/n)
Moveable Bridge_______(y/n)
Total Bridge length ____ft
Max single span____________ft
Bridge width_________________ ft
Skew______________________degrees
Abutment height______ftIs abut masonry or unreinforced conc. ________(y/n)

Bearing and Bridge Seat Construction
Expansion Bearing Type __________________ If rocker, Height__________Inches
Are Bearings on Pedestals (pad > 6"' high)_________(y/n)
Expansion Bearings Transversely Restrained__________(y/n)

Vulnerable Bearing Information
Expansion Bearing Longitudinal Support Length_____________Inches
Expansion Bearing Transverse Support Length_____________Inches

Effective Length _________ft, Effective Height_______________ft

Pier Construction ___ No pier (single span bridge)
Steel or ductile conc. Multi-column bent ___________
Steel or ductile conc. single column ______________
Wall type Pier__________

Is pier founded on battered pile_______(y/n)
Is material masonry or unreinforced concrete ___________(y/n)
Is transverse movement between pier and beams accommodated_____________(y/n)

CONNECTICUT DEPARTMENT OF TRANSPORTATION
FRACTURE CRITICAL MEMBERS/FATIGUE PRONE DETAILS
INSPECTION DATA SHEET

Form BRI12, Rev 9/97

Fracture Critical Inspection Date:

FC Insp Freq: Months **FC Type Code:**

Bridge No:

Year Built:

Town:

ADT:

Year of ADT:

Facility Carried:

Structure Type:

% Truck:

Feature Intersected:

Access Equipment Needed:

Traffic Control Required:

Reference to Plans:

MEMBER/DETAIL TYPE #

Member/Detail Type:

☐ Fracture Critical

Fatigue Category:

Steel Type:

☐ Fatigue Prone

Description:

Inspection Procedure:

MEMBER/DETAIL TYPE #

Member/Detail Type:

☐ Fracture Critical

Fatigue Category:

Steel Type:

☐ Fatigue Prone

Description:

Inspection Procedure:

CONNECTICUT DEPARTMENT OF TRANSPORTATION
FRACTURE CRITICAL MEMBERS/FATIGUE PRONE DETAILS
INSPECTION DATA SHEET

Form BRI12, Rev 9/97

MEMBER/DETAIL TYPE # ☐

Member/Detail Type: ☐ Fracture Critical

Fatigue Category: Steel Type: ☐ Fatigue Prone

Description:

Inspection Procedure:

MEMBER/DETAIL TYPE # ☐

Member/Detail Type: ☐ Fracture Critical

Fatigue Category: Steel Type: ☐ Fatigue Prone

Description:

Inspection Procedure:

MEMBER/DETAIL TYPE # ☐

Member/Detail Type: ☐ Fracture Critical

Fatigue Category: Steel Type: ☐ Fatigue Prone

Description:

Inspection Procedure:

MEMBER/DETAIL TYPE # ☐

Member/Detail Type: ☐ Fracture Critical

Fatigue Category: Steel Type: ☐ Fatigue Prone

Description:

Inspection Procedure:

Connecticut Department of Transportation

Bridge Inspection Report BRI-18 SAMPLE

BRIDGE #:	08068R	**INSPECTION DATE:**	7/12/2011	**Snooper Required:**	N
Inspection Type:	ROUTINE	**PREVIOUS INSPECTION DATE:**	12/5/2008	**Snooper Used:**	N

TOWN: BRIDGEPORT
LINE: MAINLINE
OPERATOR: METRO-NORTH RAILROAD

YEAR BUILT: 1998 **YEAR REBUILT:** 0000 STEEL GIRDER/FLR BEA
FEATURE INTERSECTED: NOBLE AVENUE
LOCATION: .1 MI E OF PEQUONNOCK RIV

INSPECTION TEAM:

1): MICHAEL LEE
2): ADAM UGLIUZZA
3):
4):

INSPECTION VISITS:

Inspection Date:	6/20/2011	**Start Time:**	9:00 AM
Temperature:	75 °F	**End Time:**	2:00 PM
Inspection Date:	7/12/2011	**Start Time:**	8:15 AM
Temperature:	85 °F	**End Time:**	1:30 PM

---

58. DECK

OVERALL RATING 7

	RATING	
1. OVERLAY	N	THERE IS MEMBRANE WATERPROOFING OVERLAIN WITH 1-1/2" OF ASPHALT SAND WHICH IS NOT VISIBLE DUE TO BALLAST FILL. THE TIMBER TIES AND STEEL RAILS REST ON BALLAST FILL (SEE PHOTO 4).
2. DECK-STR. CONDITION	7	THE STEEL PLATE DECK IS WELDED TO THE TOP FLANGE OF FLOORBEAMS. SCATTERED WELDS CONNECTING THE DECK PLATE TO THE CURB PLATE EXHIBIT LIGHT RUST AND HAVE BACKER BARS LEFT IN PLACE. THE UNDERSIDE OF STEEL DECK HAS A FEW AREAS OF MISSING PAINT (SEE PHOTO 6)
3. CURBS	5	THE STEEL PLATE BALLAST RETAINERS ARE RATED UNDER THIS ITEM. THE TOP RETAINER PLATES EXHIBIT FLAME CUTS AT THE KNEE BRACES. CRACKS WERE NOTED IN THE WELDS CONNECTING THE SIDE RETAINER PLATES TO THE KNEE BRACES (SEE PHOTOS 7 AND 9). SOME CRACKS HAVE PROPAGATED SINCE THE LAST INSPECTION (SEE PHOTOS 8 AND 10). NO CRACKS WERE FOUND TO HAVE PROPAGATED INTO THE BASE MATERIAL. SEE FIELD NOTE SHEETS 5 AND 6.
4. MEDIAN	N	
5. SIDEWALKS	N	
6. PARAPET	N	
7. RAILING	N	
8. PAINT	6	THERE IS MISSING PAINT AT THE WELDS CONNECTING THE FLOORBEAMS TO THE DECK PLATE ON THE UNDERSIDE, AS WELL AS THE DECK PLATE TO THE CURB PLATE IN SCATTERED LOCATIONS.
9. DRAINS	N	TUB DRAINS ARE NOT VISIBLE, BUT THERE IS NO INDICATION THAT THE DRAINS ARE NOT FUNCTIONING PROPERLY.
10. LIGHTING STANDARD	3	FOUR LIGHT FIXTURES FOR THE ROADWAY UNDER THIS STRUCTURE ARE ATTACHED TO THE ADJACENT STRUCTURES AND WERE FOUND WITH BROKEN DIFFUSERS AND BULBS (SEE PHOTO 11).
11. UTILITIES TYPE/SIZE	7	THE JUNCTION BOX ATTACHED TO THE WEST SIDE OF GIRDER 1 OVER PIER 1 WAS NOTED TO CONTAIN DISCONNECTED WIRES AND A MISSING SECTION OF CONDUIT (SEE PHOTO 12). THIS APPEARS TO BE PART OF AN ON-GOING PROJECT AND, THEREFORE, IS NOT ADDRESSED IN THE REPAIR RECOMMENDATIONS.
12. CONSTRUCTION JOINTS	N	
13. EXPANSION JOINT	8	THE EXPANSION JOINTS AT BOTH ENDS OF THE STRUCTURE ARE UNDER BALLAST AND ARE NOT VISIBLE EXCEPT AT THE CURB WHERE THERE WERE NO NOTABLE DEFECTS. NO SIGNS OF LEAKAGE WERE VISIBLE ON THE UNDERSIDE.

59. SUPERSTRUCTURE

OVERALL RATING 7

	RATING	
1. BEARING DEVICES	5	GIRDER 2 EXPANSION BEARING AT PIER 0 WAS FOUND TO BE FROZEN (NO CHANGE IN POSITION AT 40 DEGREES FAHRENHEIT (2008) AND AT 75 DEGREES FAHRENHEIT (2011)) (SEE PHOTO 13). TWO ANCHOR BOLTS FOR GIRDER 1 AT PIER 1 ARE TILTED AND THE NUTS ARE NOT FULLY ENGAGED (SEE PHOTO 14). THE MASONRY PLATE AT PIER 0, GIRDER 2 EXHIBITS 1/4" EDGE GAPS TO THE CONCRETE PEDESTAL DUE TO THE UNDERLYING PAD BEING UNDERSIZED BY 3" ON EACH SIDE. SEE FIELD NOTE SHEETS 4 AND 6.
2. STRINGERS	N	
3. GIRDERS	7	THERE ARE SCRAPES AND GOUGES AT SCATTERED LOCATIONS ON THE GIRDER BOTTOM FLANGES THROUGHOUT THE STRUCTURE. SEE FIELD NOTE SHEET 6.
4. FLOOR BEAMS	7	THE BOTTOM FLANGES OF FLOORBEAMS 13 AND 15 CONTAIN SCRAPES (SEE PHOTO 16). SEE FIELD NOTE SHEET 6.
5. TRUSSES-GENERAL	N	

Connecticut Department of Transportation
Bridge Inspection Report BRI-18

BRIDGE #:	08068R	**INSPECTION DATE:**	7/12/2011	**Snooper Required:**	N
Inspection Type:	ROUTINE	**PREVIOUS INSPECTION DATE:**	12/5/2008	**Snooper Used:**	N

TRUSSES-PORTALS	N	
TRUSSES-BRACING	N	
6. PAINT	7	THERE IS MISSING PAINT AT SCRAPES, BOLTS AND WELDS.
7. RUST	7	THERE IS LIGHT RUST AT AREAS OF MISSING PAINT (SCRAPES, BOLTS, WELDS).
8 . MACHINERY MOV. SPAN	N	
9. RIVETS AND BOLTS	7	UNDER TRACK 1, ONE BOLT IS LOOSE AT THE LONGITUDINAL DIAPHRAGM TO FLOORBEAM CONNECTION FOR FLOORBEAMS 24 AND 25 (SEE PHOTOS 15 AND 16). SCATTERED NUTS AND BOLTS HAVE LIGHT RUST (SEE PHOTO 17).
10. WELDS-CRACKS	8	
11. TIMBER DECAY	N	
12. CONCRETE CRACKING	N	
13. COLLISION DAMAGE	7	THERE ARE MINOR SCRAPES NOTED ON THE GIRDER AND FLOORBEAM BOTTOM FLANGES THROUGHOUT THE STRUCTURE.
14. ALIGNMENT OF MEMBERS	8	
15. DEFLECTION UNDER LOAD	N	(N) NORMAL (E) EXCESSIVE
16. VIBRATION UNDER LOAD	N	(N) NORMAL (E) EXCESSIVE

60. SUBSTRUCTURE:

OVERALL RATING 8

	RATING	
1. ABUTMENTS STEM	N	THE STRUCTURE ABUTS BRIDGE 08067R TO THE SOUTH AND BRIDGE 08101R TO THE NORTH AND DOES NOT HAVE ABUTMENTS (SEE PHOTO 2).
BACKWALL	N	
FOOTING	N	
SETTLEMENT	N	
WINGWALLS	N	
PIERS OR BENTS-CAPS	8	THE PIER CAPS EXHIBIT RUST STAINS. THE VERTICAL EDGES OF THE PEDESTALS AT BOTH PIERS ARE NOT CHAMFERED, BUT TO NO DETRIMENTAL EFFECT.
PILE BENT	N	
COLUMN	8	THE COLUMNS WERE FOUND TO HAVE NO NOTABLE DEFICIENCIES.
FOOTING	N	NOT VISIBLE.
SETTLEMENT	N	
2. EROSION-SCOUR	8	
3. CONCRETE CRACK-SPALL	8	
4. STEEL CORROSION	N	
5. PAINT	N	
6. TIMBER DECAY	N	
7. COLLISION DAMAGE	8	
8. DEBRIS	8	

61. CHANNEL & PROTECTION

OVERALL RATING N

Connecticut Department of Transportation
Bridge Inspection Report BRI-18

BRIDGE #: 08068R **INSPECTION DATE:** 7/12/2011 **Snooper Required:** N

Inspection Type: ROUTINE **PREVIOUS INSPECTION DATE:** 12/5/2008 **Snooper Used:** N

62. CULVERTS & RETAINING WALLS

OVERALL RATING N

63. ESTIMATED REMAINING LIFE

YEARS

64. PERMIT CAPACITY (OFFICE ITEM)

65. APPROACH CONDITION

OVERALL RATING P

	RATING	
1. APPROACH SLAB	N	THE STRUCTURE ABUTS BRIDGE 08067R TO THE SOUTH AND BRIDGE 08101R TO THE NORTH.
2. RELIEF JOINTS	N	
3. APPROACH GUIDE RAIL	N	
PAVEMENT	N	
EMBANKMENT	N	
4. TRAFFIC SAFETY FEATURE	N	

66. RATED LOADING

1. POSTED LOADING:	RATING	
SINGLE UNIT (TONS)	N	
SEMI TRAILER (TONS)	N	
3. ADVANCE WARNING Y/N	N	
4. LEGIBILITY	N	
5. VISIBILITY/LOCATION	N	

INSPECTORS APPRAISAL OF OVERALL STRUCTURE CONDITION: 7

MIN VERT. UNDERCLR.	15'-8"	
POSTED CLEARANCE:	N	
ADVANCE WARNING (Y/N):	N	
SPEED LIMIT (IF ANY):	30 MPH	FOR PASSENGER TRAINS AND 10 MPH FOR FREIGHT TRAINS.
CHARACTER OF TRAFFIC:		HEAVY, COMMUTER TRAINS.

ADDITIONAL NOTES:

INVENTORY OF SHEETS IN COMPLETE REPORT

INV.: 8 **PHOTOS:** 9 **FLD NOTES** 11 **JNT MSMNTS:** 1 **CLEAR DIAG.** 1 **ATTACH:** 7

ADDITIONAL COMMENTS:

THE BRIDGE IDENTIFICATION NUMBER ON PIER 0 WAS FOUND IN GOOD CONDITION (SEE PHOTO 1).

Connecticut Department of Transportation

Bridge Inspection Report BRI-18

BRIDGE #: 08068R **INSPECTION DATE:** 7/12/2011 **Snooper Required:** N

Inspection Type: ROUTINE **PREVIOUS INSPECTION DATE:** 12/5/2008 **Snooper Used:** N

Inspectors' Signatures: 1) Michael **Date:** 7/28/11

2) **Date:** 7/28/11

3) **Date:** __/__/__

4) **Date:** __/__/__

P.E. Signature: Bruce **Date:** 7/28/11

P.E.#: 17786

Reviewed by: CDOT **Date:** __/__/__

State of Connecticut
Department of Transportation
Bureau of Public
Transportation
Office of Rail

Sheet _____Of_____
Form BRI-24, Rev. 01/12

INCIDENT REPORT

Town: ___________________________________ Bridge No. ____________________

Route/Street: ____

Over: ____________________________________ Type: _________________________

Inspected by: _____________________________ Date: ____/____/____

Date of Incident:___/____/___ Time of Incident: ____________ “D” no.: __________

Details of Incident: ____

Immediate Actions Taken: ____

Additional Remarks: ____

BRIDGE NUMBER	TOWN NAME	NBIS BRG LGTH
08068R	BRIDGEPORT	78 FT

FACILITY CARRIED	FEATURE CROSSED
METRO-NORTH RAILROAD	NOBLE AVENUE

INSPECTED BY: Michael &

REVIEWED BY: DATE: 7/28/11

STATE OF CONNECTICUT
DEPARTMENT OF TRANSPORTATION
DIVISION OF BRIDGE SAFETY EVALUATION

INVENTORY ROUTE UNDER STRUCTURE

FORM BRI-25 REV 10/99

SAMPLE

SHEET_____ OF_____ (INSP. REPORT

IDENTIFICATION

5) INVENTORY ROUTE:

A) RECORD TYPE	2	
B) ROUTE SIGNING PREFIX	5	
C) DESIGNATED LEVEL OF SERVICE	0	
D) ROUTE NO.	00000	
11) MILE POINT (INV.RTE):	0	

AGE & SERVICE

+ 28B) NUMBER OF INV.ROUTE LANES:	2	
* 29) ADT (INV. RTE):	0	
** 109) TRUCK ADT % (INV.RTE):	0	
* 30) YEAR OF ADT (INV. RTE):		
* 41) INV ROUTE OPERATIONAL STATUS:	A	
19) BYPASS DETOUR LENGTH:	1	

GEOMETRIC DATA

+ 10) INV. RTE. MIN. VERT. CLR:	15.7	
+ 47) INV. RTE. TOTAL HORIZ CLR:	31.8	
+ 53) MIN VERT CLR OVER BRIDGE RDWAY:	15' 8"	
+ 55) MIN LAT UNDERCLR ON RIGHT:	H 8.7'	
+ 56) MIN LAT UNDERCLR ON LEFT:	0'	

CLASSIFICATION

26) INV. RTE. FUNCT CLASSIFICATION:	19	
100) DEFENSE HIGHWAY DESIGNATION:	0	
** 102) DIRECTION OF TRAFFIC:	2	
104) HIGHWAY SYSTEM OF INV. ROUTE:	0	
110) DESIGNATED NATIONAL NETWORK:	0	

POSTED SIGNS

+ POSTED VERT. CLR UNDER BRIDGE: ' "

ADDITIONAL COMMENTS:

* FILL OUT ON EVERY INSPECTION 28, 109, 30, 41

\+ VERIFY EVERY INSPECTION 28B, 10, 47, 53, 55, 56 & POSTED VERT CLEARANCE UNDER THE BRIDGE

** MUST BE FILLED OUT OR VERIFIED ON THE FIRST INSPECTION MADE BASED ON THE NEW FHWA GUIDE 109, 102

BRIDGE #: 08068R TOWN: BRIDGEPORT
OPERATOR: METRO-NORTH RAILROAD
LINE NAME: MAINLINE
FEATURE INTERSECTED: NOBLE AVENUE
PREVIOUSLY INSPECTED ON: 12/5/2008

STATE OF CONNECTICUT
DEPARTMENT OF TRANSPORTATION
BRIDGE SAFETY & EVALUATION
RAILROAD STRUCTURE INVENTORY
SHEET 1 OF 1 FORM BRI-39 10/99

SAMPLE

RED FLAG ☐

TEAM: 10 INSPECTED BY: Michael &
PROJECT NUMBER: 300-097 91) FREQUENCY: 24 FLAG MAN: 01 ACCESS: 00
INSPECTION DATE: 7/12/2011
IN-DEPTH INSPECTION: 12/5/2008

CRITICAL FEATURES INSPECTIONS	A) FRACTURE CRITICAL B) UNDERWATER C) SPECIAL	TYPE: C TYPE:	92A) FRAC. CRITICAL FREQ: 24 92B) UNDERWATER FREQ: 93C) OTHER FREQ:	93A) INSPECTION DATE: 7/12/2011 93B) UNDERWATER: 93C) OTHER:

IDENTIFICATION

300) OWNER: CONNDOT
303) MILEPOST: 55.98
9) LOCATION: 1 MI E OF PEQUONNOCK RIV
304) OTHER TRACKAGE RIGHTS:
A) 01 B) 11 C) D)
16) LATITUDE: 41° 11.1'
17) LONGITUDE: 73° 11.1'
305) CO-OWNER BRIDGE: 00
ADJACENT OWNER BRIDGE:

GEOMETRIC DATA

48) LENGTH OF MAX. SPAN: 76 FT
49) STRUCTURE LENGTH: 78 FT
52) DECK WIDTH, OUT TO OUT: 73.3 FT
306) CATWALK WIDTHS: LEFT 0 FT
RIGHT 0 FT
DECK AREA: 5717 SQ FT
34) SKEW ANGLE: 0 DEG
53) MIN VERT CLEAR OVER: 99' 99"
54) MIN VERT UNDER CLR: H 15' 8"
55) MIN LAT UNDER CLR R: H 8.75'
56) MIN LAT UNDER CLR L: 0'

RESTRICTIONS + UTILITIES

318) PASSENGER TRACK SPEED: 30 MPH
319) FREIGHT TRACK SPEED: 10 MPH
UTILITIES CARRIED BY THE BRIDGE:

APPRAISALS

67) STRUCTURE EVALUATION: 7
69) UNDER CLR VERT AND HORIZ: 7
71) WATERWAY ADEQUACY: N

AGE AND SERVICE

27) YEAR BUILT: 1998
106) YEAR RECONSTRUCTED: 0000
42) TYPE OF SERVICE: A) ON 2
B) UNDER 1
307) ELECTRIFICATION: Y
308) # OF TRACKS STRUC. DESIGNED FOR: 4
309) # OF TRACKS PRESENTLY ON STRUC: 4
310) NUMBER OF TRACKS IN SERVICE: 4
311) NUMBER OF TRAINS:
A) PASSENGER TRAINS/DAY 127
B) FREIGHT TRAINS/MONTH 8
312) YEAR OF CENSUS: 99
313) AVERAGE PASSENGERS/DAY: 6,610
314) FREIGHT CARLOADS/YEAR: 1216

WATERWAY

W9) DRAINAGE BASIN WATERWAY CODE: 0000
38) NAVIGATION CONTROL: N
39) NAVIGATION VERT CONTROL: 000
40) NAVIGATION HORIZ CLEARANCE: 0000
116) VERT-LIFT BRG NAV MIN:
111) PIER NAV PROTECTION:
113) SCOUR CRITICAL BRIDGE: N

CONDITION

		Rating	By
58) DECK:	7	7	MC
59) SUPERSTRUCTURE:	7	7	MC
60) SUBSTRUCTURE:	8	8	MC
61) CHANNEL/ PROTECTION:	N	N	MC
62) CULVERTS:	N	N	MC

COMMENTS:

STRUCTURE TYPE AND MATERIAL

43) STRUCTURE TYPE, MAIN:
A) MATERIAL 3 STEEL
B) DESIGN TYPE 3 RDER/FLR BEAM SYS
315) DECK TYPE: 4 EEL PLATE/BALLAST
316) DEPTH OF BALLAST: 1.0
44) STRUCTURE TYPE, APPROACH:
A) MATERIAL 0 OTHER
B) DESIGN TYPE 0 OTHER
45) NUMBER OF SPANS, MAIN UNIT: 1
46) NUMBER OF APPROACH SPANS: 0
317) SUBSTRUCTURE TYPE:
A) MATERIAL 2 CONCRETE
B) FOUNDATION TYPE 1 FULL HEIGHT STEM

CLASSIFICATION + R-O-W INFORMATION

101) PARALLEL STRUCTURE: N
103)TEMPORARY STRUCTURE:
21) MAINTAINER: 27
322)R-O-W FILE LOCATION OF MAPS AND PLANS:

LOAD RATING

31) DESIGN LOAD: 8
41) STRUCTURE OPERATIONAL STATUS: A
323)COOPER E RATING BY TRACK NUMBER:

MAXIMUM	NORMAL	MAXIMUM	NORMAL
1) E129	E 74	5)	
2) E129	E 74	6)	
3) E129	E 74	7)	
4) E129	E 74	8)	

REVIEWED BY DATE 7/28/11

Thursday, July 21, 2011 12:45:35 P

WSP · SELLS
Transportation & Infrastructure
100 Mill Plain Road · Danbury, CT 06811

SAMPLE

FIELD NOTES

☑ FIELD ORIGINAL ☐ TRANSCRIBED BY:

DESCRIPTION: UNDERSIDE OF DECK AND STEEL FRAMING

PROJECT NO.

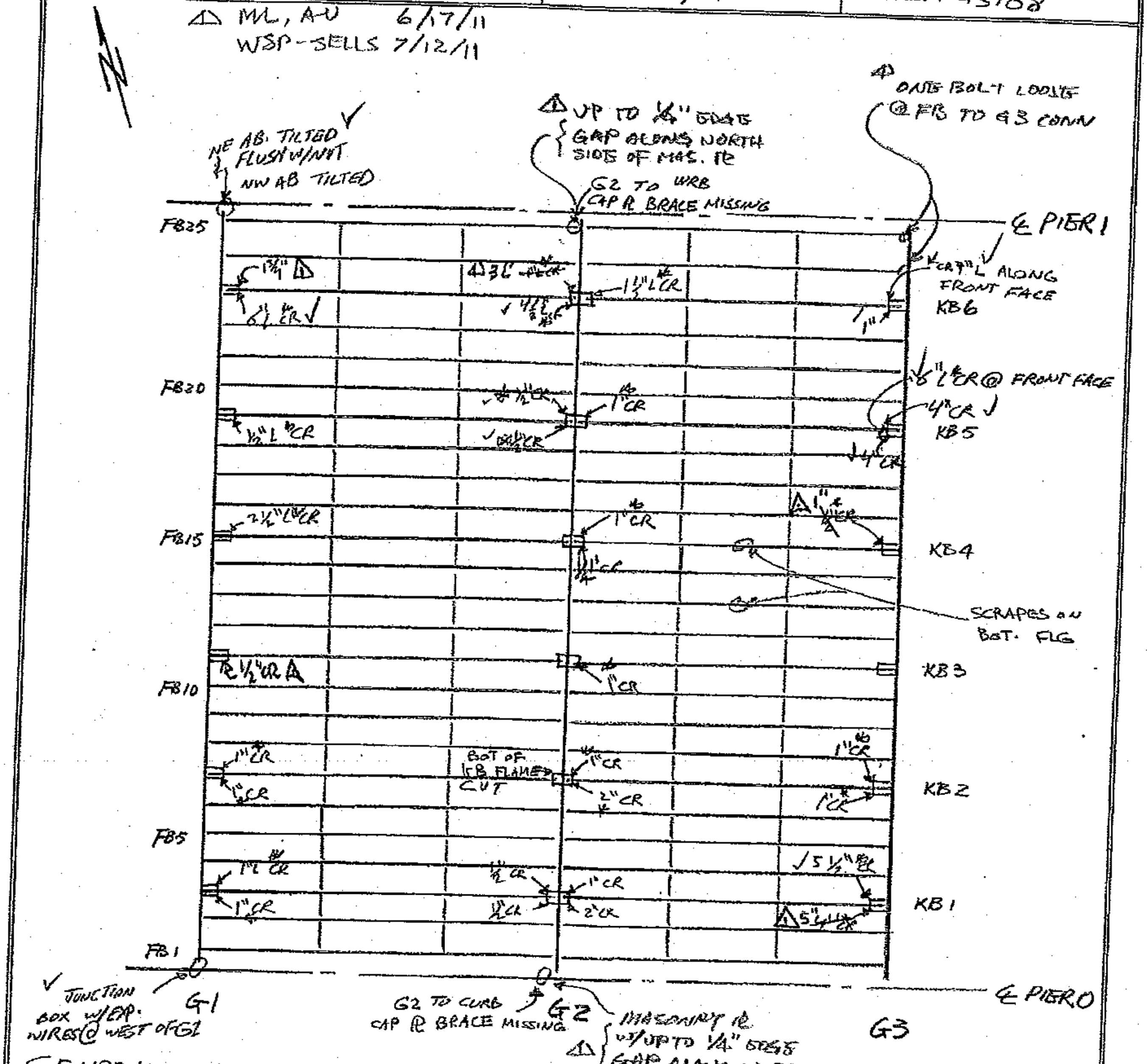
BRIDGE NO. 08068R

SHEET 6 OF

CREW: ML, SH

DATE: 12/5/08

△ ML, A-U 6/7/11
WSP-SELLS 7/12/11



GENERAL NOTES: -

- SCRAPES & GOUGES THROUGHT STRUCTURE W/LT. RUST ✓
- CURB ℞ H. STIFF. FLAME CUT. W/O PAINT TYP. THROUGHT ✓
- RANDOM FLBM TOP FLG TO DECK WELDS W/LT RUST BTWN G1 & G2 ✓
- * CR - CRACK IN WELD BET. TOP CURB ℞, CLOSURE ℞ & SIDE CURB ℞ @ FLBM KNEE BRACING. ARROW POINTS TO SIDE OF KB WHERE CRACK IS NOTED.

FIELD NOTES

☐ FIELD ORIGINAL ☐ TRANSCRIBED BY:

DESCRIPTION: CRACK SCHEDULE

PROJECT NO.

BRIDGE NO.

SHEET OF

CREW:

DATE:

MEMBER	DESCRIPTION/LOCATION	LENGTH

Bridge No.: __________ Date: _________ Prepared By: ________________________ Checked By: ______________________

CONCRETE DETERIORATION WORKSHEET

Form BRI-10, Rev. 9/01

	Deterioration By Span - In Square Feet										
	Span Number										
Deterioration Type	1	2	3	4	5	6	7	8	9	10	Total
Spalled and Delaminated Areas	Top:	Top:	Top:	Top:	Top:	Top:	Top:	Top:	Top:	Top:	Top:
	Bot:	Bot:	Bot:	Bot:	Bot:	Bot:	Bot:	Bot:	Bot:	Bot:	Bot:
Scale (Moderate to Severe Only)	Top:	Top:	Top:	Top:	Top:	Top:	Top:	Top:	Top:	Top:	Top:
	Bot:	Bot:	Bot:	Bot:	Bot:	Bot:	Bot:	Bot:	Bot:	Bot:	Bot:
Cracks: w/Efflorescence (use 6 in. width x length)	Bot:	Bot:	Bot:	Bot:	Bot:	Bot:	Bot:	Bot:	Bot:	Bot:	Bot:
w/o Efflo. (use 3 in. width x length)	Bot:	Bot:	Bot:	Bot:	Bot:	Bot:	Bot:	Bot:	Bot:	Bot:	Bot:
Map Cracking: w/Efflorescence (use full area)	Bot:	Bot:	Bot:	Bot:	Bot:	Bot:	Bot:	Bot:	Bot:	Bot:	Bot:
w/o Efflo. (use 50% of area)	Bot:	Bot:	Bot:	Bot:	Bot:	Bot:	Bot:	Bot:	Bot:	Bot:	Bot:
Honeycombed Areas (only areas more than 1 1/2 in. deep)	Bot:	Bot:	Bot:	Bot:	Bot:	Bot:	Bot:	Bot:	Bot:	Bot:	Bot:
Total Span Area (Square Feet)											
% Spalled and Delaminated on Top											
% Deterioration on Bottom											

Figure 6.1.2a - Concrete Deterioration Worksheet

PHOTO LOG

Form BRI-13, Rev. 9/97

Bridge Information System

Image Inventory

Bridge No. ____________ Date ____________________

Town: ____________________________ Photographer: ____________

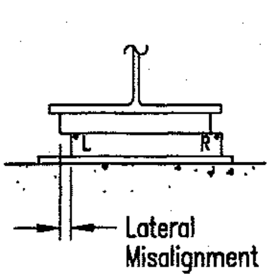
Carried / Crossed: ____

Film Frame #	Image Description

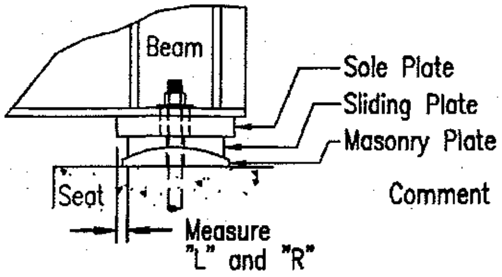
FIELD NOTES	BRIDGE NO.	DATE:
	CREW:	SHEET

SLIDING BEARING MEASUREMENTS

Form BRI-14, Rev. 9/01



FRONT VIEW



SIDE VIEW

Span No. = _____

Substructure Unit = ________________

Temperature = ____°F

Comment On:
- Presence of keepers or work done on bearings.
- Undermining of bearing. Attach sketch with dimensions.
- Cracking of plates or welds.
- Condition of anchor bolts.

Beam	Movement				Condition			Comments
	"L"	"R"	Mode Exp. or Contr.	Lateral Misalign.	Bearing Frozen?	Normal Mov't?	Rust ? H/M/L	

FIELD NOTES

BRIDGE NO.

DATE:

CREW:

SHEET

ROCKER BEARING MEASUREMENTS

Form BRI-15, Rev. 9/97

Span No. = _____

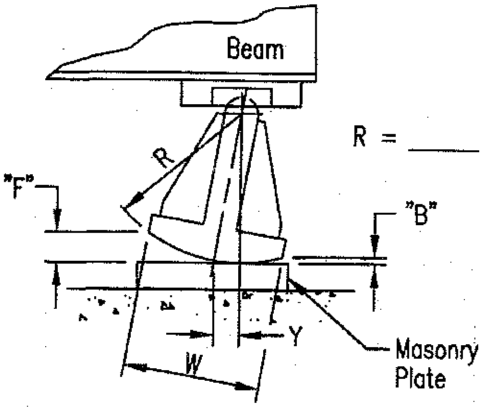
Substructure
Unit = ____________________

Temperature = _____°F

$\theta = \text{Sin}^{-1}\,(F-B)/W$

$Y = R\ \text{TAN}\ \theta$

The "Front" of the bearing is the side facing the fixed bearing.



R = _____

W = _____

NOTE:

"F" & "B" should be measured at the left side corners of the rocker or on the side closest to to the front face of the substructure on skewed bridges.

Beam	"F"	"B"	Y	Cont. or Exp.	Comments

FIELD NOTES

BRIDGE NO.

DATE:

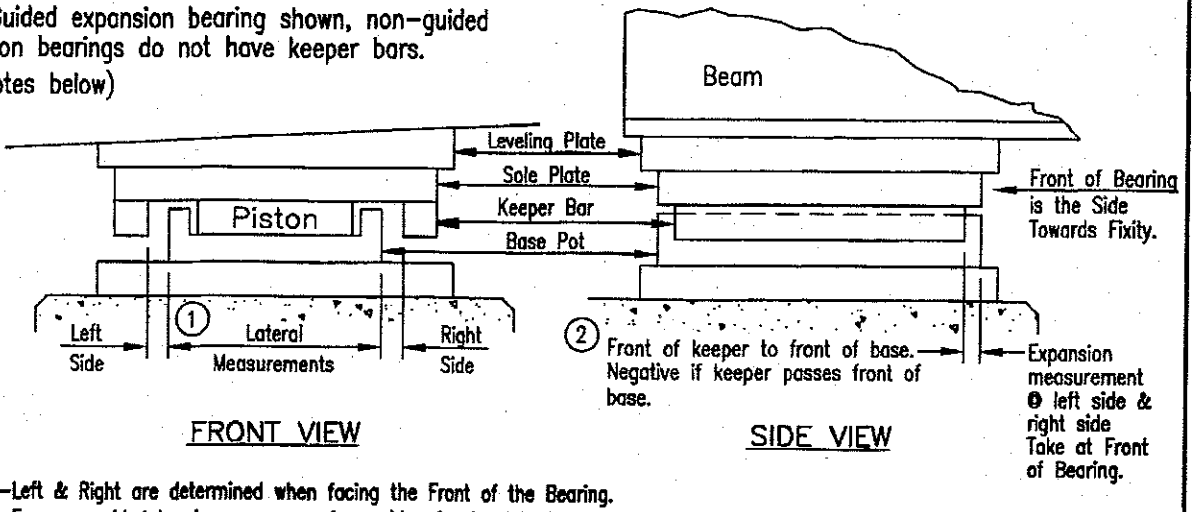
CREW:

SHEET

POT BEARING MEASUREMENTS

Form BRI-16, Rev. 9/97

Note: Guided expansion bearing shown, non-guided expansion bearings do not have keeper bars.
(see notes below)



① –Left & Right are determined when facing the Front of the Bearing.
–For non-guided bearings, measure from side of sole plate to side of piston @ center line of piston.

② –For non-guided bearings, measure expansion from front of sole plate to front of piston @ center line of bearing.

Span No. & Substructure Unit = ______________________ Temperature = ____ °F

Beam	Expansion			Lateral		Comments
	Exp. Measurement		Side of Brg.	Left	Right	
	L	R	(N,S,E,W)			

JOINT MEASUREMENTS

Form BRI-17, Rev. 9/97

Bridge No.: ______ ____________________ **Town:** __________

Measurements Taken By: __________

Measurements Reviewed By: __________

Deck Joint Location	Deck Joint Type[1]	Effect Span[2] (ft.)	Winter Measurements			Summer Measurements			Differential Movements			Comments	Difference Between Actual & Calc'd Mov't	
			Temp °F	Date:		Temp °F	Date:		Actual		by Formula			
				Left (in.)	Right (in.)		Left (in.)	Right (in.)	Left (in.)	Right (in.)			Left (in.)	Right (in.)

1. The "Deck Joint Type" should be "plug" for Asphaltic Plug joints, "strip" for Strip Seals, "seg." for Segmental Joints, etc.
2. The "Effective Span" is the length contributing to expansion at the joint. This should be 0 at fixed joints of single span bridges.

File: JTBLANK.XLS(English), Printed: 9/5/97

PIN & HANGER DATA SHEET

Form BRI-29, Rev. 6/99

Measurements Taken By: ____________ Date: ____________

Bridge No.: ________ ____________________ Town: ____________

Hanger Location: ____________________ Effective span for Movement: ______ (ft) Page: ______ of ______

Beam No.	V (in)	J (in)	Tr (in)	Br (in)	Tℓ (in)	Bℓ (in)	Out to Out (in)	Secondary System Type	Gap[1] (Y/N)	Nut Restraint System	Temp	Comments
1												
2												
3												
4												
5												
6												
7												
8												
9												
10												

Notes:

1) For Pin & Hanger assemblies with a redundant support system, indicate if there is a gap between the redundant system (bearing) and the bottom flange of the suspended girder.

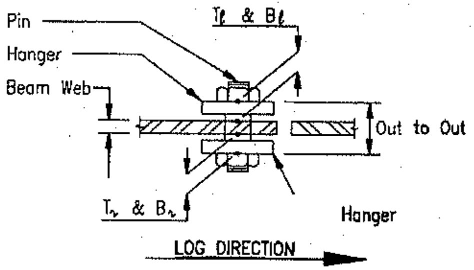
2) All measurements are taken in reference to log direction.

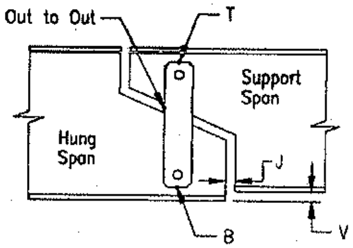
  V : Vertical misalignment of girders @ left edge of girder's bottom flange.

  J : Joint opening between webs, measured just above the bottom flange fillet, on the left face of the girder's web.

  Out to Out : The out-to-out of hangers taken at the leading edge, based on log direction.

3) Use a permanent marker to indicate locations of field measurements.





File: P&h_form.xls(Data1), Printed: 9/24/01

PIN & HANGER DATA SHEET

Form BRI-29, Rev. 6/99

Measurements Taken By: ______ Date: ______

Bridge No.: 0 ______ 0 ______ Town: 0

Hanger Location: 0

Effective span for Movement: 0

Page: ______ of ______

Beam No.	V (in)	J (in)	Tr (in)	Br (in)	T/ (in)	B/ (in)	Out to Out (in)	Secondary System Type	Gap[1] (Y/N)	Nut Restraint System	Temp	Comments
1												
2												
3												
4												
5												
6												
7												
8												
9												
10												

Notes:

1) For Pin & Hanger assemblies with a redundant support system, indicate if there is a gap between the redundant system (bearing) and the bottom flange of the suspended girder.

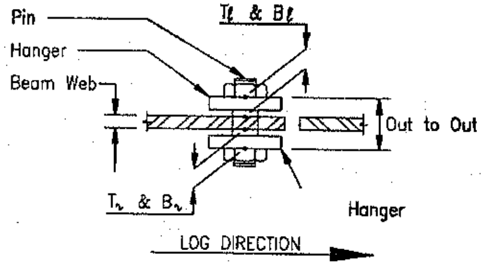
2) All measurements are taken in reference to log direction.

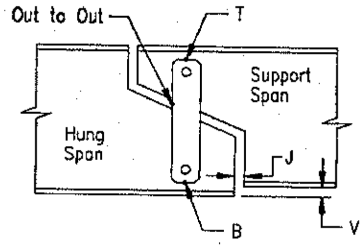
  V : Vertical misalignment of girders @ left edge of girder's bottom flange.

  J : Joint opening between webs, measured just above the bottom flange fillet, on the left face of the girder's web.

  Out to Out : The out-to-out of hangers taken at the leading edge, based on log direction.

3) Use a permanent marker to indicate locations of field measurements.





File: P&h_form.xls(Data2), Printed: 9/24/01

PIN & HANGER ANALYSIS SHEET

Form BRI-29, Rev. 6/99

Measurements Reviewed By: ______ Date: ______

Bridge No.: 0 ______ 0 ______ Town: 0

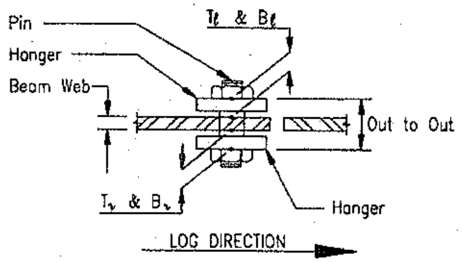
Hanger Location: 0

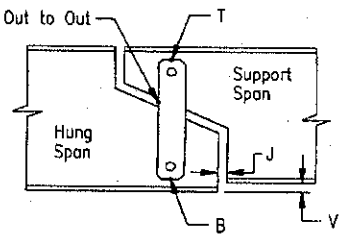
Effective span for Movement: 0 (ft)

page: ______ of ______

Beam No.	CALCULATED DIFFERENCES BETWEEN MEASUREMENTS ON DATA1 & DATA2							Differential Movement by Formula "J" (in)	Difference Between Actual & Calc. J (in)	Reviewer's Comments
	V (in)	J (in)	T_ℓ (in)	B_ℓ (in)	T_v (in)	B_v (in)	Out to Out (in)			
1	0	0	0	0	0	0	0	0	0	
2	0	0	0	0	0	0	0	0	0	
3	0	0	0	0	0	0	0	0	0	
4	0	0	0	0	0	0	0	0	0	
5	0	0	0	0	0	0	0	0	0	
6	0	0	0	0	0	0	0	0	0	
7	0	0	0	0	0	0	0	0	0	
8	0	0	0	0	0	0	0	0	0	
9	0	0	0	0	0	0	0	0	0	
10	0	0	0	0	0	0	0	0	0	

Additional Review Comments:





File: P&h_form.xls(Analysis), Printed: 9/24/01

HINGE DATA SHEET

Form BRI-30, Rev. 9/97

Measurements Taken By: ______ Date: ______

Bridge No.: ______ ______

Town: ______

Date: ______

Hinge Located: ______

Effective span for Movement: ______ (ft)

Page: of ______

Beam No.	V (in)	J (in)	R (in)	L (in)	Secondary System Type	Gap[1] (Y/N)	Nut Restraint System	Comments
1								
2								
3								
4								
5								
6								
7								
8								
9								
10								

Notes:

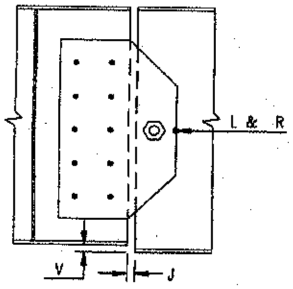
1) For Hinge assemblies with a redundant support system, indicate if there is a gap between the redundant system (bearing) and the bottom flange of the suspended girder.

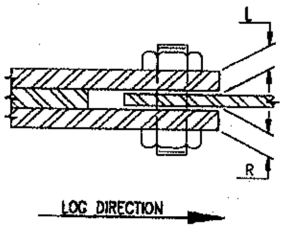
2) All measurements are taken in reference to log direction.

V : Vertical misalignment of girders @ left edge of girder's bottom flange.

J : Joint opening between webs, measured just above the bottom flange fillet, on the left face of the girder's web.

3) Use a permanent marker to indicate locations of field measurements.





HINGE DATA SHEET

Form BRI-30, Rev. 6/99

Measurements Taken By: ________ Date: ________

Bridge No.: ________ ________________ Town: ________

Hinge Located: ________________ Effective span for Movement: ________ (ft) Page: ____ of ____

Beam No	V (in)	J (in)	R (in)	L (in)	Secondary System Type	Gap[1] (Y/N)	Nut Restraint System	Comments
1								
2								
3								
4								
5								
6								
7								
8								
9								
10								

Notes:

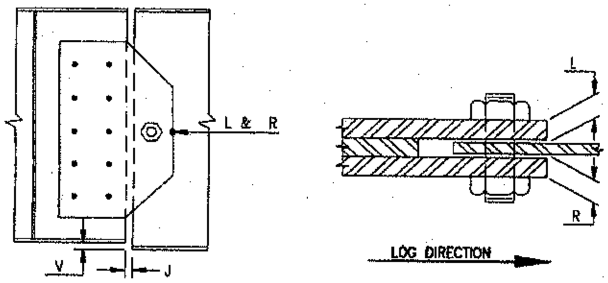
1) For Hinge assemblies with a redundant support system, indicate if there is a gap between the redundant system (bearing) and the bottom flange of the suspended girder.

2) All measurements are taken in reference to log direction.

V : Vertical misalignment of girders @ left edge of girder's bottom flange.

J : Joint opening between webs, measured just above the bottom flange fillet, on the left face of the girder's web.

3) Use a permanent marker to indicate locations of field measurements.



File: Hng_form.xls(Data2), Printed: 9/24/01

HINGE ANALYSIS SHEET

Form BRI-30, Rev. 9/97

Measurements Reviewed By:

Date: ____

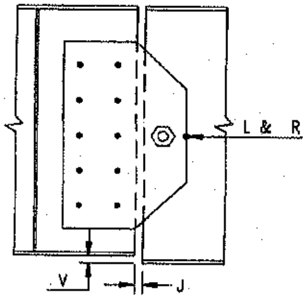
Bridge No.: 0 ____ 0 ____ Town: 0

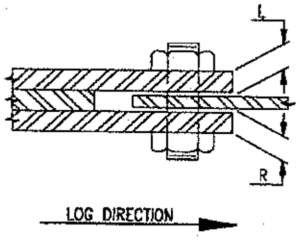
Hanger Location: 0 ____ Effective span for Movement: 0 (ft)

Page: ____ of ____

Beam No.	CALCULATED DIFFERENCES BETWEEN MEASURMENTS ON DATA1 & DATA2				Reviewer's Comments
	V (mm)	J (mm)	R (mm)	L (mm)	
1	0	0	0	0	
2	0	0	0	0	
3	0	0	0	0	
4	0	0	0	0	
5	0	0	0	0	
6	0	0	0	0	
7	0	0	0	0	
8	0	0	0	0	
9	0	0	0	0	
10	0	0	0	0	

Additional Review Comments:





File: Hng_form.xls(Analysis), Printed: 9/24/01

Bridge No.		**Project No.**	
Town		**Inspected By**	
Feature Carried		**Inspected By**	
Feature Crossed		**Date Inspected**	

Double-click to insert picture	**Double-click to insert picture**
Photo No. 1: **Bridge identification number**	**Photo No. 2:**

Back-up Material Sheets

Bridge No.

Date:

Connecticut Department of Transportation

UNDERWATER INSPECTION

SAMPLE

BRI-58 Form

Bridge No: 08064R

Inspection Date: 11/4/2008

Town: Bridgeport

Route Carried: Mainline

Feature Crossed: Pequonnock River

ITEM	RATING	REMARKS
0. SUBSTRUCTURE	7	Localized scour has exposed the footing inside the sheetpile cofferdam up to 6.5' in vertical height. However an average of 1.0' of aggradation has occurred since previous inspection.
ABUTMENT 1:	N	Not inspected - Out of the water.
STEM	N	
FOOTING	N	
EROSION	N	
SETTLEMENT	N	
SCOUR	N	
WINGWALLS	N	
General remarks:		
ABUTMENT 2:	N	Not inspected - Out of the water.
STEM	N	
FOOTING	N	
EROSION	N	
SETTLEMENT	N	
SCOUR	N	
WINGWALLS	N	
General remarks:		
PIER NO. 1	6	Generally minor scour and aggradation has occurred since the previous inspection, with the exceptio of the southeast corner that exhibits 2.6' of local scour.
PILES	N	Not visible.
STEM	7	The stem exhibits 5% or less missing mortar in the stone masonry joints.
FOOTING	7	The exposed steel sheet piling exhibits moderate to heavy corrosion.
SCOUR	6	Generally minor scour and aggradation has occurred since the previous inspection, with the exceptio of the southeast corner exhibits 2.6' of local scour.
SETTLEMENT	8	
General remarks:	The Fender system is in good condition.	
PIER NO. 2	7	The exposed sheet piling exhibits moderate to severe corrosion.
PILES	N	Not visible.
STEM	7	The stem exhibits 5% or less missing mortar in the stone masonry joints.
FOOTING	7	The exposed sheet piling exhibits moderate to severe corrosion.
SCOUR	7	Primarily aggradation up to 2.5' has occurred since the previous inspection
SETTLEMENT	8	

Connecticut Department of Transportation

UNDERWATER INSPECTION

SAMPLE

BRI-58 Form

Bridge No: 08064R

Inspection Date: 11/4/2008

Town: Bridgeport

Route Carried: Mainline

Feature Crossed: Pequonnock River

ITEM	*RATING*	*REMARKS*
General remarks:		The fender system is in good condition.
PIER NO. 3	6	Localized scour has exposed the footing inside the sheetpile cofferdam up to 6.5' in vertical height; however an average of 1' of aggradation has occurred since the previous inspection.
PILES	N	Not visible.
STEM	7	The stem exhibits 5% or less missing mortar in the stone masonry joints.
FOOTING	7	The exposed sheet piling exhibits moderate to heavy corrosion.
SCOUR	6	Localized scour has exposed the footing inside the sheetpile cofferdam up to 6.5' in vertical height; however an average of 1' of aggradation has occurred since the previous inspection.
SETTLEMENT	8	
General remarks:		Pier 3 is founded on steel H-piles.

1. CHANNEL& CHANNEL PROTECTION:

	6	The channel is moderately susceptible to scour due to the sand and silt bottom composition, with penetrations of 0.5' to 3.0', and typical flow of 1/2 F.P.S.
CHANNEL SCOUR	6	The channel is moderately susceptible to scour due to the sand and silt bottom composition, with penetrations of 0.5' to 3.0', and typical flow of 1/2 F.P.S.
EMBANKMENT EROSIO	8	
DEBRIS	8	
VEGETATION	8	
CHANNEL CHANGE	7	Little or no channel change has occurred since the previous inspection.
FENDER SYSTEM	7	Generally, the timber fender system is in good condition, with minor delamination up to 1/4" deep in the tidal zone due to freeze thaw damage.
SPUR DIKES & JETTIE	N	
RIP RAP	7	An isolated pocket of riprap was observed along the south elevation of pier No.1
General remarks:		

spected by: ____________ Date: Feb. 27, 2010

spected by: ____________ Date: Feb. 27, 2010

O.T. reviewed by: ____________ Date: ____________

Connecticut Department of Transportation

UNDERWATER INSPECTION

SAMPLE

BRI-59 Form

Bridge No: 08064R **Date Inspected:** 11/3/2008

Job Number: 300-097

Client: Connecticut D.O.T.

Route: Mainline **Mile point:** 55.90

City: Bridgeport

FeatureCrossed: Pequonnock River

State: CT

Inspector: Clay Carlson

Assistants: Chris Drake/Ken Mischou

Time Arrived: 7:30 AM

Time Departed: 3:30 PM

Time In Water: 9:15 AM

Time Out of Water: 12:15 PM

Type of Inspection: In-Depth

Year built: 1998 **Total Length:** 462

No. Spans: 5

Bridge Type: Steel Movable Bascule

Total Number of Piers: 6

Piers in the Water: 3

Type of Piers: Stone Masonry Facing over Concrete

Abutments: N/A

Bottom Composition: Silt, sand and miscellaneous man made debris, with 0.5' - 3.0' penetration (Typ). An isolated pocket of riprap .08'-1.5' in diameter was observed along the south elevation of pier No. 1.

Previous U/W Insp: 10/9/2006

Marine Growth: Moderate barnacles and soft marine growth.

Max. Water Depth: 28.8'

Max. Depth at Pier: 23.0'

Current Strength: .5' FPS

U/W Visibility: 3.0'

Type of Water: Salt

Access to Bridge: Boat

Remarks: Supported by steel H-piles.

Inspection Equipment

Number of Boats: 1

RR Protection: No

Boat Size: 22

Equipment Comments:

Dive Station: Yes

Inspected by: **Date:** Feb. 27, 2010

Inspected by: Chris Drake **Date:** Feb. 27, 2010

D.O.T. reviewed by: ____________ **Date:** ____________

APPENDIX 15
S-PROGRAM SUMMARY

1/16/2012

State of Connecticut - Department of Transportation - Office of Rail

S-BRIDGE REPAIR PROGRAM SUMMARY

TRACK NAME	BRIDGE #	TOWN	LOCATION	M.P.	8		6		4		2		1		3		5		7		ACTIVE	INACTIVE
DANBURY	04134R	NORWALK	*MARSHALL STREET	0.11	N/A								S18	N/A								
DANBURY	08200R	NORWALK	*ANN STREET	0.19	N/A						S18 & S20	N/A	S18 & S20	N/A							S9	--
DANBURY	08202R	NORWALK	*NORWALK RIVER	3.20	N/A								S18 & S19	N/A							S14	N/A
DANBURY	08203R	WILTON	*BROOK	5.12	N/A								S17	N/A							S17	N/A
DANBURY	08204R	WILTON	*STREAM	6.43	N/A								S20	N/A								
DANBURY	08205R	WILTON	*NORWALK RIVER	6.64	N/A								S20	N/A								
DANBURY	08206R	WILTON	*NORWALK RIVER	8.70	N/A								S20	N/A								
DANBURY	08207R	WILTON	*NORWALK RIVER	9.42	N/A								S20	N/A								
DANBURY	08208R	WILTON	*BROOK	9.91	N/A								S17	N/A								
DANBURY	08215R	REDDING	*UMPAWAUG POND BROOK	16.41	N/A																S14	N/A
DANBURY	01020R	BETHEL	GRASSY PLAIN ROAD (RTE. 53)	19.64	N/A																S6	N/A
DANBURY	08217R	BETHEL	*NORWALK RIVER	19.99	N/A								S20	N/A								
DANBURY	08218R	BETHEL	*SYMPAUG BROOK	21.41	N/A																S11	N/A
MAIN LINE	03943R	GREENWICH	NORTH WATER STREET	26.10	N/A				S7	N/A	S7	N/A	S6	N/A	S6	N/A					N/A	
MAIN LINE	03946R	GREENWICH	*STEAMBOAT ROAD	28.22	N/A				S10 & S13	N/A	S11 & S13	N/A	S12 & S13	N/A	S13	N/A					N/A	
MAIN LINE	08003R	GREENWICH	*DAVIS AVENUE #2	28.48	N/A				S10	N/A	S11 & S20	N/A	S12 & S20	N/A	S13 & S20	N/A					N/A	
MAIN LINE	08004R	GREENWICH	*INDIAN HARBOR	28.68	N/A				S10	N/A	S11	N/A	S12	N/A	S13	N/A					N/A	
MAIN LINE	08005R	GREENWICH	*SACHEM ROAD	29.48	N/A			N/A	S10 & S18 & S19	N/A	S9 & S11 & S19	N/A	S12 & S19	N/A	S13 & S19	N/A		N/A			N/A	
MAIN LINE	08006R	GREENWICH	*LUKES CROSSING (S. SHORE DR)	29.68	N/A				S10 & S18	N/A	S11 & S19	N/A	S12 & S19	N/A	S12 & S13 & S19	N/A					N/A	
MAIN LINE	03948R	GREENWICH	*SOUND BEACH AVENUE	31.29	N/A				S11 & S14	S11	S11	S11	S6 & S11	S11 & S14	S6, S11 & S14	N/A					N/A	
MAIN LINE	03955R	GREENWICH	*TOMAC AVENUE	31.62	N/A				S15	S15	S15	S12 & S15	S15	S12	S12 & S15	N/A					N/A	
MAIN LINE	03680R	STAMFORD	*GREENWICH AVENUE	32.81	N/A				S9 & S10	S11	S11 & S13	S8 & S12	S8, S12	S8 & S13	S8 & S13	N/A					N/A	
MAIN LINE	08012R	STAMFORD	*ATLANTIC STREET	33.19	N/A				S16 & S18 & S19	S16 & S19	S16 & S17 & S18 & S19	S17 & S18 & S19	S-18		S-18			N/A			N/A	
MAIN LINE	03678R	STAMFORD	*CANAL STREET	33.41	N/A			N/A	S9	N/A	S11	N/A	S12	N/A	S8	N/A	S15	N/A	S15		N/A	
MAIN LINE	03686R	STAMFORD	*ELM STREET	33.75	S8, S17 & S19 & S20	S20	S7,S8,S17 & S19 & S20	S20	S17 & S19 & S20	S20	S11, S17 & S19 & S20	S20	S14,S15,S17 & S19 & S20	S20	S8, S17 & S19 & S20	S20	S17 & S19 & S20	N/A			N/A	
MAIN LINE	02237R	STAMFORD	*EAST MAIN STREET (US RTE. 1)	34.17	N/A				S9, S10, S12 & S19	S12	S11 & S12	S12	S11 & S12	S12	S9, S11 & S12	S12	S12	N/A			N/A	
MAIN LINE	08013R	STAMFORD	*HAMILTON AVENUE	34.72	N/A				S10 & S13 & S20	S11 & S13	S11 & S13 & S20	S12 & S13 & S20	S12 & S13 & S20	S12 & S13	S9 & S13 & S20	S9 & S13	S13 & S20	N/A			N/A	
MAIN LINE	08014R	STAMFORD	NOROTON RIVER	35.58	N/A				S10							N/A					N/A	
MAIN LINE	08015R	DARIEN	*STATION PED. OVERPASS	36.24	N/A				S14							N/A					N/A	
MAIN LINE	04271R	DARIEN	RAYMOND STREET	38.93	N/A				S7 & S19	N/A	S7 & S18	N/A	S7, S8 & S17 & S18	N/A	S7, S8 & S16	N/A					N/A	
MAIN LINE	08022R	DARIEN	FIVE MILE RIVER	39.07	N/A										S6	N/A					N/A	
MAIN LINE	04132R	NORWALK	ROWAYTON AVENUE #1	39.11	N/A					N/A		N/A	#3088	N/A	S8	N/A					N/A	
MAIN LINE	08025R	NORWALK	*FRANKLIN STREET	40.89	N/A					S15	S15	S14 & S15	S14 & S15	S14 & S15	S15	S15		N/A			N/A	
MAIN LINE	03693R	NORWALK	*WASHINGTON & MAIN STREET	41.28	N/A				S15			S15			S15	N/A					N/A	
MAIN LINE	08028R	NORWALK	*OSBORNE AVENUE	41.96	N/A				S20		S20		S20		S20							
MAIN LINE	03691R	NORWALK	*EAST AVENUE	42.14	N/A				S9 & S13 & S20	S13 & S20	S9 & S13 & S20	S13 & S20	S9 & S13 & S20	S13 & S20	S9 & S13 & S20	N/A					N/A	
MAIN LINE	08032R	WESTPORT	*SAUGATUCK RIVER	44.32	N/A				S11	N/A	S11	N/A	S11	N/A	S11	N/A					N/A	
MAIN LINE	08035R	WESTPORT	*NEW CREEK ROAD	47.15	N/A				S7,S16 & S17	N/A	S6, S7 & S16	N/A	S7 & S16	N/A	S7,S16 & S17	N/A					N/A	
MAIN LINE	04198R	FAIRFIELD	*ROUND HILL ROAD	50.90	N/A				S12	N/A	S12	N/A	S12	N/A	S12	N/A					N/A	
MAIN LINE	08045R	FAIRFIELD	*FAIRFIELD CREEK	51.68	N/A				S14 & S20	N/A	S14 & S20	N/A	S14 & S20	N/A	S14 & S20	N/A					N/A	
MAIN LINE	03635R	BRIDGEPORT	FAIRFIELD AVENUE	53.42	N/A				S9	S8 & S9	S9		S9	S8 & S9	S9	N/A					N/A	
MAIN LINE	08048R	BRIDGEPORT	*BOSTWICK AVENUE	53.60	N/A				S9, S10 & S14	S9 & S14	S9, S10 & S14	S9 & S14	S10	S9 & S14	S9, S10 & S14	N/A					N/A	
MAIN LINE	08050R	BRIDGEPORT	*HANCOCK AVENUE	53.72	N/A				S13 & S20	S20	S13 & S20	S20	S13 & S20	S20	S13 & S20	N/A					N/A	
MAIN LINE	08050R	BRIDGEPORT	*HOWARD AVENUE	53.84	N/A				S12	N/A	S12	N/A	S12	N/A	S12	N/A					N/A	
MAIN LINE	08051R	BRIDGEPORT	*WORDIN AVENUE	54.07	N/A				S19	N/A	S19	N/A	S19	N/A	S19	N/A						
MAIN LINE	08052R	BRIDGEPORT	*IRANISTAN AVENUE	54.22	N/A				S16 & S17	N/A	S17 & S18	N/A	S17	N/A	S17	N/A					N/A	
MAIN LINE	08053R	BRIDGEPORT	*SOUTH AVENUE	54.44	N/A				S9, S14 & S15	S15	S9 & S15	S15	S9, S14 & S15	S14	S9, S14 & S15	N/A					N/A	
MAIN LINE	03638R	BRIDGEPORT	*PARK AVENUE	54.58	N/A				S17		S17 & S18		S8, S9 & S16		S16 & S17	N/A					N/A	
MAIN LINE	08054R	BRIDGEPORT	*MYRTLE AVENUE	54.70	N/A				S10,S11 & S16 & S17	S9 & S16	S9 & S17 & S18	S9&S17	S9, S10 & S11 & S17	S9 & S17	S10 & S17	N/A					N/A	
MAIN LINE	08055R	BRIDGEPORT	*WARREN STREET	54.77	N/A				S16 & S17	S18	S17 & S18	S18	S17 & S19		S17 & S19	N/A					N/A	
MAIN LINE	08056R	BRIDGEPORT	LAFAYETTE STREET	54.84	N/A				S9 & S20	N/A	S9 & S20	N/A	S9 & S20	N/A	S8 & S20	N/A					N/A	
MAIN LINE	08057R	BRIDGEPORT	*BROAD STREET	54.93	N/A				S7 & S16 & S17	S16 & S17	S7 & S17 & S18	S18	S7,S13, S17,S18 & S19		S7 & S17	N/A					N/A	
MAIN LINE	08058R	BRIDGEPORT	*MAIN STREET #1	54.98	N/A										S13	N/A					N/A	
MAIN LINE	08060R	BRIDGEPORT	*UNION STREET	55.40	N/A				S16 & S19	S16	S16	S16	S17	S17	S17,S18 & S19	N/A		N/A			N/A	
MAIN LINE	03639R	BRIDGEPORT	EAST MAIN STREET (RTE. 127)	56.20	N/A				S19	S19						N/A						
MAIN LINE	08070R	BRIDGEPORT	*PEMBROKE STREET	56.35					S15 & S20	S20	S15 & S20	S20	S14 & S15 & S20		S14 & S20	N/A					N/A	
MAIN LINE	08071R	BRIDGEPORT	*HALLETT STREET	56.46	N/A				S15 & S20	S15	S15 & S20	S20	S15 & S20	S15	S15	N/A					N/A	
MAIN LINE	08074R	BRIDGEPORT	*SEAVIEW AVENUE	56.77	N/A			S20	S12 & S15 & S20	S15 & S20	S12 & S15 & S20	S20	S12 & S15 & S20	S15 & S20	S12 & S15 & S20	N/A					N/A	
MAIN LINE	08075R	BRIDGEPORT	*BISHOP AVENUE	57.46	N/A		S9, S10 & S19 & S20	S9 & S17 & S18	S9 & S10 & S18 & S20	S10 & S17	S9 & S19 & S20	S16	S9,S10,S16 & S19 & S20	S9 & S16	S9,S10,S16 & S19 & S20	S9 & S10 & S20	S9	N/A			N/A	
MAIN LINE	08077R	STRATFORD	*BRUCE AVENUE	57.62	N/A		S18 & S20	S20	S18 & S20	S17 & S18 & S20	S17 & S20	S17 & S20	S16 & S20	S16 & S20	S16 & S20			N/A			N/A	
MAIN LINE	08078R	STRATFORD	*WEST BROAD STREET	58.72	N/A				S7 & S13 & S20	S13	S13 & S20	S13	S13	S13 & S20	S7 & S13	N/A					N/A	
MAIN LINE	08079R	STRATFORD	*KING STREET	58.88	N/A				S12	S12	S12	S12	S12	S12	S12	N/A					N/A	
MAIN LINE	01318R	STRATFORD	*MAIN STREET (RTE. 113)	59.01	N/A				S8 & S13 & S18	S7 & S13 & S18	S7,S13, S19	S7,S13 & S19 & S20	S6, S7 & S13 & S20	S7 & S13 & S20	S6 & S13 & S20	N/A					N/A	
MAIN LINE	01312R	STRATFORD	*EAST MAIN STREET (RT 110)	59.96	N/A		S19	N/A	S19	S19						N/A						
MAIN LINE	08084R	MILFORD	*GULF STREET	63.83	N/A				S18	N/A	S19	N/A	S19	N/A		N/A						
MAIN LINE	08090R	MILFORD	DEPOT ROAD	66.66	N/A				S6	N/A	S6	N/A	S6	N/A	S6	N/A					N/A	
MAIN LINE	08093R	WEST HAVEN	MORGAN LANE	68.11	N/A					N/A		N/A		N/A			S10	N/A			N/A	
MAIN LINE	08097R	WEST HAVEN	*CAMPBELL AVENUE	70.19	N/A				S13 & S16	N/A	S13	N/A	S13	N/A			S13	N/A			N/A	
MAIN LINE	08098R	WEST HAVEN	*WASHINGTON AVENUE	70.36	N/A				S14 & S20	S14 & S20	S14 & S20	S14 & S20	S14 & S20	S14 & S20	N/A		S14 & S20	N/A			N/A	
NEW CANAAN	01302R	NEW CANAAN	OLD STAMFORD ROAD	6.16	N/A																S6	N/A
NEW CANAAN	08154R	NEW CANAAN	*WATERWAY	7.00	N/A								S17 & S18 &19	N/A							S17	N/A
WATERBURY	08254R	MILFORD	BEARDS FARMWAY	4.55	N/A																S6 & S7	N/A
WATERBURY	08262R	DERBY	*NAUGATUCK RIVER	8.62	N/A																S12	S12
WATERBURY	08264R	ANSONIA	*NAUGATUCK RIVER	10.30	N/A								S18	N/A								
WATERBURY	08265R	ANSONIA	*TAIL RACE	10.55	N/A																S12	N/A
WATERBURY	08267R	ANSONIA	*SPILLWAY	11.36	N/A																S13	--
WATERBURY	08268R	SEYMOUR	*CANAL	12.57	N/A																S14&S15	N/A
WATERBURY	08270R	SEYMOUR	*JAMES ST. FOOTBRIDGE	14.45	N/A																S10	--
WATERBURY	08272R	SEYMOUR	*NAUGATUCK RIVER	14.64	N/A																#5265	N/A
WATERBURY	04224R	NAUGATUCK	*MAPLE STREET	21.74	N/A								S20	N/A								
WATERBURY	08284R	NAUGATUCK	*BRIDGE STREET	22.74	N/A																S14	N/A
WATERBURY	03723R	WATERBURY	*BRISTOL STREET	24.10	N/A								S20	N/A								
WATERBURY	04232R	WATERBURY	*WASHINGTON AVE #1	26.18	N/A																S6&S16	--
WATERBURY	08287R	WATERBURY	JACKSON STREET	26.50	N/A								S20	N/A								

PROGRAM	S6	S7	S8	S9	S10	S11	S12	S13	S14	S15	S16	S-17	S-18	S-19	S-20
FISCAL YEAR	96-97	97-98	98-99	99-00	00-01	01-02	02-03	03-04	04-05	05-06	06-07	06-07	08-09	09-10	11-12

* CADD FILES ON CONNDOT'S FILE

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APPENDIX 16
LIST OF RAILROAD BRIDGES AND MICROFILM AVAILABILITY

APPENDIX 16

LIST OF RAILROAD BRIDGES SORTED BY STATE BRIDGE NUMBER AND MICROFILM AVAILABILITY (SHADING AREA)

	R	RAILROAD	TRACK CHART NAME	TOWN	DT	ST. BRID. NO.	TYPE	LOCATION	TRK MI	RR. NO.	OLD NO.	RTE	RTE. MI	BR TYP	DECK	TK	SP	LGN	YR BLT	REMARKS	PLAN #	PLAN TYPE	COMMENTS	LOCATION
		METRO-NORTH	MAINLINE	BRIDGEPORT	3	00105A	H	CT TURNPIKE I-95	54.4	54.4	54.39	95	28.5	IB		4	23	2134	1958/69					
		METRO-NORTH	WATERBURY BRANCH	WATERBURY	4	03191A	H	CONN ROUTE 84 EAST	26.74	26.74	27.1	84	32.02	IB		1	46	3766	1967					
		METRO-NORTH	WATERBURY BRANCH	WATERBURY	4	03191B	H	CONN ROUTE 84 WEST	26.74	26.74	27.1	84	32.09	IB		1	30	2461	1967/91					
		METRO-NORTH	MAINLINE	GREENWICH	3	14	H	CT TURNPIKE I-95	29.58	29.58	29.59	95	4.02	DG		4	2	185	1958					
	OT	METRO-NORTH	MAINLINE	STAMFORD	3	32	H	CT TURNPIKE I-95 NO.	33.97	33.97	33.97	95	8.4	TG		4	13	1065	1958					
	AMTRAK	METRO-NORTH	MAINLINE	STAMFORD	3	32	H	CT TURNPIKE I-95 SO.	34.02	34.02	34.02	95	8.4	TG		4	13	1065	1958					
BOX 1	BRANFORD	METRO-NORTH	MAINLINE	DARIEN	3	**46**	H	CT TURNPIKE I-95	38.12	38.12	38.08	95	12.28	IB		4	3	195	1954					1
	AMTRAK	METRO-NORTH	DANBURY BRANCH	NORWALK	3	58	H	CT TURNPIKE I-95	0.54	0.54	0.54	95	15.7	DG		1	3	310	1957					
	CONNDOT	METRO-NORTH	MAINLINE	BRIDGEPORT	3	99	H	CT TURNPIKE I-95	53.27	53.27	53.28	95	27.5	DG		4	1	90	1958					
	AMTRAK	METRO-NORTH	MAINLINE	BRIDGEPORT	3	111	H	CT TURNPIKE I-95	55.39	55.39	55.35	95	29.33	DG		4	23	2491	1958					
	AMTRAK	METRO-NORTH	MAINLINE	MILFORD	3	137	H	CT TURNPIKE I-95	61.46	61.46	61.64	95	35.61	DG		4	3	264	1957					
	CONNDOT	METRO-NORTH	MAINLINE	WEST HAVEN	3	162	H	CT TURNPIKE I-95	70.85	70.85	70.85	95	45.42	IB		4	6	466	1957					
BOX 1	CONNDOT	METRO-NORTH	MAINLINE	DARIEN	3	**316R**	U	BOSTON POST ROAD US 1	37.82	37.82	37.8	1	11.57	TG	OD	4	3	80	1894	300-003				1
	CONNDOT	METRO-NORTH	MAINLINE	STRATFORD	3	326	H	BARNUM AVENUE US 1	59.47	59.47	59.47	1	34.52	TG		4	3	251	1932					
	CONNDOT	METRO-NORTH	MAINLINE	NEW HAVEN	3	333	H	OAK STREET CONNECTOR	72.47	72.47	72.47	34	23.69	DG		4	3	689	1960					
BOX 1	AMTRAK	METRO-NORTH	MAINLINE	NEW HAVEN	3	**334**	H	WATER STREET US 1	72.49	72.49	72.49	1	48.05	TT		8	1	167						
	CONNDOT	METRO-NORTH	WATERBURY BRANCH	DERBY	4	574	H	SUBURBAN PROPANE SPR	9.25	9.25	9.25	8	13.19	IB		1	1	61	1951/85					
	CONNDOT	METRO-NORTH	WATERBURY BRANCH	SEYMOUR	4	588	H	CONN ROUTE 8	14.62	14.62	14.55	8	18.5	IB		1	24	1725	1961					
	AMTRAK	METRO-NORTH	WATERBURY BRANCH	NAUGATUCK	4	596	H	CONN ROUTE 68	22.83	22.83	22.78	68	0.45	PC		1	6	558	1960					
BOX 1	CONNDOT	METRO-NORTH	DANBURY BRANCH	NORWALK	3	**720**	H	MERRITT PARKWAY RT 15	3.41	3.41	3.35	15	17.46	CA		1	1	44	1937					
	CONNDOT	METRO-NORTH	WATERBURY BRANCH	MILFORD	3	761	H	MERRITT PARKWAY	3.03	3.03	3	15	37.27	DG		1	12	1829	1940					
	AMTRAK	METRO-NORTH	DANBURY BRANCH	WILTON	3	941	H	RIDGFIELD ROAD RT 33	7.29	7.29	7.29	33	7.19	TG		1	5	345	1940					
BOX 1	AMTRAK	METRO-NORTH	WATERBURY BRANCH	DERBY	4	**946**	H	MAIN STREET RT. 34	8.91	8.91	8.85	34	14.12	IB	OD	1	1	42	1951					
	CONNDOT	METRO-NORTH	WATERBURY BRANCH	NAUGATUCK	4	1034	H	CONN ROUTE 63	21.39	21.39	21.45	63	14.5			2	6	586	1961					
	AMTRAK	METRO-NORTH	WATERBURY BRANCH	SEYMOUR	4	1063	U	MAIN STREET	14.61	14.61	14.54	67	26.74	TG	OD	1	2	60	1906	300-003		FLAT, ROLL		
	CONRAIL	METRO-NORTH	DANBURY BRANCH	REDDING	3	1304	H	REDDING ROAD	11.79	11.79	11.79	107	0.25	IB		1	2	119	1954					
BOX 1	CONNDOT	METRO-NORTH	MAINLINE	WEST HAVEN	3	**1332**	H	FIRST AVENUE	70.67	70.67	70.67	745	0.2	PC		4	1	72	1967					
BOX 1	CONNDOT	METRO-NORTH	WATERBURY BRANCH	ANSONIA	4	**1592**	H	MAPLE STREET RT. 334	10.75	10.75	10.68	334	4.31	IB		1	6	439	1958					
	PRIVATE	METRO-NORTH	MAINLINE	WESTPORT	3	1613	H	SHERWOORD ISLAND CON.	46.25	46.25	46.25	476	0.22	IB		4	1	71	1957					
BOX 1	AMTRAK	METRO-NORTH	WATERBURY BRANCH	ANSONIA	4	**1661**	H	BRIDGE STREET	10.44	10.44	10.38	727	1.07	IB		1	4	393	1960					
	AMTRAK	METRO-NORTH	WATERBURY BRANCH	WATERBURY	4	3178	H	CONN ROUTE 8 SOUTH	24.73	24.73	24.92	8	28.05	DG		1	5	695	1966					
	CONNDOT	METRO-NORTH	WATERBURY BRANCH	WATERBURY	4	3179	H	CONN ROUTE 8 NORTH	24.73	24.73	24.95	8	28.08	DG		1	5	704	1966					
	CONNDOT	METRO-NORTH	WATERBURY BRANCH	BEACON FALLS	4	3432	H	PINE'S BRIDGE ROAD	16.77	16.77	16.71	42	2.8	IB		1	7	565	1966					
	P& W	METRO-NORTH	DANBURY BRANCH	NORWALK	3	3563	H	US ROUTE 7 NO. AT I-95	0.58	0.58	0.58	7	0.01	DG		1	3	270	1970	TURNING ROADWAY				
BOX 1	CVRR	METRO-NORTH	MAINLINE	MILFORD	3	**3641**	A	NAUGATUCK AVENUE	60.7	60.7	60.74			TG		4	2	99	1962					
BOX 1	CONNDOT	METRO-NORTH	WATERBURY BRANCH	MILFORD	3	**3642**	A	NAUGATUCK AVENUE	0.08	0.08	0.07			TG		1	1	50	1911	EAST WYE TRACK				
BOX 1	CVRR	METRO-NORTH	MAINLINE	ORANGE	3	**3643**	A	OXFORD ROAD	67	67	66.77			PC		4	1	78	1893					
BOX 1	AMTRAK	METRO-NORTH	MAINLINE	MILFORD	3	**3646**	A	SCHOOLHOUSE ROAD	61.76	61.76	61.91			TG		4	1	78	1893					
BOX 1	CONNDEP	METRO-NORTH	MAINLINE	GREENWICH	3	**3674**	A	BYRAM ROAD	26.33	26.33	26.35			TT		4	1	74	1892					
	MAYBROOK	METRO-NORTH	MAINLINE	GREENWICH	3	3675	A	INDIAN FIELD ROAD	29.29	29.29	29.3			TG		4	1	71	1893					
BOX 1	CONNDOT	METRO-NORTH	MAINLINE	DARIEN	3	**3694**	A	NOROTON AVENUE	36.56	36.56	36.56			TG		4	1	57	1893					
BOX 1	B & M	METRO-NORTH	MAINLINE	STRATFORD	3	**3751**	A	LONGBROOK AVENUE	59.51	59.51	59.54			TG		4	1	75	1893					
BOX 1	MAYBROOK	METRO-NORTH	MAINLINE	MILFORD	3	**3840**	A	CLARK STREET	62.71	62.71	62.82			TG		4	1	56	1893					
BOX 1	CONNDOT	METRO-NORTH	MAINLINE	GREENWICH	3	**3846**	A	DRINKWATER PLACE	30.77	30.77	30.77			TT		4	1	83	1895					
BOX 1	MAYBROOK	METRO-NORTH	MAINLINE	DARIEN	3	**3847**	A	HOLLOW TREE RIDGE RD	36.12	36.12	36.12			TG		4	1	56	1893					
BOX 1	CONNDOT	METRO-NORTH	MAINLINE	NORWALK	3	**3849**	A	LOWE STREET	40.8	40.8	40.78			TT		4	1	73	1938					
BOX 1	MAYBROOK	METRO-NORTH	MAINLINE	NORWALK	3	**3850**	A	BRIDGE STREET	42.65	42.65	42.67			TT		4	1	68	1891					
	CONNDOT	METRO-NORTH	MAINLINE	NORWALK	3	3851	A	TRIANGLE STREET	42.81	42.81	42.83			PC		4	3	136	1967					
BOX 1	MAYBROOK	METRO-NORTH	MAINLINE	WESTPORT	3	**3852**	A	HALES ROAD	45.12	45.12	45.09			TT		4	1	56	1890					
	CONNDEP	METRO-NORTH	MAINLINE	WESTPORT	3	3854	A	SASCO CREEK ROAD	47.88	47.88	47.85			TT		4	1	65	1890					
BOX 1	MAYBROOK	METRO-NORTH	MAINLINE	BRIDGEPORT	3	**3860**	A	CENTRAL AVENUE	56.92	56.92	56.8			TG		4	3	161	1903					
BOX 1	CONNDOT	METRO-NORTH	MAINLINE	MILFORD	3	**3862**	A	DORSEY LANE	62.36	62.36	62.42			TG		4	1	55	1893					
BOX 1	CONNDOT	METRO-NORTH	MAINLINE	NEW HAVEN	3	**3867**	A	HOWARD AVENUE	71.74	71.74	71.74			TG		4	2	77				ROLL		
BOX 1	B & M	METRO-NORTH	MAINLINE	NEW HAVEN	3	**3868**	A	CEDAR STREET	71.87	71.87	71.87			TG		4	3	140	1963					
BOX 1	CONNDOT	METRO-NORTH	MAINLINE	NEW HAVEN	3	**3870**	A	FAIR STREET	72.58	72.58	72.58			CA		4	4	145						
BOX 1	AMTRAK	METRO-NORTH	MAINLINE	NEW HAVEN	3	**3871**	A	CROWN STREET	72.63	72.63	72.63			CA		4	5	194						
BOX 1	B & M	METRO-NORTH	MAINLINE	NEW HAVEN	3	**3872**	A	CHAPEL STREET	72.71	72.71	72.71			CA		4	5	170						
BOX 1	CONNDOT	METRO-NORTH	MAINLINE	NEW HAVEN	3	**3873**	A	COURT STREET	72.8	72.8	72.8			CA		4	4	156		AMTRAK (SPRG) 0.56				
	CONNDOT	METRO-NORTH	MAINLINE	NEW HAVEN	3	3874	A	GRAND AVENUE	72.94	72.94	72.94			CA		2	3	150	1907	AMTRAK (SPRG) 0.68				
	CONRAIL	METRO-NORTH	MAINLINE	BRIDGEPORT	3	3964	H	TRANSPORTATION CNTR.	55.19	55.19	55.2													
BOX 1	CONRAIL	METRO-NORTH	WATERBURY BRANCH	WATERBURY	4	**4002**	A	SOUTH LEONARD STREET	25.17	25.17	25.37			TG		1	1	55	1929					
	AMTRAK	METRO-NORTH	MAINLINE	WEST HAVEN	3	4006	A	ALLINGS CROSSING	68.85	68.85	68.74			IB		4	3	181	1970					
BOX 1	AMTRAK	METRO-NORTH	MAINLINE	NEW HAVEN	3	**4008**	H	ELLA GRASSO BLVD.	71.35	71.35	71.35	10	0.42	DG		4	1	80	1977	CONRAIL (42CC) 0.93				
BOX 1	CONNDOT	METRO-NORTH	MAINLINE	NEW HAVEN	3	**4025**	A	DEWITT STREET	71.66	71.66	71.66			TG		4	1	77	1914			ROLL		
BOX 1	MAYBROOK	METRO-NORTH	MAINLINE	NEW HAVEN	3	**4027**	A	LAMBERTON STREET	71.6	71.6	71.6			TG		4	2	161	1962					
	CVRR	METRO-NORTH	DANBURY BRANCH	NORWALK	3	4046	A	BURNELL STREET	1.53	1.53	1.53			PC		1	3	276	1965					
	B & M	METRO-NORTH	DANBURY BRANCH	NORWALK	3	4048	A	WALL STREET	1.47	1.47	1.47			IB		1	2	58	1946	TUNNEL				
BOX 1	B & M	METRO-NORTH	DANBURY BRANCH	WILTON	3	**4261**	A	WOLFPIT ROAD WESTBND	6.25	6.25	6.25			DT		1	1	86	1979	WESTBOUND				
	CONNDOT	METRO-NORTH	DANBURY BRANCH	WILTON	3	4342	A	WOLFPIT ROAD EASTBND	6.25	6.25	6.25			DT		1	1	86	1979	EASTBOUND				
BOX 1	CONNDOT	METRO-NORTH	MAINLINE	FAIRFIELD	3	**4354**	A	MILL HILL RD	49.42	49.42	49.42			PC		4	1	79	1982					
	P& W	METRO-NORTH	MAINLINE	WESTPORT	3	4357	A	BEACHSIDE AVENUE	46.94	46.94	46.94			DG		4	1	108	1982					
	B & M	METRO-NORTH	WATERBURY BRANCH	BEACON FALLS	4	4384	H	CONN ROUTE 8	17.29	17.29		8	21.31	PC		1	1	183	1981					
	AMTRAK	METRO-NORTH	WATERBURY BRANCH	BEACON FALLS	4	4386	H	CONN ROUTE 8SB	18.2	18.2	17.48	8	21.99	IB		1	3	536	1981					
BOX 1	AMTRAK	METRO-NORTH	WATERBURY BRANCH	BEACON FALLS	4	**4387**	H	CONN ROUTE 8NB	18.17	18.17	18.37	8	21.99	IB		1	3	536	1981					
BOX 1	AMTRAK	METRO-NORTH	MAINLINE	STAMFORD	3	**4398**	H	COURTLAND AVENUE	35.22	35.22	35.21	106	0.76	DG		4	3	213	1982					
	B & M	METRO-NORTH	MAINLINE	STAMFORD	3	4399	H	COURTLAND AVE. SPUR	35.22	35.22	35.21	106	0.84	PC		1	1	52	1975					
BOX 1	MAYBROOK	METRO-NORTH	DANBURY BRANCH	REDDING	4	**5225**	A	SIMPAUG TURNPIKE	16.21	16.21	16.21			IB		1	2	97	1909/80					1
BOX 1	B & M	METRO-NORTH	DANBURY BRANCH	WILTON	3	**5260**	H	US ROUTE 7	7.87	7.87	7.87	7	7.89	PC		1	1	84	1983					
BOX 1	PRIVATE	METRO-NORTH	MAINLINE	NORWALK	3	**5304**	A	HIGHLAND AVENUE	39.72	39.72	38.72			IB		4	1	133	1982					
	AMTRAK	METRO-NORTH	MAINLINE	NORWALK	3	5333	A	M.L. KING JR. DRIVE	40.73	40.73	40.73			IB		4	1	107	1972					
BOX 1	B & M	METRO-NORTH	MAINLINE	FAIRFIELD	3	**5432**	A	BLACK ROCK TURNPIKE	52.52	52.52	52.56			PC		4	2	114	1987	BLACK ROCK TPK.				
BOX 1	AMTRAK	METRO-NORTH	MAINLINE	WESTPORT	3	**5573**	A	HILLS POINT ROAD	45.51	45.51	45.48			DG		4	1	60	1988					
BOX 1	B & M	METRO-NORTH	MAINLINE	FAIRFIELD	3	**5646**	A	GRASMERE BAVENUE	51.86	51.86	51.83			PC		4	1	63	1988					
BOX 1	CONRAIL	METRO-NORTH	MAINLINE	MILFORD	3	**5746**	A	WOODMONT ROAD	65.99	65.99	66.02			DG		4	1	138	1987	WOODMONT RD.				
BOX 1	AMTRAK	METRO-NORTH	MAINLINE	FAIRFIELD	3	**5788**	A	UNQUOWA ROAD	50.61	50.61	50.62			PC		4	3	231	1989					
BOX 1	AMTRAK	METRO-NORTH	MAINLINE	FAIRFIELD	3	**5794**	H	KINGS HGHWAY US 1	51.63	51.63	51.6	1	26.14	PC		4	3	152	1989					
BOX 1	B & M	METRO-NORTH	MAINLINE	STAMFORD	3	**5795**	A	SELLECK STREET	32.36	32.36	32.37			DG		4	1	110	1919/89					
BOX 1	B & M	METRO-NORTH	MAINLINE	GREENWICH	3	**5808**	A	RIVERSIDE AVENUE	30.25	30.25	30.26			DG		4	3	171	1989					
BOX 1	MAYBROOK	METRO-NORTH	MAINLINE	MILFORD	3	**5809**	H	BOSTON POST ROAD US 1	62.28	62.28	62.34	1	37.46	PC		4	3	183	1988					
BOX 1	P& W	METRO-NORTH	WATERBURY BRANCH	BEACON FALLS	4	**6018**	A	LOPUS ROAD	18.02	18.02	18.12			PC		1	1	63	1991					
BOX 1	CONRAIL	METRO-NORTH	MAINLINE	FAIRFIELD	3	**6211**	H	BOSTON POST ROAD US 1	49.35	49.35	49.34	1	23.63	DG		4	2	288	1992					
BOX 1	CONNDOT	METRO-NORTH	MAINLINE	DARIEN	3	**00316R**	U	BOSTON POST ROAD US 1	37.82	37.82	37.8	1	11.57	TG	OD	4	3	80	1894	300-003 170-1375	17			

SHADING=BRIDGES IN MICROFILM

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LIST OF RAILROAD BRIDGES SORTED BY STATE BRIDGE NUMBER

BOX #	OWNER	RAILROAD	TRACK CHART NAME	TOWN	DT	ST. BRID. NO.	TYPE	LOCATION	TRK MI	RR. NO.	OLD NO.	RTE	RTE. MI	BR TYP	DECK	TK	SP	LGN	YR BLT	REMARKS	PLAN #	PLAN TYPE	COMMENTS	LOCATION
BOX 1	CONNDOT	METRO-NORTH	NEW CANAAN	NEW CANAAN	3	00710R	U	MERRITT PARKWAY	5.76	5.76	5.76	15	13.32	CA	CS	1	2	64	1937		42	FLAT, ROLL		
BOX 1	CONNDOT	METRO-NORTH	DANBURY BRANCH	BETHEL	4	01020R	U	GRASSY PLAIN ROAD	19.64	19.64	19.64	53	19.02	TG	OD	1	1	39	1909	300-003				
	CONNDOT	METRO-NORTH	WATERBURY BRANCH	SEYMOUR	4	01063R	U	MAIN STREET	14.61	14.61	14.54	67	26.74	TG	OD	1	2	60	1906	300-003		FLAT, ROLL		
BOX 1	CONNDOT	METRO-NORTH	NEW CANAAN	NEW CANAAN	3	01302R	U	OLD STAMFORD ROAD	6.16	6.16	6.16	106	4.91	TG	OD	1	1	52	1906	300-003				
BOX 1	CONNDOT	METRO-NORTH	MAINLINE	STRATFORD	3	01312R	U	EAST MAIN STREET	59.96	59.96	59.99	110	0.2	TG	OD	5	1	44	1905	300-003	37	ROLL		
	CONNDOT	METRO-NORTH	MAINLINE	STRATFORD	3	01318R	U	MAIN STREET	59.01	59.01	59.04	113	6.13	TG	OD	4	3	69	1893	300-003				
	CONNDOT	METRO-NORTH	WATERBURY BRANCH	SEYMOUR	4	01321R	U	MAIN STREET	14.29	14.29	14.23	115	5.34	TG	OD	1	2	64	1906	300-003	43			1
BOX 1	CONNDOT	METRO-NORTH	MAINLINE	FAIRFIELD	3	01344R	U	NORTH BENSON ROAD	51.12	51.12	51.09	135	0.05	TG	CS	4	1	33	1940	050-199				
Box 1	CONNDOT	METRO-NORTH	MAINLINE	WESTPORT	3	01348R	U	SAUGATUCK AVENUE	43.97	43.97	43.97	136	8.16	TG		4	1	42	1913/40					
BOX 1	CONNDOT	METRO-NORTH	MAINLINE	WEST HAVEN	3	01403R	U	SAW MILL ROAD	69.66	69.66	69.66	162	8.46	TG	CS	4	1	61	1962					
BOX 1	CONNDOT	METRO-NORTH	MAINLINE	STAMFORD	3	02237R	U	MAIN STREET US 1	34.17	34.17	34.16	1	8.02	TG	OD	5	3	105	1896					1
BOX 1	CONNDOT	METRO-NORTH	MAINLINE	BRIDGEPORT	3	03635R	U	FAIRFIELD AVENUE	53.42	53.42	53.43			TG	OD	4	3	102	1895	300-003	25			1
BOX 1	CONNDOT	METRO-NORTH	MAINLINE	BRIDGEPORT	3	03636R	U	STRATFORD AVENUE	55.61	55.61	55.56			TG		4	4	165	1903	015-147				
BOX 1	CONNDOT	METRO-NORTH	MAINLINE	BRIDGEPORT	3	03638R	U	PARK AVENUE	54.58	54.58	54.55			TG	OD	4	3	98	1900		28	FLAT	with 03680R, 03638R, and 08056R	1
	CONNDOT	METRO-NORTH	MAINLINE	BRIDGEPORT	3	03639R	U	EAST MAIN STREET	56.2	56.2	56.19			TG	OD	4	3	68	1902		54			1
BOX 1	CONNDOT	METRO-NORTH	MAINLINE	MILFORD	3	03640R	U	HIGH STREET	63.27	63.27	63.31			TG	OD	4	3	57	1894	300-003 170-1509	38	FLAT		1
BOX 1	CONNDOT	METRO-NORTH	MAINLINE	MILFORD	3	03644R	U	RIVER STREET	63.44	63.44	63.45			TG	OD	4	3	80	1894	170-1375 300-003	39	FLAT		1
BOX 1	CONNDOT	METRO-NORTH	MAINLINE	GREENWICH	3	03673R	U	ARCH STREET	28.06	28.06	28.07			DG	OD	4	1	55	1895	056-248 SPRING96 300-003		FLAT, ROLL		
BOX 1	CONNDOT	METRO-NORTH	MAINLINE	STAMFORD	3	03678R	U	CANAL STREET	33.41	33.41	33.4			DG	OD	7	1	65	1896			FLAT	with 03680R, 03638R, and 08056R	
BOX 1	CONNDOT	METRO-NORTH	MAINLINE	STAMFORD	3	03680R	U	GREENWICH AVENUE	32.81	32.81	32.8			TG	OD	4	3	70	1896		49	FLAT	with 03678R, 03638R, and 08056R	1
BOX 1	CONNDOT	METRO-NORTH	MAINLINE	STAMFORD	3	03683R	U	WASHINGTON BLVD.	32.97	32.97	32.97			TG	OD	6	4	100	1896	135-206 SUMMER 1995		FLAT	No. 1 Flat, No. 2 Flat	1
BOX 1	CONNDOT	METRO-NORTH	MAINLINE	STAMFORD	3	03686R	U	ELM STREET	33.75	33.75	33.76			DG	OD	8	3	61	1896					1
BOX 1	CONNDOT	METRO-NORTH	MAINLINE	NORWALK	3	03691R	U	EAST AVENUE	42.14	42.14	42.14			TG	OD	4	1	41	1905	170-1375 300-003	20	ROLL		1
BOX 1	CONNDOT	METRO-NORTH	MAINLINE	NORWALK	3	03692R	U	STRAWBERRY HILL AVE.	42.35	42.35	42.37			TG	IP	4	1	33	1940					
BOX 1	CONNDOT	METRO-NORTH	MAINLINE	NORWALK	3	03693R	U	WASHINGTON/MAIN STS	41.28	41.28	41.28			TT	OD	4	1	146	1896	300-003 170-1375		FLAT		1
BOX 1	CONNDOT	METRO-NORTH	WATERBURY BRANCH	WATERBURY	4	03723R	U	BRISTOL STREET # 1	24.1	24.1	24.3			TG	OD	1	1	44	1918		46			2
BOX 1	CONNDOT	METRO-NORTH	MAINLINE	GREENWICH	3	03943R	U	NORTH WATER STREET	26.1	26.1	26.12			DG	OD	4	1	44	1892	300-003	10	FLAT, ROLL		2
BOX 1	CONNDOT	METRO-NORTH	MAINLINE	GREENWICH	3	03945R	U	HAMILTON AVENUE	26.79	26.79	26.8			TG	OD	4	1	27	1893	170-1375	11	FLAT		2
BOX 1	CONNDOT	METRO-NORTH	MAINLINE	GREENWICH	3	03946R	U	STEAMBOAT ROAD	28.22	28.22	28.22			DG	OD	4	1	56	1895	GREENWICH AVENUE 300-003				2
BOX 1	CONNDOT	METRO-NORTH	MAINLINE	GREENWICH	3	03947R	U	FIELD POINT ROAD	27.77	27.77	27.78			SA		4	1	40	1895					
BOX 1	CONNDOT	METRO-NORTH	MAINLINE	GREENWICH	3	03948R	U	SOUND BEACH AVENUE	31.29	31.29	31.29			IB	CS	4	2	56	1929					
BOX 1	CONNDOT	METRO-NORTH	MAINLINE	GREENWICH	3	03955R	U	TOMAC AVENUE	31.61	31.61	31.62			TG	OD	4	1	33	1895	300-003	14, 48			
BOX 1	CONNDOT	METRO-NORTH	MAINLINE	WESTPORT	3	03963R	U	COMPO ROAD	44.7	44.7	44.67			TG		4	1	40	1941					
BOX 1	CONNDOT	METRO-NORTH	MAINLINE	NORWALK	3	04131R	U	FORT POINT STREET	-41.78	41.79	41.82			IB	CS	4	1	37	1941	300-003				
BOX 1	CONNDOT	METRO-NORTH	MAINLINE	NORWALK	3	04132R	U	ROWAYTON AVENUE # 1	39.12	39.12	39.11			DG	OD	4	1	30	1893		19			2
BOX 1	CONNDOT	METRO-NORTH	DANBURY BRANCH	NORWALK	3	04134R	U	MARSHALL STREET	0.11	0.11	0.11			DG	OD	1	1	49	1895					
BOX 1	CONNDOT	METRO-NORTH	MAINLINE	DARIEN	3	04142R	U	LEROY AVENUE # 1	37.59	37.59	37.59			DG	OD	4	1	29	1894		16			2
BOX 1	CONNDOT	METRO-NORTH	MAINLINE	FAIRFIELD	3	04197R	U	MILL PLAIN ROAD	50.29	50.29	50.3			TG	CS	4	1	39	1941					
BOX 1	CONNDOT	METRO-NORTH	MAINLINE	FAIRFIELD	3	04198R	U	ROUND HILL ROAD	50.9	50.9	50.88			TG	CS	4	1	33	1940		24			2
BOX 1	CONNDOT	METRO-NORTH	MAINLINE	FAIRFIELD	3	04200R	U	CENTER STREET	48.81	48.81	48.83			TG	CS	4	1	33	1940					
BOX 1	CONNDOT	METRO-NORTH	WATERBURY BRANCH	NAUGATUCK	4	04224R	U	MAPLE STREET	21.74	21.74	21.73			TG	OD	1	1	66	1913					
BOX 1	CONNDOT	METRO-NORTH	WATERBURY BRANCH	WATERBURY	4	04232R	U	WASHINGTON AVENUE # 1	26.18	26.18	26.38			TG	OD	1	1	63	1926					
	CONNDOT	METRO-NORTH	WATERBURY BRANCH	WATERBURY	4	04235R	U	BANK'S STREET # 1	26.35	26.35	26.63			TG	OD	2	1	78						
	CONNDOT	METRO-NORTH	MAINLINE	DARIEN	3	04271R	U	RAYMOND STREET	38.93	38.93	38.93			DG		4	1	27	1894	300-003				
BOX 1	CONNDOT	METRO-NORTH	MAINLINE	NORWALK	3	04288R	M	NORWALK RIVER	41.51	41.51	41.47			DT		4	4	462	1896	WALK MOV BR-SWING	58	FLAT	with 08080R, 08008R, and 08034R	2
BOX 2	CONNDOT	METRO-NORTH	MAINLINE	GREENWICH	3	08000R	U	STATION UNDERPASS	26.79	26.79	26.79			CP		4	1	8	1936					
	CONNDOT	METRO-NORTH	MAINLINE	GREENWICH	3	08001R	U	CULVERT AT FIELD PT RD	27.77	27.77	27.78			SA		4	1	12	1895					
BOX 2	CONNDOT	METRO-NORTH	MAINLINE	GREENWICH	3	08002R	Z	PEDESTRIAN FOOTBRDG	28.16	28.16	28.16			TG		4	1	54	1904		12			2
BOX 2	CONNDOT	METRO-NORTH	MAINLINE	GREENWICH	3	08003R	U	DAVIS AVENUE # 2	28.48	28.48	28.49			DG	OD	4	1	34	1894					
	CONNDOT	METRO-NORTH	MAINLINE	GREENWICH	3	08004R	U	INDIAN HARBOR	28.68	28.68	28.68			DG	OD	4	1	64	1895	300-003				2
BOX 2	CONNDOT	METRO-NORTH	MAINLINE	GREENWICH	3	08005R	U	SACHEM ROAD	29.48	29.48	29.5			DG	OD	6	1	28	1893					
	CONNDOT	METRO-NORTH	MAINLINE	GREENWICH	3	08006R	U	LUKES CROSSING	29.68	29.68	29.69			DG		4	1	36						
	CONNDOT	METRO-NORTH	MAINLINE	GREENWICH	3	08007R	S	COAL SIDING TRESTLE	29.8	29.8	29.8			TI		1	30	360		ABANDONED				
BOX 2	CONNDOT	METRO-NORTH	MAINLINE	GREENWICH	3	08008R	M	MIANUS RIVER	29.9	29.9	29.91			DG		4	15	1089	1904	COB MOV BR BASCULE	13, 47, 58	FLAT, ROLL	with 08080R, 04288R, and 08033R	2
BOX 2	CONNDOT	METRO-NORTH	MAINLINE	GREENWICH	3	08009R	U	ARCH STREET # 2	31.03	31.04	31.04			SA		4	1	14	1895	300-003		FLAT		
	CONNDOT	METRO-NORTH	MAINLINE	GREENWICH	3	08010R	U	STREAM	31.12	31.12	31.13			SA		4	1	10						
	CONNDOT	METRO-NORTH	MAINLINE	STAMFORD	3	08011R	U	RIPPAWAM RIVER	32.84	32.84	32.85			DT		4	1	120	1896					2
BOX 2	CONNDOT	METRO-NORTH	MAINLINE	STAMFORD	3	08012R	U	ATLANTIC STREET	33.19	33.19	33.18			TG	OD	5	2	75	1896		15	FLAT		2
BOX 2	CONNDOT	METRO-NORTH	MAINLINE	STAMFORD	3	08013R	U	HAMILTON AVENUE	34.72	34.72	34.71			TG	OD	5	2	51	1896					2
BOX 2	CONNDOT	METRO-NORTH	MAINLINE	STAMFORD	3	08014R	U	NOROTON RIVER	35.58	35.58	35.58			BA		4	1	27	1894			FLAT	with 08036R, 08086R, and 08202R	2
	CONNDOT	METRO-NORTH	MAINLINE	DARIEN	3	08015	Z	PEDESTRIAN BRIDGE	36.24	36.24	36.24			TG		4	1	72	1972	NOROTON HEIGHTS				
BOX 2	CONNDOT	METRO-NORTH	MAINLINE	DARIEN	3	08016R	U	STONY BROOK	37.16	37.16	37.16			SA		4	1	10	1893					
BOX 2	CONNDOT	METRO-NORTH	MAINLINE	DARIEN	3	08017R	U	CUMMINGS BROOK	37.36	37.36	37.36			SA		4	1	6	1893					
BOX 2	CONNDOT	METRO-NORTH	MAINLINE	DARIEN	3	08018R	U	GOOD WIVES RIVER	38	38	37.98			IB	CS	4	1	19	1946					
	CONNDOT	METRO-NORTH	MAINLINE	DARIEN	3	08019R	U	STREAM	38.36	38.36				SB		4	1	3		2.5' X 3' BOX				
	CONNDOT	METRO-NORTH	MAINLINE	DARIEN	3	08020R	U	STREAM	38.53	38.53				SB		4	2	5		TWIN 2.5' X 3' BOX				
	CONNDOT	METRO-NORTH	MAINLINE	DARIEN	3	08021R	U	STREAM	38.68	38.68	38.68			SA		4	1	6	1893					
BOX 2	CONNDOT	METRO-NORTH	MAINLINE	DARIEN	3	08022R	U	FIVE MILE RIVER	39.07	39.07	39.06			SA		4	1	26	1893	300-003	18			2
	CONNDOT	METRO-NORTH	MAINLINE	NORWALK	3	08023R	U	DRY STREAM	39.08	39.08	39.08			SA		4	1	8	1893					
	CONNDOT	METRO-NORTH	MAINLINE	NORWALK	3	08024R	U	FARM CREEK	39.55	39.55	39.55			SB		4	1	1		1' X 3' BOX				
BOX 2	CONNDOT	METRO-NORTH	MAINLINE	NORWALK	3	08025R	U	SPRING STREET # 2	40.89	40.89	40.93			TG	OD	4	1	47	1896	300-003				
	CONNDOT	METRO-NORTH	MAINLINE	NORWALK	3	08026R	U	STATION UNDERPASS	41.02	41.02	41.02			BA		4	1	10	1895					
BOX 2	CONNDOT	METRO-NORTH	MAINLINE	NORWALK	3	08027R	U	MONROE STREET	41.12	41.12	41.1			TG	OD	6	3	85	1895	170-1509 SUMMER 96 300-003				
BOX 2	CONNDOT	METRO-NORTH	MAINLINE	NORWALK	3	08028R	U	OSBORN AVENUE	41.96	41.96	41.99			TG		4	1	39	1894	300-003				
BOX 2	CONNDOT	METRO-NORTH	MAINLINE	NORWALK	3	08029R	U	CULVERT	42.26	42.26	42.26			BA		4	1	6						
	CONNDOT	METRO-NORTH	MAINLINE	WESTPORT	3	08030R	U	SAUGATUCK AVENUE SIDETI	43.97	43.97	43.97			TG	OD	5	1	42	1913					
BOX 2	CONNDOT	METRO-NORTH	MAINLINE	WESTPORT	3	08031R	U	STATION UNDERPASS	44.2	44.2	44.2			BA		4	1	10	1906					
BOX 2	CONNDOT	METRO-NORTH	MAINLINE	WESTPORT	3	08032R	M	SAUGATUCK RIVER	44.32	44.32	44.3			DG		4	6	458	1904	SAGA MOV BR- BASCULE	58	FLAT	No. 1 Flat, No. 2 Flat, with 08080R, 08008R, and 04288R	2
BOX 2	CONNDOT	METRO-NORTH	MAINLINE	WESTPORT	3	08033R	U	SHERWOOD MILLPOND	45.75	45.75	45.75			CP		4	1	6	1951					
BOX 2	CONNDOT	METRO-NORTH	MAINLINE	WESTPORT	3	08034R	U	MUDDY BROOK	46.11	46.11	46.11			CP		4	1	8	1951					
BOX 2	CONNDOT	METRO-NORTH	MAINLINE	WESTPORT	3	08035R	U	NEW CREEK ROAD	47.15	47.15	47.16			IB	OD	4	1	33	1934	300-003	21			2
	CONNDOT	METRO-NORTH	MAINLINE	WESTPORT	3	08036R	U	GREENS FARMS BROOK	47.29	47.29	47.29			SA		4	1	6				FLAT	with 08014R, 08086R, and 08202R	2
BOX 2	CONNDOT	METRO-NORTH	MAINLINE	WESTPORT	3	08037R	U	MAPLE LANE	47.44	47.44	47.44			IB	CS	4	1	40	1941		22			3
BOX 2	CONNDOT	METRO-NORTH	MAINLINE	WESTPORT	3	08038R	U	SASCO RIVER	48.29	48.29	48.36			IB	CS	4	1	42	1940					
BOX 2	CONNDOT	METRO-NORTH	MAINLINE	FAIRFIELD	3	08039R	U	WESTWAY ROAD	48.65	48.65	48.64			TG	CS	4	1	49	1941					
	CONNDOT	METRO-NORTH	MAINLINE	FAIRFIELD	3	08040R	U	CULVERT	48.8	48.8	48.8			SA		4	1	5						
BOX 2	CONNDOT	METRO-NORTH	MAINLINE	FAIRFIELD	3	08041R	U	SPRUCE STREET	48.91	48.91	48.89			TG	CS	4	1	33	1940					
BOX 2	CONNDOT	METRO-NORTH	MAINLINE	FAIRFIELD	3	08042R	U	OLD POST ROAD	49.01	49.01	49.08			TG	CS	4	1	33	1940					
BOX 2	CONNDOT	METRO-NORTH	MAINLINE	FAIRFIELD	3	08043R	U	MILL RIVER	49.66	49.66	49.65			DG		4	1	76	1891		23, 50			3
BOX 2	CONNDOT	METRO-NORTH	MAINLINE	FAIRFIELD	3	08044R	U	NO. PINE CREEK ROAD	50.02	50.02	50.01			TG	CS	4	1	28	1941					
BOX 2	CONNDOT	METRO-NORTH	MAINLINE	FAIRFIELD	3	08045R	U	FAIRFIELD CREEK	51.68	51.68	51.64			IB	OD	4	1	15	1921					3

SHADING=BRIDGES IN MICROFILM 2 of 4

LIST OF RAILROAD BRIDGES SORTED BY STATE BRIDGE NUMBER

BOX #	OWNER	RAILROAD	TRACK CHART NAME	TOWN	DT	ST. BRID. NO.	TYPE	LOCATION	TRK MI	RR. NO.	OLD NO.	RTE	RTE. MI	BR TYP	DECK	TK	SP	LGN	YR BLT	REMARKS	PLAN #	PLAN TYPE	COMMENTS	LOCATION
	CONNDOT	METRO-NORTH	MAINLINE	FAIRFIELD	3	08046R	U	CULVERT	52.29	52.29	52.29			SB		4	1	2		2' X 3' BOX				
BOX 2	CONNDOT	METRO-NORTH	MAINLINE	FAIRFIELD	3	08047R	U	ASH CREEK	53	53	53.03			IB	CS	4	1	37	1940					3
BOX 2	CONNDOT	METRO-NORTH	MAINLINE	BRIDGEPORT	3	08048R	U	BOSTWICK AVENUE	53.6	53.6	53.59			TG	OD	4	3	66	1900		26			3
BOX 2	CONNDOT	METRO-NORTH	MAINLINE	BRIDGEPORT	3	08049R	U	HANCOCK AVENUE	53.72	53.72	53.7			TG	OD	4	3	66	1900	300-003				
BOX 2	CONNDOT	METRO-NORTH	MAINLINE	BRIDGEPORT	3	08050R	U	HOWARD AVENUE	53.84	53.84	53.83			DG	OD	4	3	64	1900	300-003	51			3
BOX 2	CONNDOT	METRO-NORTH	MAINLINE	BRIDGEPORT	3	08051R	U	WORDIN AVENUE	54.07	54.07	54.06			DG	OD	4	3	77	1900	300-003				
BOX 2	CONNDOT	METRO-NORTH	MAINLINE	BRIDGEPORT	3	08052R	U	IRANISTAN AVENUE	54.23	54.23	54.22			DG	OD	4	3	74	1900	300-003	27,52			3
BOX 2	CONNDOT	METRO-NORTH	MAINLINE	BRIDGEPORT	3	08053R	U	SOUTH AVENUE	54.44	54.44	54.44			TG	OD	4	3	85	1900		53			3
BOX 2	CONNDOT	METRO-NORTH	MAINLINE	BRIDGEPORT	3	08054R	U	MYRTLE STREET	54.7	54.7	54.7			TG	OD	4	3	61	1900					3
BOX 2	CONNDOT	METRO-NORTH	MAINLINE	BRIDGEPORT	3	08055R	U	WARREN STREET	54.77	54.77	54.78			DG	OD	4	3	57	1900		29			3
	CONNDOT	METRO-NORTH	MAINLINE	BRIDGEPORT	3	08056R	U	LAFAYETTE STREET	54.84	54.84	54.84			DG	OD	4	3	58	1900	300-003	30	FLAT	with 08077R and 08070R, with 03680R, 03678R, and 03638R	
BOX 2	CONNDOT	METRO-NORTH	MAINLINE	BRIDGEPORT	3	08057R	U	BROAD STREET	54.93	54.93	54.92			DG	OD	4	3	61	1900	300-003				3
	CONNDOT	METRO-NORTH	MAINLINE	BRIDGEPORT	3	08058R	U	MAIN STREET # 1	54.98	54.98	54.98			TG	OD	4	3	68		300-003		ROLL		
BOX 2	CONNDOT	METRO-NORTH	MAINLINE	BRIDGEPORT	3	08059R	U	HOUSATONIC CROSSING	55.13	55.13	55.15			IB	CS	4	1	17	1903	ABANDONED RR	31			3
BOX 2	CONNDOT	METRO-NORTH	MAINLINE	BRIDGEPORT	3	08060R	U	UNION STREET	55.4	55.4	55.36			TG	OD	4	1	36	1903	300-003				3
BOX 2	CONNDOT	METRO-NORTH	MAINLINE	BRIDGEPORT	3	08061R	U	STATION VIADUCT	55.41	55.41	55.41			CS	CS	4	24	690	1974	015-147				
	CONNDOT	METRO-NORTH	MAINLINE	BRIDGEPORT	3	08062R	U	VIADUCT	55.51	55.51	55.51			DG		4	8	320	1904	015-147	33	FLAT		3
BOX 2	CONNDOT	METRO-NORTH	MAINLINE	BRIDGEPORT	3	08063R	U	STATION VIADUCT	55.69	55.69	55.69			DG		4	8	320	1904	015-147		FLAT		
BOX 3	CONNDOT	METRO-NORTH	MAINLINE	BRIDGEPORT	3	08064R	M	PEQUONOCK RIVER	55.9	55.9	55.82			TG		4	5	359	1902	015-147		FLAT		3
BOX 3	CONNDOT	METRO-NORTH	MAINLINE	BRIDGEPORT	3	08065R	U	VIADUCT	55.91	55.91	55.86			DG		4	5	225	1902	015-147				
BOX 3	CONNDOT	METRO-NORTH	MAINLINE	BRIDGEPORT	3	08066R	U	PULASKI STREET	55.95	55.95	55.9			TG		4	3	67	1902	015-147				
BOX 3	CONNDOT	METRO-NORTH	MAINLINE	BRIDGEPORT	3	08067R	U	VIADUCT	55.97	55.97	55.94			DG		4	4	176	1902	015-147				
BOX 3	CONNDOT	METRO-NORTH	MAINLINE	BRIDGEPORT	3	08068R	U	NOBLE AVENUE	55.98	55.98	55.97			TG		4	9	203	1902	015-147				
BOX 3	CONNDOT	METRO-NORTH	MAINLINE	BRIDGEPORT	3	08069R	U	KOSSUTH STREET	56.1	56.1	56.09			DG	OD	4	3	58	1902	015-147				
BOX 3	CONNDOT	METRO-NORTH	MAINLINE	BRIDGEPORT	3	08070R	U	PEMBROKE STREET	56.35	56.35	56.33			TG	OD	4	3	60	1902		34	FLAT, ROLL	with 08077R AND 08056R	3
BOX 3	CONNDOT	METRO-NORTH	MAINLINE	BRIDGEPORT	3	08071R	U	HALLETT STREET	56.46	56.46	56.46			TG	OD	4	3	57	1902					3
BOX 3	CONNDOT	METRO-NORTH	MAINLINE	BRIDGEPORT	3	08072R	U	YELLOW MILL POND	56.68	56.68	56.68			SA		4	1	16	1902					
	CONNDOT	METRO-NORTH	MAINLINE	BRIDGEPORT	3	08073R	U	YELLOW MILL POND SIDNG	56.68	56.68	56.68			TI		1	10	120	1902	SIDING TRESTLE				
BOX 3	CONNDOT	METRO-NORTH	MAINLINE	BRIDGEPORT	3	08074R	U	SEAVIEW AVENUE	56.77	56.77	56.75			TG	OD	5	3	53	1902		55			3
BOX 3	CONNDOT	METRO-NORTH	MAINLINE	BRIDGEPORT	3	08075R	U	BISHOP AVENUE	57.46	57.46	57.44			TG	OD	6	3	58	1903		35			3
BOX 3	CONNDOT	METRO-NORTH	MAINLINE	BRIDGEPORT	3	08076R	U	BRUCE BROOK	57.54	57.54	57.54			SA		6	1	8	1905					
BOX 3	CONNDOT	METRO-NORTH	MAINLINE	STRATFORD	3	08077R	U	BRUCE AVENUE	57.62	57.62	57.6			TG	OD	6	1	34	1906			FLAT	with 08070R and 08056R	
BOX 3	CONNDOT	METRO-NORTH	MAINLINE	STRATFORD	3	08078R	U	WEST BROAD STREET	58.72	58.72	58.75			TG	OD	4	1	36	1893		36, 56			3
BOX 3	CONNDOT	METRO-NORTH	MAINLINE	STRATFORD	3	08079R	U	KING STREET	58.88	58.88	58.92			TG	OD	4	1	35	1893	300-003				
BOX 3	CONNDOT	METRO-NORTH	MAINLINE	STRATFORD	3	08080R	M	HOUSATONIC RIVER	60.42	60.42	60.44			TT		4	7	1052	1905	DEVON MOV BR-BASCULE	58	FLAT, ROLL	with 08008R, 04288R, and 08032R, Devon Bridge Project 92-3641990	4
BOX 3	CONNDOT	METRO-NORTH	MAINLINE	MILFORD	3	08081R	U	BEAVER CREEK	61.62	61.62	61.78			SA		4	1	8	1893					
BOX 3	CONNDOT	METRO-NORTH	MAINLINE	MILFORD	3	08082R	U	BEARDSLEY AVENUE	62.94	62.94	62.98			DG	OD	4	1	34	1893					
BOX 3	CONNDOT	METRO-NORTH	MAINLINE	MILFORD	3	08083R	U	WEPAWAUG RIVER	63.53	63.53	63.55			DT	OD	4	2	127	1893	300-T028 SUMMER 1995		FLAT, ROLL		5
BOX 3	CONNDOT	METRO-NORTH	MAINLINE	MILFORD	3	08084R	U	GULF STREET	63.83	63.83	63.85			DG	OD	4	1	27	1894					
BOX 3	CONNDOT	METRO-NORTH	MAINLINE	MILFORD	3	08085R	U	PED UNDERPASS GULE ST	63.84	63.84	63.86			CP	OD	4	1	8	1959					
BOX 3	CONNDOT	METRO-NORTH	MAINLINE	MILFORD	3	08086R	U	INDIAN RIVER	64.59	64.59	64.59			DG	OD	4	1	35	1917			FLAT	with 08014R, 08036R, and 08202R	2,5
BOX 3	CONNDOT	METRO-NORTH	MAINLINE	MILFORD	3	08087R	U	OLD GATE LANE	64.74	64.74	64.74			TG	OD	4	1	27	1893	170-1375	40	FLAT		
BOX 3	CONNDOT	METRO-NORTH	MAINLINE	MILFORD	3	08088R	U	QUIRK POND BROOK	66.29	66.29	66.29			SA		4	1	6	1893					
BOX 3	CONNDOT	METRO-NORTH	MAINLINE	MILFORD	3	08089R	U	ROCK LANE	66.35	66.35	66.56			DG	OD	4	1	47	1893	300-003 170-1375				5
BOX 3	CONNDOT	METRO-NORTH	MAINLINE	MILFORD	3	08090R	U	DEPOT ROAD	66.66	66.66	66.68			DG	OD	4	1	27	1893	170-1375	41			5
BOX 3	CONNDOT	METRO-NORTH	MAINLINE	ORANGE	3	08091R	U	OYSTER RIVER	67.5	67.5	67.5			SA		4	1	8	1893					
	CONNDOT	METRO-NORTH	MAINLINE	WEST HAVEN	3	08092R	U	STREAM	67.98	67.98	67.98			SA		4	1	6	1893					
BOX 3	CONNDOT	METRO-NORTH	MAINLINE	WEST HAVEN	3	08093R	U	MORGAN LANE	68.11	68.11	68.1			DG	OD	4	1	29	1917					
	CONNDOT	METRO-NORTH	MAINLINE	WEST HAVEN	3	08094R	U	CULVERT	68.14	68.14				SA		4	2	3						
BOX 3	CONNDOT	METRO-NORTH	MAINLINE	WEST HAVEN	3	08095R	U	CULVERT	68.89	68.89	68.8			CP		4	2	7	1995	TWIN 42" PIPES 300-003				5
BOX 3	CONNDOT	METRO-NORTH	MAINLINE	WEST HAVEN	3	08096R	U	COVE RIVER	69.19	69.19	69.19			SA		4	1	8	1893					
BOX 3	CONNDOT	METRO-NORTH	MAINLINE	WEST HAVEN	3	08097R	U	CAMPBELL AVENUE	70.19	70.19	70.25			DG	OD	4	3	60	1894					5
BOX 3	CONNDOT	METRO-NORTH	MAINLINE	WEST HAVEN	3	08098R	U	WASHINGTON AVENUE	70.36	70.36	70.37			TG	OD	4	3	54	1894					
BOX 3	CONNDOT	METRO-NORTH	MAINLINE	WEST HAVEN	3	08099R	U	WEST RIVER	71.26	71.26	71.26			CS	CS	4	3	90	1930	301-003 SUMMER 1995		FLAT		
BOX 3	CONNDOT	METRO-NORTH	MAINLINE	NEW HAVEN	3	08100R	U	STATION UNDERPASS	72.28	72.28	72.28			IB	CS	8	2	30	1929			ROLL		
	CONNDOT	METRO-NORTH	MAINLINE	BRIDGEPORT		08101R		VIADUCT	55.99													FLAT		
BOX 3	CONNDOT	METRO-NORTH	NEW CANAAN	STAMFORD	3	08150R	U	VIADUCT AVENUE	2.81	2.81	2.81			DG	OD	1	1	17	1903	170-1375 300-003		FLAT, ROLL		5
BOX 3	CONNDOT	METRO-NORTH	NEW CANAAN	STAMFORD	3	08151R	U	NOROTON RIVER	3.77	3.77	3.77			DG	OD	1	1	33	1907					
	CONNDOT	METRO-NORTH	NEW CANAAN	DARIEN	3	08152R	U	STEVENS CROSSING	5.13	5.13	5.13			DG	OD	1	1	15	1903					
	CONNDOT	METRO-NORTH	NEW CANAAN	NEW CANAAN	3	08153R	U	SMITHS CROSSING	5.91	5.91	5.91			DG	OD	1	1	12	1903	300-003				
	CONNDOT	METRO-NORTH	NEW CANAAN	NEW CANAAN	3	08154R	U	WATERWAY	7	7	7			SA		1	1	6						
	CONNDOT	METRO-NORTH	DANBURY BRANCH	NORWALK	3	08200R	U	ANN STREET	0.19	0.19	0.19			DG	OD	3	1	52	1895		6			
BOX 3	CONNDOT	METRO-NORTH	DANBURY BRANCH	NORWALK	3	08201R	U	NORWALK RIVER	1.56	1.56	1.56			TG		1	2	117	1905					5
BOX 3	CONNDOT	METRO-NORTH	DANBURY BRANCH	NORWALK	3	08202R	U	NORWALK RIVER	3.2	3.2	3.2			TG	OD	1	2	162	1905	300-003	7	FLAT	with 08014R, 08036R, and 08086R	2,5
	CONNDOT	METRO-NORTH	DANBURY BRANCH	WILTON	3	08203R	U	BROOK	5.12	5.12	5.12			ID	OD	1	1	12	1919		8			5
BOX 3	CONNDOT	METRO-NORTH	DANBURY BRANCH	WILTON	3	08204R	U	STREAM	6.43	6.43	6.43			DG	OD	1	2	36	1904					
BOX 3	CONNDOT	METRO-NORTH	DANBURY BRANCH	WILTON	3	08205R	U	NORWALK RIVER	6.64	6.64	6.64			DG	OD	1	1	48	1919					
BOX 3	CONNDOT	METRO-NORTH	DANBURY BRANCH	WILTON	3	08206R	U	NORWALK RIVER	8.7	8.7	8.7			DG	OD	1	1	56	1896					
BOX 3	CONNDOT	METRO-NORTH	DANBURY BRANCH	WILTON	3	08207R	U	NORWALK RIVER	9.42	9.42	9.42			DG	OD	1	2	81						
	CONNDOT	METRO-NORTH	DANBURY BRANCH	WILTON	3	08208R	U	CULVERT	9.91	9.91	9.91			SB		1	1	6		6' X 5.5' AT HONEY HILL RD				
BOX 3	CONNDOT	METRO-NORTH	DANBURY BRANCH	WILTON	3	08209R	U	OLD MILL ROAD	11.01	11.01	11.01			IB	OD	1	1	29	1909					
BOX 3	CONNDOT	METRO-NORTH	DANBURY BRANCH	WILTON	3	08210R	U	NORWALK RIVER	11.55	11.55	11.55			DG	OD	1	3	156	1896					
BOX 3	CONNDOT	METRO-NORTH	DANBURY BRANCH	REDDING	3	08211R	U	FACTORY POND	12.17	12.17	12.17			DG	OD	1	1	46	1904					
	CONNDOT	METRO-NORTH	DANBURY BRANCH	REDDING	4	08212R	U	BRANCHVILLE BROOK	12.83	12.83	12.83			RS	CS	1	1	6						
BOX 3	CONNDOT	METRO-NORTH	DANBURY BRANCH	REDDING	4	08213R	U	OLD REDDING ROAD	14.16	14.16	14.16			IB	OD	1	1	23	1904					
BOX 3	CONNDOT	METRO-NORTH	DANBURY BRANCH	REDDING	4	08214R	U	SIMPAUG TURNPIKE	14.8	14.8	14.8			SA		1	1	13		300-003 116-122	9	FLAT	No. 1 FLAT, No. 2 Flat	5
	CONNDOT	METRO-NORTH	DANBURY BRANCH	REDDING	4	08214R	U	SIMPAUG TURNPIKE	14.8	14.8	14.8			SA		1	1	13		300-003 116-H004				
BOX 3	CONNDOT	METRO-NORTH	DANBURY BRANCH	REDDING	4	08215R	U	UMPAWAUG POND BRK	16.41	16.41	16.41			DG	OD	1	1	25	1904					
BOX 3	CONNDOT	METRO-NORTH	DANBURY BRANCH	REDDING	4	08216R	U	SAUGATUCK RIVER	17.09	17.09	17.09			DG	OD	1	1	44	1904					
	CONNDOT	METRO-NORTH	DANBURY BRANCH	BETHEL	4	08217R	U	CULVERT	19.23	19.23	19.23			SB		1	1	5		4.4' X 3.6' BOX				
BOX 3	CONNDOT	METRO-NORTH	DANBURY BRANCH	BETHEL	4	08218R	U	SYMPAUG BROOK	21.41	21.41	21.41			IB	OD	1	1	18	1919	300-003		ROLL		
BOX 3	CONNDOT	METRO-NORTH	DANBURY BRANCH	DANBURY	4	08219R	U	SYMPAUG BROOK	21.52	21.52	21.52			IB	CS	1	1	18	1936					
BOX 3	CONNDOT	METRO-NORTH	DANBURY BRANCH	DANBURY	4	08220R	U	STILL RIVER	22.39	22.39	22.39			TG	SP	1	2	134	1975			FLAT		
BOX 3	CONNDOT	METRO-NORTH	DANBURY BRANCH	DANBURY	4	08221R	U	STILL RIVER	22.94	22.94	22.94			CB		1	2	40	1975					
BOX 3	CONNDOT	METRO-NORTH	DANBURY BRANCH	DANBURY	4	08222R	U	STILL RIVER	23.65	23.65	23.65			CB		1	2	50	1976					
	CONNDOT	METRO-NORTH	DANBURY BRANCH	DANBURY	4	08223R	U	STILL RIVER	23.66	23.66	23.66			CB		1	2	40	1975					
	CONNDOT	METRO-NORTH	WATERBURY BRANCH	MILFORD	3	08250R	U	BROOK	3.12	3.12	3.09			SB			1	3		2.5' x 5.5' BOX				
	CONNDOT	METRO-NORTH	WATERBURY BRANCH	MILFORD	3	08251R	U	CULVERT	3.3	3.3	3.26			SB			1	3		2.5' x 9' BOX				
	CONNDOT	METRO-NORTH	WATERBURY BRANCH	MILFORD	3	08252R	U	CULVERT	3.8	3.8	3.77			SB			1	5		4.5' x 6.5' BOX				

SHADING=BRIDGES IN MICROFILM

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LIST OF RAILROAD BRIDGES SORTED BY STATE BRIDGE NUMBER

BOX #	OWNER	RAILROAD	TRACK CHART NAME	TOWN	DT	ST. BRID. NO.	TYPE	LOCATION	TRK MI	RR. NO.	OLD NO.	RTE	RTE. MI	BR TYP	DECK	TK	SP	LGN	YR BLT	REMARKS	PLAN #	PLAN TYPE	COMMENTS	LOCATION
	CONNDOT	METRO-NORTH	WATERBURY BRANCH	MILFORD	3	08253R	U	CULVERT	4.14	4.14	4.11			SA		2	1	7						
BOX 3	CONNDOT	METRO-NORTH	WATERBURY BRANCH	MILFORD	3	08254R	U	BEARDS FARMWAY	4.55	4.55	4.5			IB	OD	2	1	21	1917					
BOX 3	CONNDOT	METRO-NORTH	WATERBURY BRANCH	MILFORD	3	08255R	U	GOLF CROSSING	4.88	4.88	4.89			CS		2	1	20	1983					
BOX 3	CONNDOT	METRO-NORTH	WATERBURY BRANCH	MILFORD	3	08256R	U	DRAINAGE PIPE	4.9	4.9	4.92			CM		2	1	6						
BOX 3	CONNDOT	METRO-NORTH	WATERBURY BRANCH	MILFORD	3	08257R	U	GOLF CROSSING	5.01	5.01	4.97			CS		2	1	15	1982					
BOX 3	CONNDOT	METRO-NORTH	WATERBURY BRANCH	ORANGE	3	08258R	U	DAVIS BROOK	7.02	7.02	6.99			CP		3	2	11		TWIN 66" PIPES 300-003		FLAT		5
	CONNDOT	METRO-NORTH	WATERBURY BRANCH	ORANGE	3	08259R	U	CULVERT	7.22	7.22	7.29			SB			1	10		9.3' x 3.5' BOX				
BOX 3	CONNDOT	METRO-NORTH	WATERBURY BRANCH	ORANGE	3	08260R	U	TWO MILE BROOK	7.36	7.36	7.31			BA		4	1	9	1901	TURKEY BROOK				
	CONNDOT	METRO-NORTH	WATERBURY BRANCH	DERBY	4	08261R	U	BROOK	7.92	7.92	7.9			SB			1	3		3' x 7.5' BOX				
BOX 3	CONNDOT	METRO-NORTH	WATERBURY BRANCH	DERBY	4	08262R	U	NAUGATUCK RIVER	8.62	8.62	8.59			TT	OD	1	3	329	1903	300-003		FLAT		
	CONNDOT	METRO-NORTH	WATERBURY BRANCH	DERBY	4	08263R	U	VIADUCT	8.68	8.68	8.69			PC		1	10	250	1965					
BOX 3	CONNDOT	METRO-NORTH	WATERBURY BRANCH	ANSONIA	4	08264R	U	NAUGATUCK RIVER	10.3	10.3	10.25			TT	OD	1	2	318	1904	300-003				
BOX 3	CONNDOT	METRO-NORTH	WATERBURY BRANCH	ANSONIA	4	08265R	U	TAIL RACE	10.55	10.55	10.49			DG	OD	1	1	52	1903	300-003				
BOX 3	CONNDOT	METRO-NORTH	WATERBURY BRANCH	ANSONIA	4	08266R	U	RACEWAY FARREL CO	10.85	10.85	10.72			SA		4	1	14						
BOX 3	CONNDOT	METRO-NORTH	WATERBURY BRANCH	ANSONIA	4	08267R	U	SPILLWAY	11.36	11.36	11.29			TG	OD	1	2	90	1904					
BOX 3	CONNDOT	METRO-NORTH	WATERBURY BRANCH	SEYMOUR	4	08268R	U	CANAL	12.57	12.57	12.51			TG	OD	1	2	90	1904	PHELPS DAM				
BOX 3	CONNDOT	METRO-NORTH	WATERBURY BRANCH	SEYMOUR	4	08269R	U	MUD BROOK	13.2	13.2	13.14			SA		1	1	6	1904					
BOX 3	CONNDOT	METRO-NORTH	WATERBURY BRANCH	SEYMOUR	4	08270R	Z	JAMES ST. FOOTBRIDGE	14.45	14.45	14.39			TT		1	3	123	1906					
BOX 3	CONNDOT	METRO-NORTH	WATERBURY BRANCH	SEYMOUR	4	08271R	U	TRESTLE	14.61	14.61	14.54			DG		1	21	150		KERITE CO.				
BOX 3	CONNDOT	METRO-NORTH	WATERBURY BRANCH	SEYMOUR	4	08272R	U	NAUGATUCK RIVER	14.64	14.64	14.59			DG	OD	1	5	307	1903					
BOX 3	CONNDOT	METRO-NORTH	WATERBURY BRANCH	SEYMOUR	4	08273R	U	CULVERT	14.68	14.68	14.63			CM		1	1	6						
BOX 3	CONNDOT	METRO-NORTH	WATERBURY BRANCH	BEACON FALLS	4	08274R	U	OLD PINE'S BRIDGE ROAD	16.79	16.79	17.73			IB	OD	1	1	19	1952					
BOX 3	CONNDOT	METRO-NORTH	WATERBURY BRANCH	BEACON FALLS	4	08275R	U	HEMP SWAMP BROOK	16.81	16.81	16.75			CA		1	1	13						
	CONNDOT	METRO-NORTH	WATERBURY BRANCH	BEACON FALLS	4	08276R	U	SPRUCE BROOK	19.21	19.21	19.33			DG	OD	1	1	18	1947	300-003				
	CONNDOT	METRO-NORTH	WATERBURY BRANCH	NAUGATUCK	4	08277R	U	SUGAR BUSH BROOK	20.11	20.11	20.26			IB	OD	1	1	19	1960					
	CONNDOT	METRO-NORTH	WATERBURY BRANCH	NAUGATUCK	4	08278R	U	US RUBBER CO	21.22	21.22	21.22			CP	OD	2	1	8	1930					
BOX 3	CONNDOT	METRO-NORTH	WATERBURY BRANCH	NAUGATUCK	4	08279R	U	PRIVATE PASSWAY	21.36	21.36	21.36			IB	OD	2	1	21	1960		44			5
	CONNDOT	METRO-NORTH	WATERBURY BRANCH	NAUGATUCK	4	08280R	U	LONGMEADOW PND BRK	21.48	21.48	21.48			CA		2	2	42	1906					
BOX 3	CONNDOT	METRO-NORTH	WATERBURY BRANCH	NAUGATUCK	4	08281R	U	OVERFLOW	21.65	21.65	21.65			CA		2	1	11	1906					
BOX 3	CONNDOT	METRO-NORTH	WATERBURY BRANCH	NAUGATUCK	4	08282R	U	CANAL	22.11	22.11	22			SA		1	1	16						
	CONNDOT	METRO-NORTH	WATERBURY BRANCH	NAUGATUCK	4	08283R	U	HOP BROOK	22.42	22.42	22.37			DG	OD	1	1	45	1905					
BOX 3	CONNDOT	METRO-NORTH	WATERBURY BRANCH	NAUGATUCK	4	08284R	U	BRIDGE STREET	22.74	22.74	22.68			TG	OD	1	3	57	1906		45			5
BOX 3	CONNDOT	METRO-NORTH	WATERBURY BRANCH	WATERBURY	4	08285R	U	STREAM	24.34	24.34	24.55			SA		1	1	8	1905					
BOX 3	CONNDOT	METRO-NORTH	WATERBURY BRANCH	WATERBURY	4	08286R	U	NAUGATUCK RIVER	26.42	26.42	26.7			DG	OD	1	2	228	1907					
	CONNDOT	METRO-NORTH	WATERBURY BRANCH	WATERBURY	4	08287R	U	JACKSON STREET	26.5	26.5	26.78			TG	OD	1	2	78						
	CONNDOT	METRO-NORTH	WATERBURY BRANCH	WATERBURY	4	08288R	U	GAS CONDUIT	26.64	26.64	26.92			CA		10	1	7						
	CONNDOT	METRO-NORTH	WATERBURY BRANCH	WATERBURY	4	08289R	U	STATION UNDERPASS	26.82	26.82	27.19			CB		1	1	10						
	PENNCTRL	INACTIVE R.RD	WILSON PT. IND. TRK	NORWALK	3	1346R	U	MEADOW ST.	40.28	40.28		136	4.12	TG		1	3	64	1909	WILSON PT. IND. TRK				
	CONNDOT	METRO-NORTH	MAINLINE	WESTPORT		8290		INDIAN RIVER	43.8	43.86														5
BOX 4	CONNDOT	METRO-NORTH	MAINLINE	BRIDGEPORT	3	8064R	M	PEQUONOCK RIVER	55.9	55.9	55.82			TG		4	5	359	1902	015-147				
BOX 4	CONNDOT	METRO-NORTH	MAINLINE	WEST HAVEN	3	8099	U	WEST RIVER	71.26	71.26	71.26			CS	CS	4	3	90	1930	301-003 SUMMER 1995				
BOX 4	CONNDOT	METRO-NORTH	MAINLINE	MILFORD	3	8083	U	WEPAWAUG RIVER/ PROSPE	63.53	63.53	63.55			DT	OD	4	2	127	1893	300-T028 SUMMER 1995				
BOX 5	CONNDOT	METRO-NORTH	MAINLINE	BRIDGEPORT	3	8064R	M	PEQUONOCK RIVER	55.9	55.9	55.82			TG		4	5	359	1902	015-147				
	CONNDOT	METRO-NORTH	MAINLINE	BRIDGEPORT		8104R		BRIDGEPORT STATION TUNN	55.5												32			
	CONNDOT	PROV & WORCESTER	MIDDLETOWN SEC.	MIDDLETOWN	1	00522R	U	ROUTE 66	21.18	23.08	23.08	66	14.37	DG	OD	1	1	56	1898	UNDER CONSTRUCTION		FLAT, ROLL	No. 1 Flat, No. 2 Flat (In-office)	
	CONNDOT	PROV & WORCESTER	WILLIMANTIC BRANCH	WINDHAM	2	01849R	U	S. MAIN (ABANDONED) ST.	22.55	22.55	57.97	601	22.55	TG		1	1	51	1892	CVRR MP 29. 23 SO 1/2		ROLL		
	CONNDOT	RAILS TO TRAILS	AVON SECONDARY	FARMINGTON	4	09802R	U	FARMINGTON RIVER	32	32				DG	OD		4	398	1956			ROLL		
	CONNDOT	PROV & WORCESTER	PORTLAND TRK	MIDDLETOWN	1	0639R	U	RT 9. & CONNECTICUT RIVER	0.04	24.26	24.26	9	23.33	TG	OD	1	1	57	1911		1			5
	CONNDOT	PROV & WORCESTER		MIDDLETOWN		0863R		HARTFORD AVENUE	16.01												2			
	CONNDOT	NAUGATUCK	TORRINGTON SEC.	WATERTOWN	4	09110R	U	NAUGATUCK RIVER	5.41	32.89	32.89			DG	OP	1	4	267	1907		3			6
	PRIVATE	HOUSATONIC RAILROAD		DERBY				HOUSATONIC RIVER	104.31												4			6
	PRIVATE	PROV & WORCESTER		PRESTON & LEDYARD																				6
	CONNDOT	RAILS TO TRAILS	VAL MAP 56-60/8	CANTON	4	09913R	U	FARMINGTON RIVER	7.54					TT			4	170			57			6
	CONNDEP	RAILS TO TRAILS	VAL MAP 56-60/6	BURLINGTON	4	09921R	U	BARNES BROOK-DEP	5.61	5.61							1	40			57			6
		RAILS TO TRAILS	VAL MAP 56-60/7	BURLINGTON		09922R		CEDAR BROOK-DEP	6.14												57			6
	CONNDEP	RAILS TO TRAILS	VAL MAP 56-60/7	BURLINGTON	4	09923R	U	BROOK-DEP	6.37	6.37				SB			1	11		11' OPEN BOX	57			6
	CONNDOT	RAILS TO TRAILS	VAL MAP 56-60/8	CANTON	4	09914R	U	FARMINGTON CANAL	7.63												57			6
	AMTRAK	AMTRAK	SPRINGFIELD LINE	WINDSOR	1	00451R	U	PALISADO AVENUE	43.08	43.08		159	3.9	TG		2	1	79	1917			ROLL		
	B & M	STR (GTI)	TERRYVILLE SEC.	BRISTOL	1	01074R	H	BURLINGTON AV. RT. 69	12	5.12	50.42	69	28.42	TG		1	3	164	1913			FLAT		
	B & M	STR (GTI)	BERLIN SECONDARY	BERLIN	1	01100R	U	ROUTE 372	0.95	1.7	7.12	372	4.46	TG		1	1		1962					
	CSO	CSO	WETHERSFIELD SEC.	HARTFORD	1	03277R	H	I-91 NORTH	1.1	45.5	45.4	91	38.03	PC		1	1	78	1958	TUNNEL		ROLL		
	CONNDEP	ABANDONED RR.	CANAL SECONDARY	CHESIRE	1	03981R	U	WEST JOHNSON ROAD	18.91	18.91	18.91			IB	OD	1	1	29	1909			FLAT		
	PRIVATE	PRIVATE	CANAL SECONDARY	NEW HAVEN	3	03997R	O	PROSPECT STREET	1.17	1.17	1.17			DG		1	1	33	1912			ROLL		
	CSO	CSO	WILLIMANTIC BRANCH	EAST HARTFORD	1	06052R	U	MAIN STREET	2.16	28.87	28.87	5	36.32	DG		2	1	133	1991			ROLL		
	CONNDOT	PROV & WORCESTER	LAUREL IND. TRACK	MIDDLETOWN	1	9008	U	ASYLUM CREEK	3.23	27.14	27.14			DG	OD	1	1	24	1904					6
	CONNDOT	RAILS TO TRAILS	AVON SECONDARY	FARMINGTON	4	09802R	U	FARMINGTON RIVER	32	32				DG	OD		4	398	1956			ROLL		

4 of 4

SHADING=BRIDGES IN MICROFILM

APPENDIX

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OFFSYSTEM BRIDGES IN MICROFILMS

5/26/99 ~~5/9/96~~

OWNER	RAILROAD	LINENAME	TOWN	DT	ST_BR_NO	TYPE	LOCATION	TRK_MI	RR_NO	OLD_NO	BR_TYP	DECK	TK	SP	LGN	DECK AREA	YR_BLT	PRIOR	COND	REMARKS
CONNDOT	CONN CENTRAL RR.	CROMWELL IND. TRACK	MIDDLETOWN	1	00863R	U	HARTFORD AVENUE	16.01	30.52	30.52	TG	CS	1	1	67	804	1925	1	3	
CONNDOT	CONN CENTRAL RR.	MIDDLETOWN SEC.	MIDDLEFIELD	1	01373R	U	BAILEYVILLE ROAD	16.92	18.82	18.82	DG	OD	1	1	78	936	1898	1	3	AT LONG HILL ROAD
CONNDOT	CONN CENTRAL RR.	CROMWELL IND. TRACK	MIDDLETOWN	1	09000R	U	SEBETHE RIVER	15.26	30.91	30.91	TG	OD	1	4	188	2256	1910	1	4	
CONNDOT	CONN CENTRAL RR.	LAUREL IND. TRACK	MIDDLETOWN	1	09002R	U	GREEN STREET	0.19	30.35	30.35	IB	OD	1	1	23	276	1911	1	3	OVER ABANDONED ROAD
CONNDOT	CONN CENTRAL RR.	LAUREL IND. TRACK	MIDDLETOWN	1	09004R	U	EASTERN DRIVE	1.2	29.24	29.24	IB	OD	1	1	23	276	1911	1	3	
CONNDOT	CONN CENTRAL RR.	LAUREL IND. TRACK	MIDDLETOWN	1	09005R	U	RESERVIOR BROOK	1.99	28.44	28.44	DG	OD	1	1	30	360	1903	1	4	
CONNDOT	CONN CENTRAL RR.	LAUREL IND. TRACK	MIDDLETOWN	1	09008R	U	ASYLUM CREEK	3.23	27.14	27.14	DG	OD	1	1	24	288	1904	1	3	
CONNDOT	CONN CENTRAL RR.	LAUREL IND. TRACK	MIDDLETOWN	1	09009R	U	MAROMAS CREEK	3.7	26.7	26.7	DG	OD	1	1	20	240	1904	1	4	
CONNDOT	CONN CENTRAL RR.	MIDDLETOWN SEC.	MIDDLEFIELD	1	09010R	U	CATTLE PASS	16.75	18.65	18.65	IB	OD	1	1	12	144	1917	1	3	
CONNDOT	CONN CENTRAL RR.	MIDDLETOWN SEC.	MIDDLEFIELD	1	09011R	U	COGINCHAUG RIVER	17.86	19.76	19.76	DG	OD	1	1	54	648	1898	1	3	
CONNDOT	CONN CENTRAL RR.	MIDDLETOWN SEC.	MIDDLEFIELD	1	09013R	U	COGINCHAUG RIVER	18.77	20.67	20.67	DT	OD	1	1	113	1356	1898	1	4	
CONNDOT	CONN CENTRAL RR.	MIDDLETOWN SEC.	MIDDLETOWN	1	09014R	U	COGINCHAUG RIVER	19.93	21.83	21.83	DT	OD	1	1	118	1416	1898	1	4	
CONNDOT	CONN CENTRAL RR.	PORTLAND IND. TRK.	MIDDLETOWN	~~1~~	~~09016R~~	M	CONNECTICUT RIVER	0.19	24.39	24.39	TT	OD	1	5	1162	13944	1911	3		ALL EXCEPT MECH/ELEC.
CONNDOT	INACTIVE RAILROAD	AVON SECONDARY	FARMINGTON	1	09802R	U	FARMINGTON RIVER		32		DG	OD	1	4	398	4776	1956	4		
CONNDOT	INACTIVE RAILROAD	WETHERSFIELD SEC.	CROMWELL	1	09828R	U	SOUTH STREET	32.23	32.23	32.23			1		65	780		5	NO INS	
CONNDOT	INACTIVE RAILROAD	WETHERSFIELD SEC.	CROMWELL	1	09829R	U	NOOK'S ROAD	33.83	33.83	33.83			1		65	780		5	NO INS	
CONNDOT	INACTIVE RAILROAD	WETHERSFIELD SEC.	CROMWELL	1	09830R	U	FIRE ACCESS ROAD		35.71				1		10	120	1910	5	NO INS	
CONDOT	NAUGATUCK RAILROAD	TORRINGTON SEC.	WATERTOWN		09110R	U	NAUGATUCK RIVER	32.89												

* PW RAILROAD

#639R

Version: 1.0 - February, 2012

APPENDIX 17

PLANS AND MICROFILM AVAILABILITY FOR METRO-NORTH BRIDGES

State of Connecticut-Department of Transportation-Office of Rail
Metro-North Railroad Plans and Microfilm Availablity

APPENDIX 17

Track Chart Name	Town	Bridge No.	Location	Mile Point	Existing Plans Y/N	Existing Microfilms Y/N
DANBURY	NORWALK	04134R	MARSHALL STREET	0.11	--	Yes
DANBURY	NORWALK	08200R	ANN STREET	0.19	--	Yes
DANBURY	NORWALK	08225R	REED STREET	0.36	--	--
DANBURY	NORWALK	08201R	NORWALK RIVER - STEEL GIRDER	1.56	Yes	Yes
DANBURY	NORWALK	08202R	NORWALK RIVER - STEEL GIRDER	3.20	Yes	Yes
DANBURY	WILTON	08203R	BROOK - MULTIBEAM DECK	5.12	Yes	Yes
DANBURY	WILTON	08204R	STREAM - MULTIBEAM DECK	6.43	--	Yes
DANBURY	WILTON	08205R	NORWALK RIVER - STEEL GIRDER	6.64	--	Yes
DANBURY	WILTON	08206R	NORWALK RIVER - STEEL GIRDER	8.70	--	Yes
DANBURY	WILTON	08207R	NORWALK RIVER - STEEL GIRDER	9.42	--	Yes
DANBURY	WILTON	08208R	BROOK - CULVERT MASONRY	9.91	--	--
DANBURY	WILTON	08209R	OLD MILL ROAD	11.01	--	Yes
DANBURY	WILTON	08210R	NORWALK RIVER - STEEL GIRDER	11.55	--	Yes
DANBURY	WILTON	08211R	FACTORY POND	12.17	--	Yes
DANBURY	REDDING	08213R	OLD REDDING ROAD	14.16	--	Yes
DANBURY	REDDING	08214R	SIMPAUG TURNPIKE	14.80	Yes	Yes
DANBURY	REDDING	08215R	UMPAWAUG POND BROOK - STEEL GIRDER	16.41	--	Yes
DANBURY	REDDING	08216R	SAUGATUCK RIVER - STEEL GIRDER	17.09	--	Yes
DANBURY	BETHEL	01020R	GRASSY PLAIN ROAD (ROUTE 53)	19.64	--	Yes
DANBURY	BETHEL	08217R	BROOK - CONCRETE	19.99	--	--
DANBURY	BETHEL	08218R	SYMPAUG BROOK - MULTIBEAM DECK	21.41	--	Yes
DANBURY	DANBURY	08219R	SYMPAUG BROOK - CONCRETE SLAB	21.52	--	Yes
DANBURY	DANBURY	08220R	STILL RIVER - STEEL GIRDER	22.39	--	--
DANBURY	DANBURY	05100R	STILL RIVER - CONCRETE CULVERT	22.94	--	--
DANBURY	DANBURY	08223R	STILL RIVER - CONCRETE CULVERT	23.18	--	--
DANBURY	DANBURY	04290R	STILL RIVER - CONCRETE CULVERT	23.42	--	--
MAINLINE	GREENWICH	03943R	NORTH WATER STREET	26.10	Yes	Yes
MAINLINE	GREENWICH	03945R	HAMILTON AVENUE	26.79	Yes	Yes
MAINLINE	GREENWICH	08000R	PEDESTRIAN UNDERPASS AT HAMILTON AVENUE	26.79	--	Yes
MAINLINE	GREENWICH	03947R	FIELD POINT ROAD	27.77	--	Yes
MAINLINE	GREENWICH	03673R	ARCH STREET (SR 742)	28.06	Yes	Yes
MAINLINE	GREENWICH	08002R	PEDESTRIAN OVERPASS FOOTBRIDGE	28.16	Yes	Yes
MAINLINE	GREENWICH	03946R	STEAMBOAT ROAD	28.22	Yes	Yes
MAINLINE	GREENWICH	08003R	DAVIS AVENUE #2	28.48	--	Yes
MAINLINE	GREENWICH	08004R	INDIAN HARBOR (DAVIS MILL POND)	28.68	Yes	--
MAINLINE	GREENWICH	08005R	SACHEM ROAD	29.50	Yes	Yes
MAINLINE	GREENWICH	08006R	LUKES CROSSING (SOUND SHORE DRIVE)	29.68	--	Yes
MAINLINE	GREENWICH	08008R	MIANUS RIVER (COS COB BRIDGE) - MOVABLE	29.90	Yes	--
MAINLINE	GREENWICH	08009R	ARCH STREET #2 - MASONRY ARCH	31.03	--	Yes
MAINLINE	GREENWICH	08010R	STREAM - MASONRY CULVERT	31.12	--	--
MAINLINE	GREENWICH	03948R	SOUND BEACH AVENUE	31.29	--	Yes
MAINLINE	GREENWICH	03955R	TOMAC AVENUE	31.62	Yes	Yes
MAINLINE	STAMFORD	03680R	GREENWICH AVENUE	32.81	--	Yes
MAINLINE	STAMFORD	08011R	RIPPOWAM RIVER - TRUSS	32.85	Yes	--
MAINLINE	STAMFORD	03683R	WASHINGTON BOULEVARD (STATE ROUTE 493)	32.97	Yes	Yes
MAINLINE	STAMFORD	08012R	ATLANTIC STREET	33.19	Yes	Yes
MAINLINE	STAMFORD	03678R	CANAL STREET	33.41	--	Yes
MAINLINE	STAMFORD	03686R	ELM STREET	33.75	Yes	Yes
MAINLINE	STAMFORD	02237R	EAST MAIN STREET (U.S. ROUTE 1)	34.17	Yes	Yes
MAINLINE	STAMFORD	08013R	HAMILTON AVENUE	34.72	Yes	Yes
MAINLINE	STAMFORD	08014R	NOROTON RIVER - MASONRY ARCH	35.58	Yes	Yes

State of Connecticut-Department of Transportation-Office of Rail
Metro-North Railroad Plans and Microfilm Availablity

Track Chart Name	Town	Bridge No.	Location	Mile Point	Existing Plans Y/N	Existing Microfilms Y/N
MAINLINE	DARIEN	08015R	NOROTON STATION PEDESTRIAN OVERPASS	36.24	--	--
MAINLINE	DARIEN	08016R	STONY BROOK - MASONRY CULVERT	37.16	--	Yes
MAINLINE	DARIEN	08017R	CUMMINGS BROOK - MASONRY CULVERT	37.36	--	Yes
MAINLINE	DARIEN	04142R	LEROY AVENUE #1	37.59	Yes	Yes
MAINLINE	DARIEN	00316R	BOSTON POST ROAD (U.S. ROUTE 1)	37.82	Yes	Yes
MAINLINE	DARIEN	08018R	GOODWIVES RIVER - CONCRETE DECK	38.00	--	Yes
MAINLINE	DARIEN	08020R	TOKENEKE BROOK - 2 STONE CULVERTS	38.53	--	--
MAINLINE	DARIEN	08021R	TOKENEKE BROOK #2 - MASONRY CULVERT	38.68	--	--
MAINLINE	DARIEN	04271R	RAYMOND STREET	38.93	--	--
MAINLINE	DARIEN	08022R	FIVE MILE RIVER - BRICK ARCH	39.07	Yes	Yes
MAINLINE	NORWALK	08023R	DRY STREAM - MASONRY CULVERT	39.08	--	--
MAINLINE	NORWALK	04132R	ROWAYTON AVENUE	39.11	Yes	Yes
MAINLINE	NORWALK	08025R	FRANKLIN STREET (SPRING STREET)	40.89	--	Yes
MAINLINE	NORWALK	08026R	STATION UNDERPASS	41.02	--	--
MAINLINE	NORWALK	08027R	MONROE STREET	41.12	--	Yes
MAINLINE	NORWALK	03693R	WASHINGTON & MAIN STREETS	41.28	Yes	Yes
MAINLINE	NORWALK	04288R	NORTH WATER STREET & NORWALK RIVER - MOVABLE	41.51	Yes	Yes
MAINLINE	NORWALK	04131R	FORT POINT STREET	41.79	--	Yes
MAINLINE	NORWALK	08028R	OSBORNE AVENUE	41.96	--	Yes
MAINLINE	NORWALK	03691R	EAST AVENUE	42.14	Yes	Yes
MAINLINE	NORWALK	08029R	BROOK - MASONRY CULVERT	42.26	--	Yes
MAINLINE	NORWALK	03692R	STRAWBERRY HILL AVENUE	42.37	--	Yes
MAINLINE	WESTPORT	08290R	INDIAN RIVER - TWO CONCRETE PIPES 7' DIAMETER	43.80	--	--
MAINLINE	WESTPORT	01348R	SAUGATUCK AVENUE (ROUTE 136)	43.97	--	Yes
MAINLINE	WESTPORT	08105R	NEW STATION UNDERPASS	44.12	--	--
MAINLINE	WESTPORT	08031R	STATION UNDERPASS - CONCRETE CULVERT	44.20	--	Yes
MAINLINE	WESTPORT	08032R	FERRY LANE & SAUGATUCK RIVER - MOVABLE	44.32	Yes	Yes
MAINLINE	WESTPORT	03963R	COMPO ROAD	44.70	--	Yes
MAINLINE	WESTPORT	08033R	SHERWOOD MILL POND - CONCRETE CULVERT	45.75	--	Yes
MAINLINE	WESTPORT	08034R	MUDDY BROOK - CONCRETE CULVERT	46.11	--	Yes
MAINLINE	WESTPORT	08035R	NEW CREEK ROAD	47.15	Yes	Yes
MAINLINE	WESTPORT	08036R	GREENS FARMS BROOK - METAL PIPE CULVERT	47.29	--	--
MAINLINE	WESTPORT	08037R	MAPLE LANE	47.44	Yes	Yes
MAINLINE	WESTPORT	08038R	SASCO RIVER - MULTIBEAM DECK	48.29	--	Yes
MAINLINE	FAIRFIELD	08039R	WESTWAY ROAD	48.65	--	Yes
MAINLINE	FAIRFIELD	04200R	CENTER STREET	48.81	--	Yes
MAINLINE	FAIRFIELD	08041R	SPRUCE STREET	48.91	--	Yes
MAINLINE	FAIRFIELD	08042R	OLD POST ROAD	49.01	--	Yes
MAINLINE	FAIRFIELD	08043R	MILL RIVER - MULTIBEAM DECK	49.66	Yes	Yes
MAINLINE	FAIRFIELD	08044R	NORTH PINE CREEK ROAD	50.02	--	Yes
MAINLINE	FAIRFIELD	04197R	MILL PLAIN ROAD	50.29	--	Yes
MAINLINE	FAIRFIELD	04198R	ROUND HILL ROAD	50.90	Yes	Yes
MAINLINE	FAIRFIELD	01344R	NORTH BENSON ROAD (ROUTE 135)	51.12	--	Yes
MAINLINE	FAIRFIELD	08045R	FAIRFIELD CREEK - MULTIBEAM DECK	51.68	Yes	Yes
MAINLINE	FAIRFIELD	08047R	ASH CREEK - MULTIBEAM DECK	53.00	Yes	Yes
MAINLINE	BRIDGEPORT	03635R	FAIRFIELD AVENUE (ROUTE 130)	53.42	--	Yes
MAINLINE	BRIDGEPORT	08048R	BOSTWICK AVENUE	53.60	Yes	Yes
MAINLINE	BRIDGEPORT	08049R	HANCOCK AVENUE	53.72	--	Yes
MAINLINE	BRIDGEPORT	08050R	HOWARD AVENUE	53.84	--	Yes
MAINLINE	BRIDGEPORT	08051R	WORDIN AVENUE	54.07	--	Yes
MAINLINE	BRIDGEPORT	08052R	IRANISTAN AVENUE	54.22	Yes	Yes

State of Connecticut-Department of Transportation-Office of Rail
Metro-North Railroad Plans and Microfilm Availablity

Track Chart Name	Town	Bridge No.	Location	Mile Point	Existing Plans Y/N	Existing Microfilms Y/N
MAINLINE	BRIDGEPORT	08053R	SOUTH AVENUE	54.44	Yes	Yes
MAINLINE	BRIDGEPORT	03638R	PARK AVENUE	54.58	Yes	Yes
MAINLINE	BRIDGEPORT	08054R	MYRTLE AVENUE	54.70	Yes	Yes
MAINLINE	BRIDGEPORT	08055R	WARREN STREET	54.77	Yes	Yes
MAINLINE	BRIDGEPORT	08056R	LAFAYETTE STREET	54.84	--	Yes
MAINLINE	BRIDGEPORT	08057R	BROAD STREET	54.93	Yes	Yes
MAINLINE	BRIDGEPORT	08058R	MAIN STREET #1	54.98	--	Yes
MAINLINE	BRIDGEPORT	08059R	HOUSATONIC CROSSING	55.13	Yes	Yes
MAINLINE	BRIDGEPORT	08107R	SOUTH PEDESTRIAN OVERPASS	55.35	--	--
MAINLINE	BRIDGEPORT	08060R	UNION STREET	55.40	Yes	Yes
MAINLINE	BRIDGEPORT	08108R	NORTH PEDESTRIAN OVERPASS	55.41	--	Yes
MAINLINE	BRIDGEPORT	08061R	BRIDGEPORT HARBOR - REINFORCED CONCRETE SLAE	55.41	--	--
MAINLINE	BRIDGEPORT	08104R	BRIDGEPORT HARBOR - PEDESTRIAN TUNNEL	55.50	--	--
MAINLINE	BRIDGEPORT	08062R	STATION VIADUCT	55.51	Yes	--
MAINLINE	BRIDGEPORT	03636R	STRATFORD AVENUE (ROUTE 130)	55.61	--	Yes
MAINLINE	BRIDGEPORT	08063R	VIADUCT - PARKING LOT NORTH	55.69	--	Yes
MAINLINE	BRIDGEPORT	08064R	PEQUONNOCK RIVER - MOVABLE	55.90	Yes	Yes
MAINLINE	BRIDGEPORT	08065R	VIADUCT	55.91	--	Yes
MAINLINE	BRIDGEPORT	08066R	PULASKI STREET	55.95	--	Yes
MAINLINE	BRIDGEPORT	08067R	VIADUCT	55.97	--	Yes
MAINLINE	BRIDGEPORT	08068R	NOBLE AVENUE	55.98	--	Yes
MAINLINE	BRIDGEPORT	08101R	VIADUCT	55.99	--	--
MAINLINE	BRIDGEPORT	08102R	CLARENCE STREET	56.00	--	--
MAINLINE	BRIDGEPORT	08069R	KOSSUTH STREET	56.10	--	Yes
MAINLINE	BRIDGEPORT	03639R	EAST MAIN STREET (ROUTE 127)	56.20	--	Yes
MAINLINE	BRIDGEPORT	08070R	PEMBROKE STREET	56.35	Yes	Yes
MAINLINE	BRIDGEPORT	08071R	HALLETT STREET	56.46	Yes	Yes
MAINLINE	BRIDGEPORT	08072R	YELLOW MILL POND - BRICK ARCH	56.68	--	Yes
MAINLINE	BRIDGEPORT	08074R	SEAVIEW AVENUE	56.77	--	Yes
MAINLINE	BRIDGEPORT	08075R	BISHOP AVENUE	57.46	Yes	Yes
MAINLINE	BRIDGEPORT	08076R	BRUCE BROOK - CONCRETE PIPE 9' DIAMETER	57.54	--	Yes
MAINLINE	STRATFORD	08077R	BRUCE AVENUE	57.62	--	Yes
MAINLINE	STRATFORD	08078R	WEST BROAD STREET	58.72	Yes	Yes
MAINLINE	STRATFORD	08079R	KING STREET	58.88	--	Yes
MAINLINE	STRATFORD	01318R	MAIN STREET (ROUTE 113)	59.01	--	--
MAINLINE	STRATFORD	01312R	EAST MAIN STREET (ROUTE 110)	59.96	--	Yes
MAINLINE	STRATFORD	08080R	HOUSATONIC RIVER (DEVON BRIDGE)	60.42	Yes	Yes
MAINLINE	MILFORD	08081R	BEAVER CREEK - MASONRY ARCH	61.62	--	Yes
MAINLINE	MILFORD	08082R	BEARDSLEY AVENUE	62.94	--	Yes
MAINLINE	MILFORD	03640R	HIGH STREET	63.27	Yes	Yes
MAINLINE	MILFORD	03644R	RIVER STREET	63.44	Yes	Yes
MAINLINE	MILFORD	08083R	WEPAWAUG RIVER & PROSPECT STREET	63.53	Yes	Yes
MAINLINE	MILFORD	08084R	GULF STREET	63.83	--	Yes
MAINLINE	MILFORD	08085R	PEDESTRIAN UNDERPASS AT GULF STREET	63.84	--	Yes
MAINLINE	MILFORD	08086R	INDIAN RIVER - MULTIBEAM DECK	64.59	Yes	Yes
MAINLINE	MILFORD	08087R	OLD GATE LANE	64.74	Yes	Yes
MAINLINE	MILFORD	08088R	QUIRK POND BROOK - MASONRY CULVERT	66.29	--	Yes
MAINLINE	MILFORD	08090R	DEPOT ROAD	66.66	Yes	Yes
MAINLINE	ORANGE	08091R	OYSTER RIVER - MASONRY CULVERT	67.50	--	Yes
MAINLINE	WEST HAVEN	08092R	STREAM - STONE/CONCRETE CULVERT	67.98	--	--
MAINLINE	WEST HAVEN	08093R	MORGAN LANE	68.11	--	Yes

APPENDIX 18
MAP FILE LEGEND

Map File Legend

BOX 15 BRIDGE 08080R	BOX 14 NEW HAVEN YARD NEW HAVEN SIGNAL LAYOUTS ELECTICAL POWER SITE PLANS BETHEL/DANBURY STATION Misc.	BOX 13 NEW HAVEN YARD "B" PARCEL DANBURY GEORETOWN STATION Misc.
BOX 12 BRIDGE 08037R-08078R	BOX 11 BRIDGE 03723R-08036R	BOX 10 BRIDGE 09110R-09008R
BOX 9 New Haven yard MISC plans	BOX 8 BRIDGE 00046R-03693R	BOX 7 BRIDGE 08083R-0639R
BOX 12 MISC. property plans	BOX 5 Misc. Station plans	BOX 4 345KV
BOX 3 Misc. Station plans New Haven station plans Bridgeport station plans	BOX 2 MISC. New Haven Tunnel Versailles Willimantic Mainline Control	BOX 1 345KV

Version: 1.0 - February, 2012

APPENDIX 19
BASEMENT STORED FILES BY PROJECT AND OTHER

Basement Stored Files

Box Information				Plan Information		
Project Number	**Box Description**	**Label Number**	**Location of Box**	**Project Number**	**Plan Description**	**Plan Location**
0058-0260	School St. Quad Gates	100	1st Row Right Side	0058-0277	School Street	2nd Row Right Side
0058-0260	School Street	100		0058-0277	School Street	2nd Row Right Side
09-800	Plans & Specs Greiner Environmental/ ADA	23	2nd Row Left Side	0058-0277	School Street and West Mystic Ave.	2nd Row Right Side
09-800	ADA/Environmental Plans and Specs Greiner	23	2nd Row Left Side	0058-0277	School Street	2nd Row Right Side
135-166	Metro North Invoices	24	2nd Row Left Side	0058-0277	School Street Improvements	2nd Row Right Side
135-208	Stamford	115		0058-0277	School Street Improvements Repair	2nd Row Right Side
135-216	CO/ Submittals	54	2nd Row Right Side	09-800	Bethel Station Relocation	2nd Row Right Side
136-200's		21	1st Row Right Side	135-175	Stamford	2nd Row Right Side
15-147	Peck (12 Boxes)	A	2nd Row Left Side	300-0017	Danbury Branch, New Canaan Rail Line Plan Maps	2nd Row Right Side
15-147	Peck (14 Boxes)	A	2nd Row Right Side	301-0001	New Haven Interlocking	2nd Row Right Side
15-157	East Bridgeport Daily Reports	49	2nd Row Right Side	301-0001	NH Interlocking	2nd Row Right Side
15-157	East Bridgeport Kaiser Engs, Francini Const.	49	2nd Row Right Side	301-0001		2nd Row Right Side
15-157	East Bridgeport	49	2nd Row Right Side	301-006	Stamford Station	2nd Row Right Side
15-157	East Bridgeport, Stamford Tunnel Lobby, BROT Restoration of Rail System 1994	49	2nd Row Right Side	34-234	Danbury Branch	2nd Row Right Side
15-157	East Bridgeport, NH Maint. Facility Change Orders	49	2nd Row Right Side	50-175	NH Station	2nd Row Right Side
161-120, 301-001	Wilton	16	2nd Row Left Side	502-2200-166	Norwalk Submarine Cable Relocation	2nd Row Right Side
170-1375	Fairfield Ave, Bridgeport	78		884-497	Danbury Line	2nd Row Right Side
170-1375	East Ave Railroad Bridge, Norwalk	78		92-350	NH Rehab	2nd Row Right Side
170-1506	Bridge Inspection MNR WO 2932, 2933, 3005	39	2nd Row Right Side	92-414	New Haven Diesel Shop	2nd Row Right Side
170-1616		34	1st Row Right Side	92-414	New Haven Line	2nd Row Right Side
170-850, 300-048,	Misc. Invoices 1997-1999	63	2nd Row Right Side	92-435	Tomliason Bridge	2nd Row Right Side
170-850, 301-003	West River	56	2nd Row Right Side	k3173/9534	Norwalk River	2nd Row Right Side
300-0018	New Haven and Bridgeport Station	73	2nd Row Right Side		New Haven Interlocking	2nd Row Right Side
300-0062	Network Infrastructure (2002) 2002 Site Books	3	2nd Row Left Side		Guilford Station	2nd Row Right Side
300-0062	Network Infrastructure Project 100% Design	3	2nd Row Left Side		New Haven Railroad Track Design	2nd Row Right Side
300-0062	Network Infrastructure Project Plans, Letters, Reports, and Test	3	2nd Row Left Side		New Haven Interlocking 1 of 2	2nd Row Right Side
300-0062	Network Infrastructure Project GE Transportation Systems Box 2	3	2nd Row Left Side		New Haven Station Phase 1	2nd Row Right Side
300-0062	Network Infrastructure (2002) Site Books	3	2nd Row Left Side		Ridgefield Route US 7, CT 102	2nd Row Right Side
300-0062	Network Infrastructure Project (Hudson/ Harlem Side NY) 100% Design Books	3	2nd Row Left Side		New Haven Railroad East Interlock	2nd Row Right Side
300-0062	Network Infrastructure Project (Hudson/ Harlem NY) 100% Design Site Books	3	2nd Row Left Side		Danbury Branch	2nd Row Right Side
300-0062	Network Infrastructure 2002	3	2nd Row Left Side		New Haven Station Map	2nd Row Right Side
300-0062	Network Infrastructure Project 100% Final Design Submittals 9/12/2002	3	2nd Row Left Side		Catenary Repairs by UI/NU	2nd Row Right Side
300-0062	Network Infrastructure (2002) Preliminary Submittals	3	2nd Row Left Side		Williams Fiber Optic Hartford to RI	2nd Row Right Side
300-0062	Engineering Furnishing and Intergration of a Fiber Optic Communication	3	2nd Row Left Side		Danbury Signalization Project Plans	2nd Row Right Side
300-0062	Network	3	2nd Row Left Side		New Canaan Fiber Optics	2nd Row Right Side
300-0062	Network Infrastructure 8/2002 100% Site Books	3	2nd Row Left Side		Williams Fiber Optic Greenwich to Hartford	2nd Row Right Side
300-0062	Network Infrastructure Contracts, Ect.	3	2nd Row Left Side		Communication Conduit Installation State Rd Xing District 3	2nd Row Right Side
300-0062	Network Infrastructure Factory Acceptance Test	3	2nd Row Left Side		Communication Conduit Installation State RT. 5 North Haven	2nd Row Right Side
300-0062	Network Infrastructure (2001)	3	1st Row Right Side		New Haven Station Phase 2	2nd Row Right Side
300-0062	Network Infrastructure Engineering and Furnishing and Negotiations 2001	3	1st Row Right Side		Stamford Transportation Center Interlocking	2nd Row Right Side
300-0062	Network Infrastructure 1998-1999	3	1st Row Right Side		New Haven Line CP-230	2nd Row Right Side
300-0062	Network Infrastructure 1998-1999	3	1st Row Right Side		New Haven Yard Report	2nd Row Right Side
300-0062	Network Infrastructure NY Section of NH Line 100% Design Submittal and Site Books	3	1st Row Right Side		Amtrak High Speed Config. NH-7Boston 1995	2nd Row Right Side
300-0062	Network Infrastructure (2000)	3	1st Row Right Side		Amtrak High Speed Railline Improvements	2nd Row Right Side
300-0062	Network Infrastructure (2001)	3	2nd Row Right Side		Galleria at Long Wharf, New Haven	2nd Row Right Side
300-0062	Network Infrastructure (1999)	3	2nd Row Right Side		Stamford Station Center Platforms	2nd Row Right Side
300-0062	Network Infrastructure (1997-1998)	3	2nd Row Right Side		Communication Conduit Installation Redding	2nd Row Right Side
300-0074	New Haven Radio Project 60% Submittal	14	2nd Row Left Side		Stamford Station Project	2nd Row Right Side
300-0074	NH Radio Project 2001-2002	14	1st Row Right Side		Westbrook Factory Stores	2nd Row Right Side
300-0074	NH Radio Project MNR Study and 90% Submittal	14	1st Row Right Side		Stamford Station Center Platforms	2nd Row Right Side

Basement Stored Files

Box Information				Plan Information		
Project Number	**Box Description**	**Label Number**	**Location of Box**	**Project Number**	**Plan Description**	**Plan Location**
300-0074	NH Radio Project	14			NHL Electrification Old Plans '49	2nd Row Right Side
300-0074	Radio Upgrade/ Enhancements	14			Loco Service Agreement New Haven	2nd Row Right Side
300-030	West Haven Culvert, Davis Brook Culvert, Seymour R/N	43	2nd Row Right Side		Stamford Station Center Platforms Signal Power Locations	2nd Row Right Side
300-031	Substructure Repairs on RR Bridges	31	1st Row Right Side		Stamford Platforms	2nd Row Right Side
300-033	CHA Invoices, and Agreement	32	1st Row Right Side		Stamford Center Island Platforms	2nd Row Right Side
300-033	CHA Assignments, Scope of Work, Correspondence	32	2nd Row Right Side		NHL Stamford Station Project	2nd Row Right Side
300-033	South Ave, Bridgeport	80			Hanger, New Canaan Bridge	2nd Row Right Side
300-033	W.O. 3044	80			New Haven Interlocking	2nd Row Right Side
300-033	W.O. 3045	80			Demolition Plan of Viaduct Road	2nd Row Right Side
300-033	W.O. 3046	80			36" Tideflex Valve '94	2nd Row Right Side
300-036, 170-1504	W.O. 3034 Aglas Bridge Inspection and Greiner Bridge Inspection	69	2nd Row Right Side		RT 113 Stratford, CT Lordship Bull Xing '90	2nd Row Right Side
300-048	Wepawaug Construction	6	2nd Row Left Side		Signal Control System '86	2nd Row Right Side
300-048	Wepawaug General Files	6	2nd Row Right Side		New Haven Interlocking '92	2nd Row Right Side
300-074	NH Radio Project	14	2nd Row Right Side			
300-077	Devon Bridge 2000-2005 Vol 2 of _ by Art DiCesare, Inc	97				
300-077	Devon Bridge 2000-2005 Vol 1 of _ by Art DiCesare, Inc	97				
300-087	Construction Files to 4 Bridges Noroton River, Greens Farm Bk, Norwalk River,	30	1st Row Right Side			
300-087	Repairs to 4 MNR Bridges Noroton River, Greens Farm Bk, Norwalk River,	30	1st Row Right Side			
300-101	Main Street, Bridgeport	77	1st Row Right Side			
300-102	Long Meadow Pond Brook Naugatuck, Ash Creek Fairfield, RT 106 New	76				
301-0001, 94-414, 94-246, 34-225, 300-035		26	2nd Row Left Side			
301-003	West River Construction	62	2nd Row Right Side			
301-003	West River Design/ Construction	62	2nd Row Right Side			
301-003	West River, Envr/Misc	62	2nd Row Right Side			
301-0040	Walk/Saga Drawing 2007	107				
301-0040	Walk/ Saga Bridges CP 241 Signal Mod.	107				
301-0040	Walk/ Saga	107				
301-0040	Walk/ Saga (5 Boxes)	107				
301-006, 020, 021, 135-206, 208	Stamford Center Island Platform	B	2nd Row Right Side			
301-006, 020, 021, 135-206, 208	Stamford Yard 1994	B	2nd Row Right Side			
301-006, 020, 021, 135-206, 208	Stamford Station Center Island Platform Project	B	1st Row Right Side			
301-006, 020, 021, 135-206, 208	Stamford Transportation Center Shop Drawings	B	1st Row Right Side			
301-006, 020, 021, 135-206, 208	Stamford Center Island Platforms (21 Boxes)	B	2nd Row Left Side			
301-006, 020, 021, 135-206, 208	5700 & Stamford Trans Center	B	2nd Row Left Side			
301-023, 301-028	East Cut Drainage, West Cut Retaining Walls, Northeast High Speed Rail Improvement Project Amtrak, NH Yard Car & Diesel Shop, Remedial Manag. Plan, Wepawaug River	25	2nd Row Left Side			
301-025	Catenary Replacement B/T 1045 & 73-16 (AM) / Contract for 92-529 State Street Station	46	2nd Row Right Side			
301-039	NH Railyard Switching Plan	65	2nd Row Right Side			

Basement Stored Files

Box Information				Plan Information		
Project Number	Box Description	Label Number	Location of Box	Project Number	Plan Description	Plan Location
301-041	Documents CP 248 Tie-In Design	117				
301-043	Depot Road and Rock Lane	27	1st Row Right Side			
301-045	Washington and Main, South Norwalk MNR WO NO. 3096, 3097	36	2nd Row Right Side			
301-053	Old Gate Lane, Construction Catenary "D"	33	2nd Row Right Side			
301-059	River St., High St., Old Gate Rd Milford Bridges	112				
301-065/71	CP-248 Invoices and Misc.	106	1st Row Right Side			
301-065/71	CP-248 Files	106	1st Row Right Side			
301-070	C1b	79				
301-070	North Benson Road	79				
301-074	Emergency at Walk Bridge West and East Channel Submarine Cables	108				
301-074	Emergency at Walk Bridge East Channel	108				
301-074	Walk Claims 3 Boxes	108				
301-075	Westway Road	81				
302-0007	Dennis Murphy 2003 Go-No-Go Signals along NHL Danbury, Bethel, Redding, Ridgefield, Wilton, Norwalk	5	2nd Row Left Side			
302-0007/ 0034-0234	Danbury CTC (16 Boxes)	75				
302-005	Simpaug Turnpike Danbury Branch Redding	58	2nd Row Right Side			
302-006	RTE 53, Bethel	45	2nd Row Right Side			
302-006	RTE 53, Bethel	45	2nd Row Right Side			
302-009, 301-035, 301-080, 153-107	Emergency Projects- Marshall St. Norwalk, Westport Culvert, New Haven Catenary, Watertown Pier Repairs	11	2nd Row Left Side			
302-010	Emergency Declaration for Norwalk Retaining Wall Box 1 of 2	38	2nd Row Right Side			
302-010	Emergency Declaration for Norwalk Retaining Wall Box 2 of 2	38	2nd Row Right Side			
303-004	Viaduct Road, Stamford	7	2nd Row Left Side			
303-004	Viaduct Road, Stamford	7	2nd Row Right Side			
304-002	Waterbury Station and New Haven Station	74	2nd Row Right Side			
304-007	Emergency Decl. Seymour Canal	96	1st Row Right Side			
34-225	Danbury Station Relocation	66	2nd Row Right Side			
50-199	North Benson Road Railroad Bridge	1	2nd Row Left Side			
58-260	School St. Doc Ref and West Mystic Bills (2 Boxes)	100				
82-280	Middletown Bridge (P & W Repairs) 1999	17	2nd Row Left Side			
82-280	Middletown Swing Bridge Information 1999	17	1st Row Right Side			
82-280	Middletown Swing Bridge Pier # 5 Fender Replacement Box 2 of 2	17	1st Row Right Side			
82-280	Middletown Swing Bridge and Cluster	17	1st Row Right Side			
82-280	Middletown Swing Bridge Pier # 5 Fender Replacement Box 1 of 2	17	1st Row Right Side			
82-280	Middletown Swing Bridge	17	2nd Row Right Side			
82-280	Middletown Swing Bridge Rehab	17	2nd Row Right Side			
888-446, 888-429, 888-427, 884-450	D. Chase Misc. Project Records	59	2nd Row Right Side			
92-380	New Haven Platforms "B" and "C" agreement Box 1 of 3	9	2nd Row Left Side			
92-380	MNR and Gooding O' Dea Invoices Box 2 of 3	9	2nd Row Left Side			
92-380	Platforms "B" and "C" Design Box 3 of 3	9	2nd Row Left Side			
92-426	New Haven	101	1st Row Right Side			

Basement Stored Files

Box Information				Plan Information		
Project Number	Box Description	Label Number	Location of Box	Project Number	Plan Description	Plan Location
Design Pr. 170-1375 Const. Pr. 170-1509, Design Pr. 170-1509 Const. Pr. 301-033	Boston Post Road, Darien and Monroe Street, Norwalk	13	2nd Row Left Side			
Design Pr. 170-1375 Const. Pr. 300-098	Rowayton Ave. in Norwalk	12	2nd Row Left Side			
S-4	Laber	55	2nd Row Right Side			
	Proposed New Haven Yard Improvements	2	2nd Row Left Side			
	Scientech 2001-2000 (Doct. Submittals, E-mail, Letters)	4	2nd Row Left Side			
	New Haven Rail Yard	8	2nd Row Left Side			
	Bureau of Public Trans Picnic Records	10	2nd Row Left Side			
	Danbury Branch Catenaries 2002	15	2nd Row Left Side			
	Danbury 9/15/1993 & ADA	18	2nd Row Left Side			
	Inductive Grounding Study NHL and Northern Telecom Manuals	19	2nd Row Left Side			
	Rails Storage- Sasco Creek	20	2nd Row Left Side			
	Scientech Doct. Submittals 1999-2000	4	2nd Row Left Side			
	Catenary Report- NH Mainline	22	2nd Row Left Side			
	NHL Service Meeting Minutes	28	1st Row Right Side			
	Bridge Invoices D. Murphy	29	1st Row Right Side			
	Catenary Report- NH Mainline	22	1st Row Right Side			
	Catenary "A" Construction- Arch St., Hamilton St., N. Water St. (Greenwich)	35	1st Row Right Side			
	Signal and FRA ITS Info	37	2nd Row Right Side			
	Fiber Optic Communication System	40	2nd Row Right Side			
	Fiber Optic Communication Project	41	2nd Row Right Side			
	Clough-Harbor Assignments General Corresp/ Asylum Crk/Norwalk Rvr Study/ Noroton Rvr Study/ Seismic Screening Box 1 of 2	42	2nd Row Right Side			
	Clough-Harbor Assignments General Corresp/ Asylum Crk/Norwalk Rvr Study/ Noroton Rvr Study/ Seismic Screening Box 2 of 2	42	2nd Row Right Side			
	CL & P Cos Cob RR Supply Substation As- Builts	44	2nd Row Right Side			
	Catenary New Canaan Erection Diagrams Dossert Corp. Components for NHL	47	2nd Row Right Side			
	Catenary Standards Constant Tension Catenary 1998	48	2nd Row Right Side			
	Misc. Files D- Chase (Capital, PMOs, Peck Status Reports)	50	2nd Row Right Side			
	MNR Invoices W.O. 3007, 3025, 3027, 2832, 2799, 3026, 2608, 2798, 3008, 2607, 2841, 2421, 3022, 3006	51	2nd Row Right Side			
	NH Railyard Demolition Photos and Stamford Station	52	2nd Row Right Side			
	Misc. Bridge Invoices Murphy 1998-1999	53	2nd Row Right Side			
	Railroad Improvements NH Yard, Williams Comm ETC	57	2nd Row Right Side			
	Northeast Telecom Manuals, Inductive Grounding Study, Catenary Report NH	68	2nd Row Right Side			
	MNR Railroad Contract No. 9438, Design and Engineering Services/ S and C A08, Task #004 Perform Radio Frequency Survey in CT	61	2nd Row Right Side			
	CP-248/ CP-261 2003	60	2nd Row Right Side			
	TCG Fiber Optic Proj. RR Improvements	64	2nd Row Right Side			
	F. Chojnicki	67	2nd Row Right Side			
	South Norwalk Station and Parking Garage	70	2nd Row Right Side			
	South Norwalk Station and Parking Garage/ Waterbury Station	71	2nd Row Right Side			
	Bridgeport Intermodal Facility and New Canaan Railroad	72	2nd Row Right Side			
	Various Projects 1997-2000	82	1st Row Right Side			
	Contracts 1993 and Quarterly Reports 1976-1980	83	1st Row Right Side			

Basement Stored Files

Box Information				Plan Information		
Project Number	Box Description	Label Number	Location of Box	Project Number	Plan Description	Plan Location
	Various Projects 1997-1999	84	1st Row Right Side			
	Various Projects Correspondants 1992, 1999-2000	85	1st Row Right Side			
	Various Project Correspondants 1992	86	1st Row Right Side			
	Various Project Correspondants 1992-1998	87	1st Row Right Side			
	Scientech 2000 Box 1 of	4	1st Row Right Side			
	Scientech 2000 Box 2 of	4	1st Row Right Side			
	Various Project Correspondants 1989-1993	89				
	Various Project Correspondants 1995, 1997, 2000	90	1st Row Right Side			
	Quarterly Reports 1981-1989, Contracts 1997	91	1st Row Right Side			
	Various Projects 1997 Provisions	92	1st Row Right Side			
	Contracts and Correspondants 1998	93	1st Row Right Side			
	Various Project Correspondants 1995-2000	94	1st Row Right Side			
	Short Circuit Test Data 1985 Bridgeport Section	95	1st Row Right Side			
	Correspondence, Contracts 1985-1987	98	1st Row Right Side			
	New Haven Change Orders	99	1st Row Right Side			
	Various Projects Correspondants 1987-1991	102	1st Row Right Side			
	Various Projects Correspondants 1985-1990	103	1st Row Right Side			
	Various Projects Correspondants 1985-1987	104	1st Row Right Side			
	Various Projects Change Orders 1988-1989	105	1st Row Right Side			
	M/N Invoices Sect. A 3 of 4	109	1st Row Right Side			
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APPENDIX 20
LOCATION OF BRIDGE PLANS (FROM BRIDGE SAFETY AND EVALUATION) IN BASEMENT STORAGE

APPENDIX 20

Coalition Bridge
PLANS (FROM
BRIDGE SAFETY
AND EVALUATION)
IN BASEMENT
STORED
FILES

BS+E
Plans

Bridge No.	Plan Type	Comments
00451 R	Roll	
00522 R	Flat	No. 1 Flat
00522 R	Flat	No. 2 Flat
00522 R	Roll	
00710 R	Flat	
00710 R	Roll	
01063 R	Flat	
01063 R	Roll	
01074 R	Flat	
01100 R	Roll	
01312 R	Roll	
01849 R	Roll	
03277 R	Roll	
03638 R	Flat	with 03680R, 03678R, and 08056R
03640 R	Flat	
03644 R	Flat	
03673 R	Flat	
03673 R	Roll	
03678 R	Flat	with 03680R, 03638R, and 08056R
03680 R	Flat	with 03678R, 03638R, and 08056R
03683 R	Flat	No. 1 Flat
03683 R	Flat	No. 2 Flat
03691 R	Roll	
03693 R	Flat	
03867 R	Roll	
03943 R	Flat	
03943 R	Roll	
03945 R	Flat	
03981 R	Flat	
03997 R	Roll	
04025 R	Roll	
04288 R	Flat	with 08080R, 08008R, and 08034R
06052 R	Roll	
08008 R	Flat	with 08080R, 04288R, and 08033R
08008 R	Roll	
08008 R	Flat	
08009 R	Flat	
08012 R	Flat	
08014 R	Flat	w/ 08036R, 08086R, and 08202R
08032 R	Flat	No. 1 Flat [illegible]
08032 R	Flat	No. 2 Flat
08032 R	Flat	with 08080R, 08008R, and 04288R
08036 R	Flat	w/ 08014R, 08086R, and 08202R
08056 R	Flat	with 08077R and 08070R
08056 R	Flat	with 03680R, 03678R, and 03638R
08058 R	Roll	
08062 R	Flat	
08063 R	Flat	
08064 R	Flat	
08070 R	Flat	with 08077R and 08056R
08070 R	Roll	
08077 R	Flat	with 08070R and 08056R
08080 R	Flat	
08080 R	Flat	with 08008R, 04288R, and 08032R
08080 R	Roll	
08083 R	Flat	
08083 R	Flat	
08083 R	Roll	
08080 R		Devon Bridge Project 92-3641990
08086 R	Flat	w/ 08014R, 08036R, and 08202R
08087 R	Flat	CAMPBELL M.P. 70.19
08099 R	Flat	
08099 R	Flat	
08100 R	Roll	
08101 R	Flat	
08150 R	Flat	
08150 R	Roll	
08150 R	Roll	
08202 R	Flat	w/ 08014R, 08036R, and 08086R
08214 R	Flat	No. 1 Flat
08214 R	Flat	No. 2 Flat
08218 R	Roll	
08220 R	Flat	
08258 R	Flat	
08262 R	Flat	
09802 R	Roll	