Assessment and Evaluations of I-80 Truck Loads and their Load Effects

WYDOT Sponsor

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Submitted to

Wyoming Department of Transportation

Programming Research Unit

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Problem Background

I-80 is a major transcontinental truck route that has a very high volume and percentage of trucks. Per a 9/29/2011 FHWA Memo, FHWA requires that five conditions must be met to use the assigned load rating as described in the AASHTO *Manual for Bridge Evaluation*, Second Edition. The memo is provided in Appendix A. The five conditions are:

Table 1: FHWA Memo Summary

Condition	**Status**
1. The bridge was designed and checked using either the AASHTO Load or Resistance Factor Design (LRFD) or Load Factor Design (LFD) methods to at least HL-93 or HS-20 live loads, respectively.	This is typical and not an issue.
2. The bridge was built in accordance with the design plans.	WYDOT construction processes ensures this.
3. No changes to the loading conditions or the structure condition have occurred that could reduce the inventory rating below the design load level.	If such occurs, then WYDOT rerated the bridge as applicable.
4. An evaluation has been completed and documented, determining that the force effects from State legal loads or permit loads do not exceed those from the design load	Typical in-service trucks load may exceed the older and/or the current design loads.
5. The checked design calculations, and relevant computer input and output information, must be accessible and referenced or included in the individual bridge records.	WYDOT has robust bridge inventory records.

All but the fourth condition is readily met. Many state agencies are uncertain about their current load spectra. As an example WYDOT's I-80 could be especially critical and unique for Wyoming and other agencies in the Rocky Mountain region.

When I-80 closes, there is a high concentration of trucks approaching 100% as shown in Figure 1. These trucks are closely spaced and occupy the two traffic lanes as shown in Figure 2. Similar trucks often run together, thereby producing correlated loadings as shown in Figure 3. Typically, correlated loads create a larger load effect on the bridges than uncorrelated.

Few other states have this type of loading and the current design loads were not calibrated considering this type of truck percent, spacing, or correlation. Moreover, road closures are not unusual in Wyoming, so this is not an "extreme" event but rather business as usual.

Figure 1: Traffic after Reopening

Figure 2: Two-Lane Loading

Figure 3: Correlated Loading

These observations indicate that Wyoming loads are significantly different than other states or regions.

Technology and processes are available to estimate on-highway axle loads and spacings. WYDOT WIM data are transferable to current processes. Joining the WIM data with WYDOT's comprehensive database of all existing bridges makes it possible to perform an analysis, rating, and rigorous analysis of these structures for actual in-service loads.

Study Objectives

This project will address the following questions:

- Are the FHWA requirements outlined in the 9/29/2011 memo met?
- How do the Current Legal Loads compare to Wyoming weigh-in-motion (WIM) data and vehicles allowed by state statutes?
- How do the WIM and current Legal Loads compare to the AASHTO LRFR Legal/Rating Loads?
- Can the accumulative damage effects of large loads on I-80 begin to be quantified?

Study Benefits

There are several benefits that will be realized by WYDOT from this project:

- WYDOT will meet the FHWA requirements
- Much better understanding of design and operational loads
- Initial understanding of live load effects and accumulated damage
- Rigorous calibration method for estimating live effects (for example, state-specific live load and multiple presence factors)
- Rigorous structural analysis (BRASS™ girder and route software systems)

Anticipated Outcomes

There are several anticipated outcomes from this project:

- Wyoming will have one of the most advanced rating systems in the United States for long-term use.
- Wyoming will have a system to begin to quantify the load effects of actual loads and possibly the associated damage (for example, Fatigue and Service II limit states). Trucks are obviously hard on roadways, especially I-80.
- Possible spin-off of future studies for pavement analysis, fatigue, etc.
- Wyoming will have a "leg up" on the impact of proposed legal loads such as the six-axle 97k TRB truck and whether it might properly model Wyoming loads. See Figure 4 for the configuration.

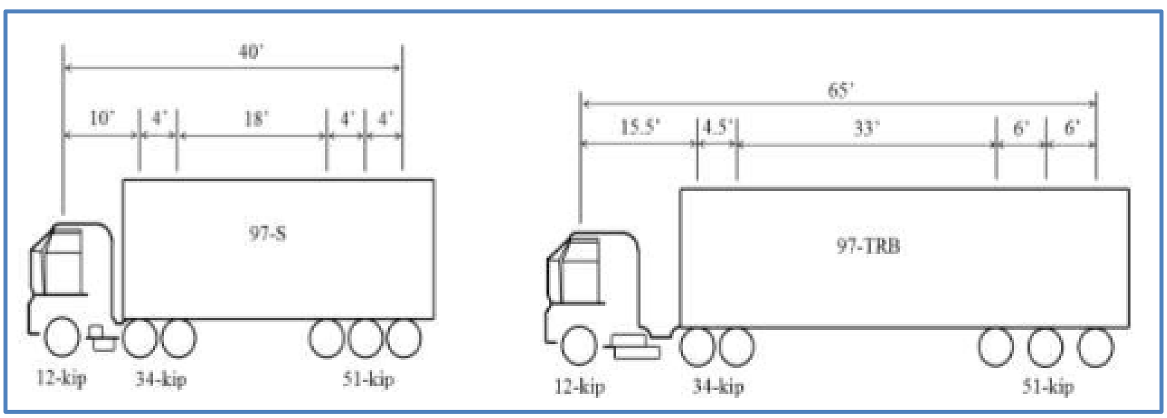


Figure 4: 97 kip Proposed Truck

Work Plan

The approach for accomplishing the objectives will make use of existing WYDOT assets and Modjeski and Masters' processes. The following sections describe the work plan tasks.

Literature Review

An initial literature review has been conducted as well as studied yet to be published. The closest project conducted to date is NCHRP Report 700 *A Comparison of AASHTO Bridge Load Rating Methods*. This work involved collaboration of Modjeski and Masters with Michael Baker, Jr., Inc. using Wyoming's BRASS™ software which is was written by maintained by BridgeTech, Inc. under contract to WYDOT. This work does not consider the complex nature of I-80 loads in the analysis; however, there are techniques outlined therein that will be studied and likely used for this work. NCHRP Report 575 *Legal Truck Loads and AASHTO Legal Loads for Posting* also provides good background.

Literature and reports will be obtained and reviewed from published papers, NCHRP and DOT reports, and TRB meetings. The state engineers will be polled to determine if any present studies are underway that might be useful for information and/or collaboration.

Collect Vehicle Data

Vehicle data will be collected for use in this project. At a minimum, this will consist of:

- AASHTO Design and Legal Vehicles
- Wyoming Legal Vehicles
- Wyoming WIM Data

Vehicles data from adjacent states will not be considered in this project.

WIM Data

There are some challenges associated with WIM data. This study focuses on I-80, so WIM data from multiple sites along this route would be beneficial. Additionally, at least one year of data from each site would be helpful.

The raw WIM data must be filtered to remove cars and nonsense data, such as very large axle loads, extremely short or extremely long vehicles, very close axle spacings, discrepancies between GVW and the sum of the axle weights, and presumed permit trucks.

Once the WIM data are cleansed, there will likely be millions of records that must be processed to determine statistically prevalent truck configurations. The processing will also include generating GVW and number-of-axles histograms and generating statistical data such as mean, standard deviation, # of vehicles, standard normal graphs. Examples of results obtained from the WIM data analysis are illustrated in Figure 5 through Figure 8. These figures are courtesy of Modjeski and Masters from a study conducted for another agency. (Federal Bridge Formula [FBF])

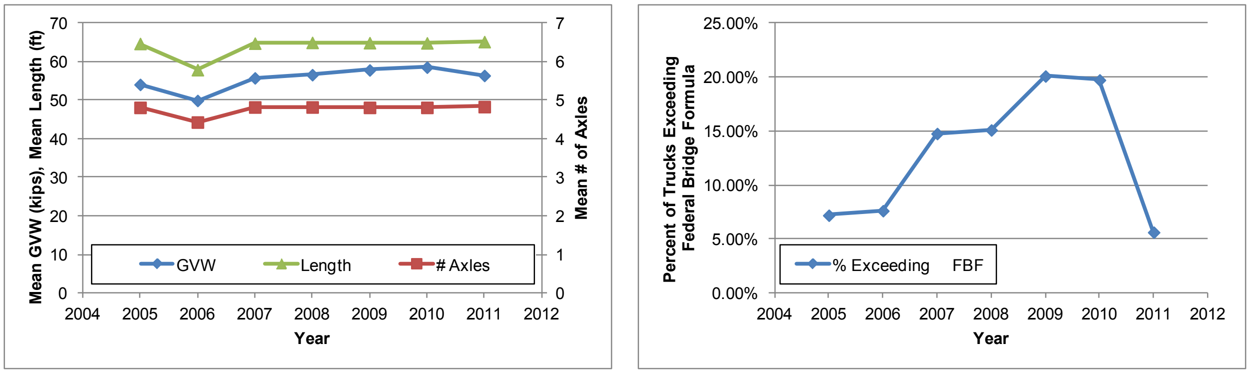


Figure 5: Example of Results from Processing WIM Data

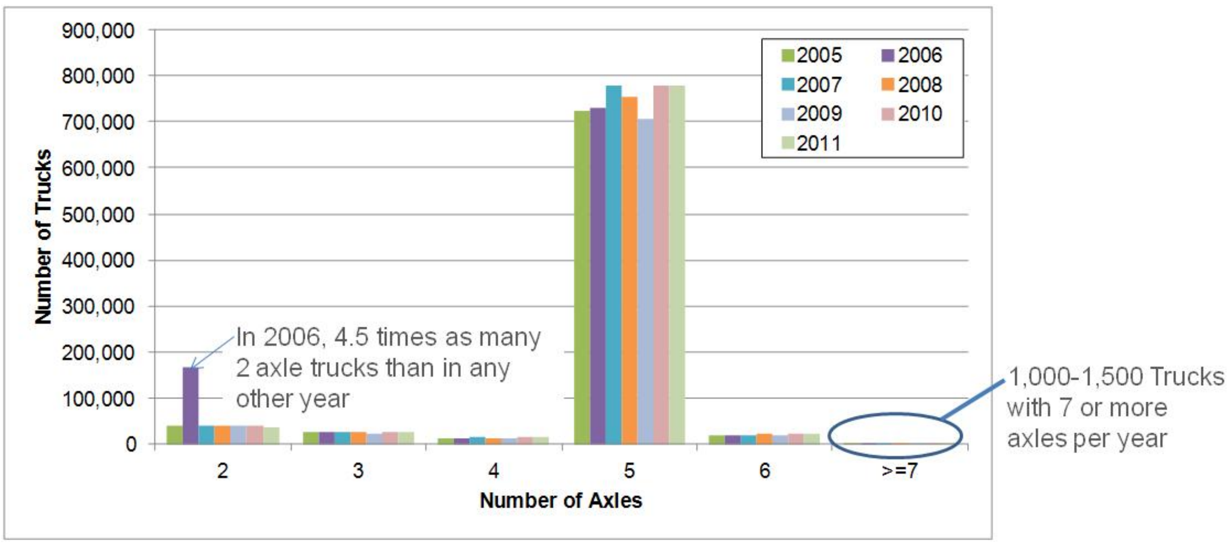


Figure 6: Example of Distribution of Number of Axles

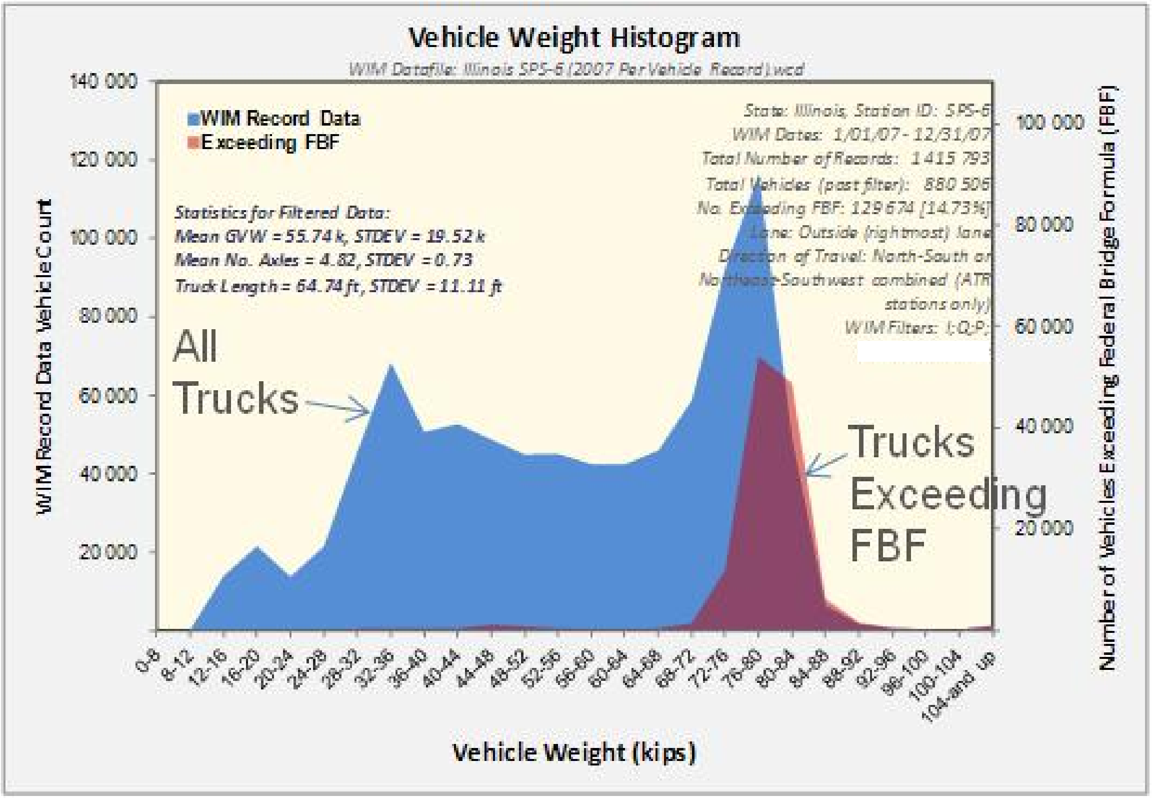


Figure 7: Example of Vehicle Weight Histogram

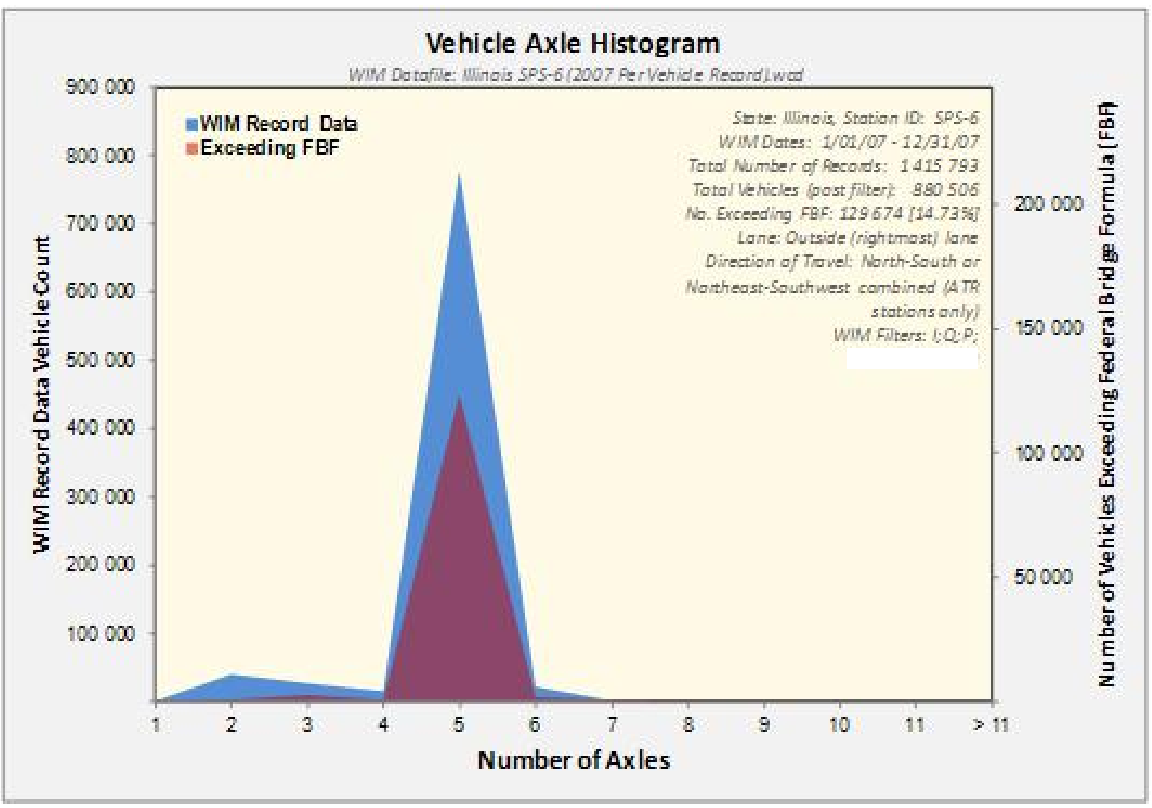
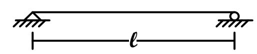
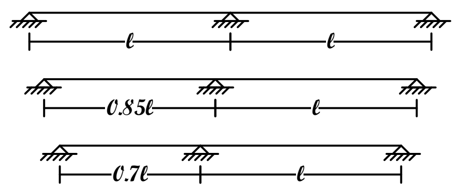
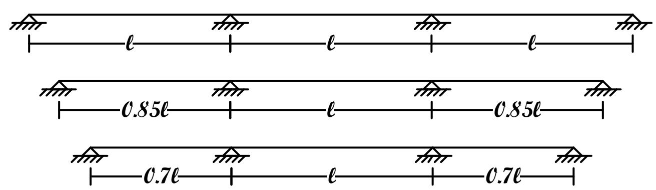


Figure 8: Example of Vehicle Axle Histogram

Develop Structure Configurations

In addition to Wyoming's I-80 bridges, it will be necessary to develop a variety of additional structure configurations for which live load force effects can be determined. This will provide a broader spectrum of structures for this study. These structures will range from one to three spans with varying span ratios for the multiple-span structures as shown in Table 2.

Table 2: Structure Configurations

One Span	
Two-Span Continuous	
Three-Span Continuous	

The base span lengths (**ℓ**) will range from a minimum of 10 feet to a maximum of 200 feet in 10-foot increments. Short simple spans will range from 10 to 30 feet in one-foot increments.

Force Effects

Force effects for the generated structure configurations will be examined at specific locations along each structure as shown in Table 3.

Table 3: Analysis Locations

One Span	• Moment at midspan • Shear at support
Two-Span Continuous	• +/-M at 0.4L of first span • -M at interior support (critical of one or two truck loading) • +/-V at end support • +/-V to left and right of interior support
Three-Span Continuous	• +/-M at 0.4L of first span and 0.5L of center span • -M at interior support (critical of one or two truck loading) • +/-V at end support • +/-V left and right of interior support

Influence Lines

Influence lines will be developed for the 18 different force effects and normalized against the span length.

Determine Force Effects

The force effects will be determined for the generated structure configurations initially and then the I-80 bridges. One- and multiple-lanes loaded live load distribution formulas will be used.

Generated Structure Configurations

A program will be employed to analyze the generated structure configurations. The program will perform the following tasks:

- Runs the trucks on influence lines for each span length desired
- Calculates the ratio of force effects for LRFD and LFD Design Loads, current Legal Loads, and other study loads
- Creates graphs of ratios as a function of span length

I-80 Bridges

BRASS™ shall be employed for the analysis of the I-80 bridges. The I-80 bridges are expected to be provided to the research team in the merged BRASS-GIRDER™ format, so the BRASS™ Route program can be utilized to analyze bridges in a batch. Force effects at the points of interest specified within the data file will be examined. The data files are expected to contain the sufficient points of interest for this study. The data files will not be edited to add or remove points of interest.

Determine Force Effects Using Rigorous Live Load Distribution Analysis

To gain a better understanding of the unique loading condition along I-80, a rigorous live load distribution analysis will be performed and the associated force effects will be determined. The rigorous live load distribution analysis will be performed using analysis tools developed for NCHRP 12-62. These tools require that the model be described with nodes, elements, and element stiffnesses. Because BRASS-GIRDER™ already constructs a model mesh, these data can be readily output to a file, which can be picked up by the rigorous grillage analysis. However, girder spacings are needed to describe the girder system. Therefore, selected data files containing the deck geometry will be considered in these analyses.

BRASS-GIRDER™ would need to be revised to export this mesh file. This would be the first step toward implementing a rigorous live load distribution analysis to replace BRASS-DIST™.

The WIM data will be used to generate the load spectra for the refined analysis and Monte Carlo methods will be used to create specific load combinations for the analysis. The results will be used to determine the associated multiple presence factors that are applicable for I-80 road closures.

Determine Rating Factors

Rating factors will be obtained from the BRASS™ program's NCHRP 12-50 output files. These results will be for the various limit states (Strength I & II, Service II, and Fatigue).

Investigate Use of Miner's Rule

The research team will investigate the use of Miner's Rule (or other cumulative damage rule) to estimate annual damage.

Establish Refined Live Load Factors

The project will make use of the WIM data to investigate methods to:

- Perform a reliability analysis to determine reliability index (*β)* for various limit states (Strength I and II, Service II, Fatigue) using published resistance data and WIM live load data. This will guide the team in determining whether live load factors should be revised for load design and rating. [could have two sets of factors for I-80, I-25, another for other routes]
- Establish refined live load factors for WYDOT strength design limit state

Perform Load Comparisons

Load comparisons will be performed to answer the questions from the study objectives. The following comparisons will be performed:

- Compare current Legal Loads to HL-93 and HS20 Design Loads to determine if the requirements in the FHWA memo are satisfied
- Compare AASHTO LRFR Legal Loads to current Legal Load envelope
- Compare Critical Wyoming WIM Loads to current Legal Load envelope

An example comparison of current Legal Loads to HL-93 Design Loads is shown in Figure 9. An example comparison of AASHTO LRFR Legal Vehicles to current Legal Loads is shown in Figure 10.

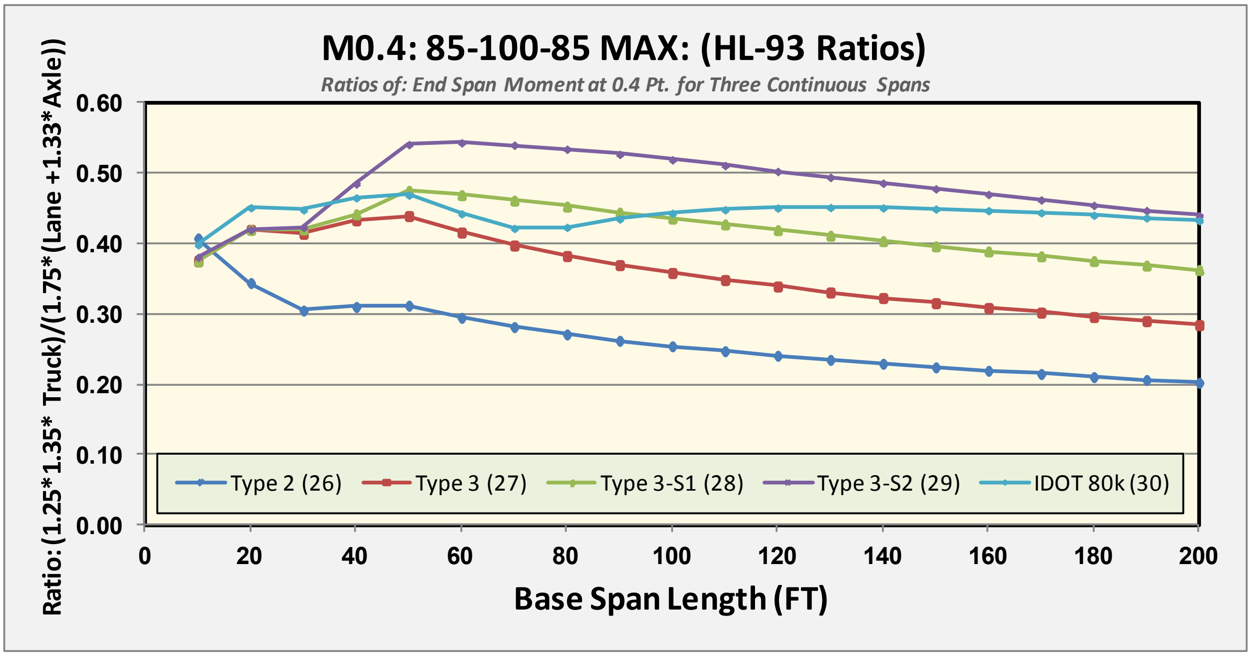


Figure 9: Example Comparison of Current Legal Loads to HL-93 Design Load

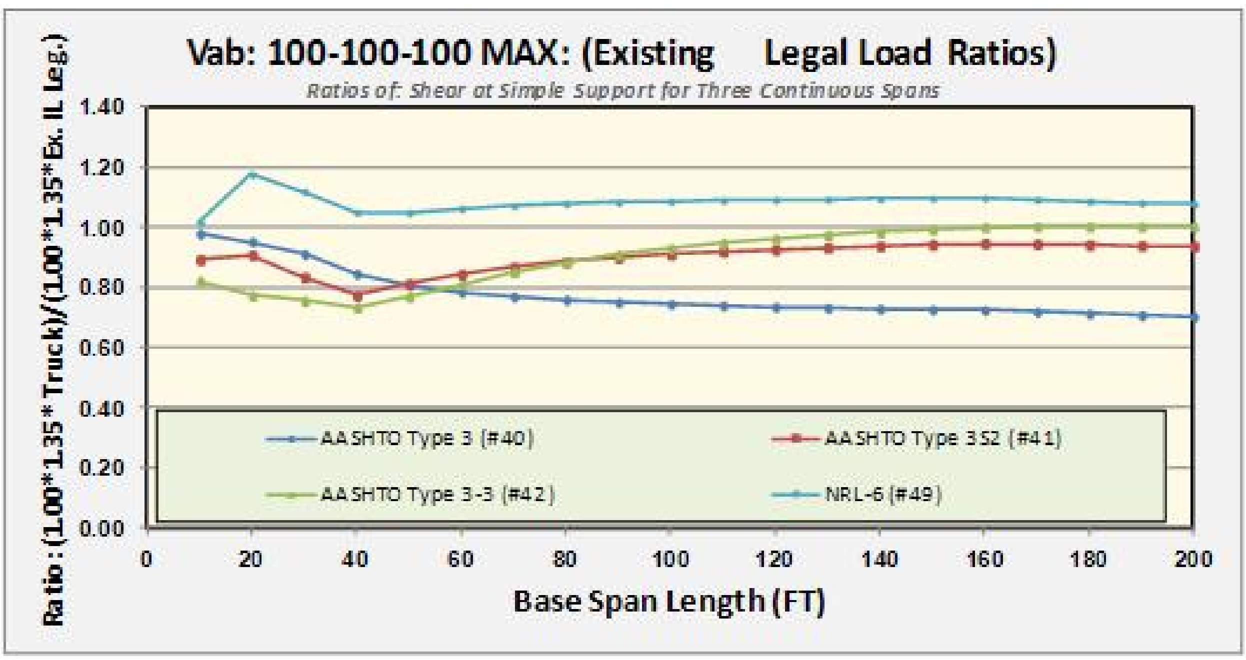


Figure 10: Example Comparison of AASHTO Legal Vehicles to Current Legal Loads

Research Team

The research team will be a collaborative effort by BridgeTech, Inc. (BT) and Modjeski and Masters (M&M) BT and M&M have worked together on similar projects, e.g., NCHRP 12-50.

BridgeTech, Inc.

BridgeTech has significant expertise in automated analysis, rating, and rigorous analysis. BridgeTech has experience with handling large data sets and reliability analysis. BridgeTech has considerable experience with programming and using BRASS™ for standard and rigorous analyses. The BridgeTech staff will include: Dr. Jay Puckett, PE, Mr. Brian Goodrich, PE, Mr. Matthew Peavy, PE, and Mr. Mark Jablin, PE.

Modjeski and Masters

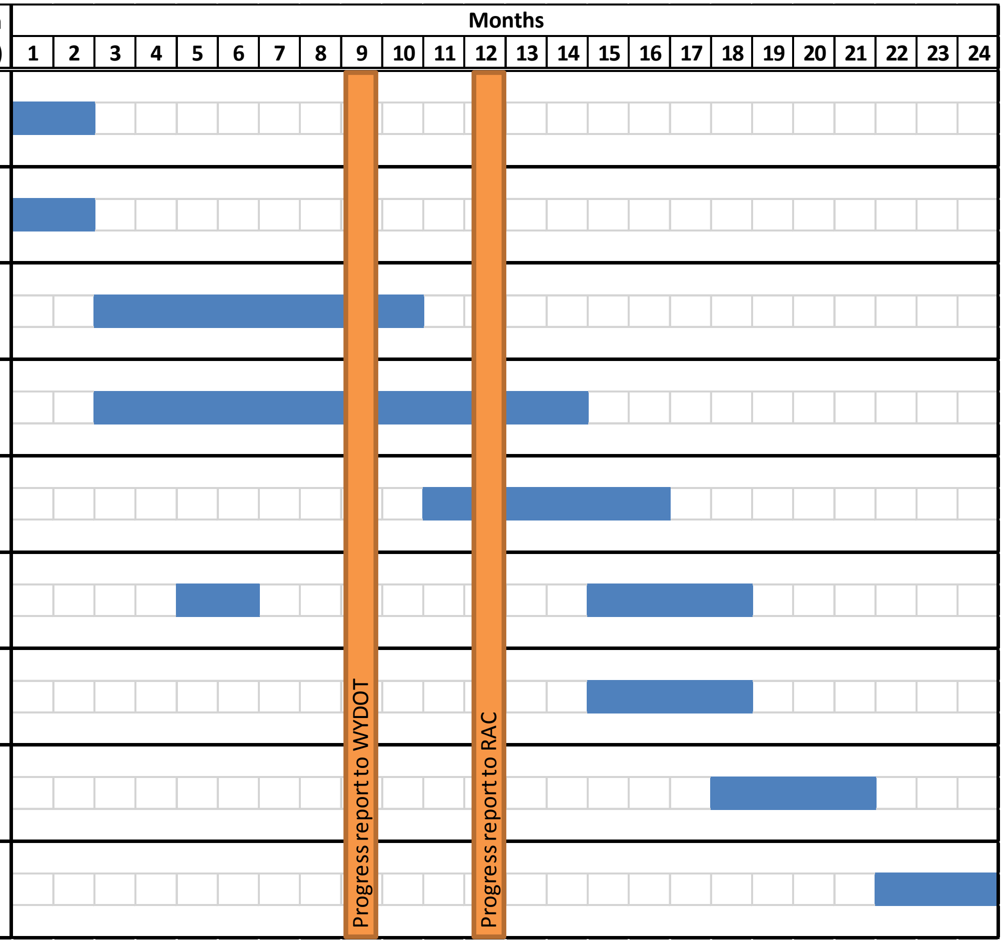
M&M has significant expertise in all required areas. They also have experience with a similar Illinois DOT study and have some tools available for use on this project. M&M is the Prime consultant for SHRP-2 which seeks to use a Probabilistic approach to calibrate the Service Limit States in the LRFD code for a 100-year design life. The M&M staff will include: Mr. Chad Clancy, PE., Dr. Wagdy Wassef, PE and Dr. John M. Kulicki, PE who will serve as a technical advisor on the project.

Work Schedule

The work schedule is provided in Table 4.

Table 4: Work Schedule

Task No.	Task Description	Duration (months)
1	Collect Vehicle Data	2
2	Develop Structure Configurations	2
3	Determine Force Effects	8
4	Determine Force Effects Using Rigorous LL Dist. Analysis	12
5	Determine Rating Factors	6
6	Investigate Use of Miner's Rule	6
7	Establish Refined Live Load Factors	4
8	Perform Load Comparisons	4
9	Write/Submit Report	3



Cost Estimate

The estimated budget is provided in Table 5 and Table 6.

Table 5: Estimated Budget

Task No.	Task Description	Engineer Rate/Hr.	BridgeTech, Inc.				Modjeski & Masters				Subtotal	Task Subtotal	Hour %	Cost %
			Puckett	Goodrich	Peavy	Jablin	Kulicki	Wassef	Clancy	Staff				
			$ 196	$ 137	$ 90	$ 90	$ 234	$ 167	$ 135	$ 83				
1	Collect Vehicle Data		4	70	0	0	4	8	70	50	206	$ 26,246	13.0%	12.7%
2	Develop Structure Configurations		1	4	0	0	4	6	40	50	105	$ 12,232	6.6%	5.9%
3	Determine Force Effects		4	70	0	0	8	6	60	120	268	$ 31,308	16.9%	15.2%
4	Determine Force Effects Using Rigorous LL Dist. Analysis		40	250	40	40	1	0	15	10	396	$ 52,379	24.9%	25.4%
5	Determine Rating Factors		1	20	0	0					21	$ 2,936	1.3%	1.4%
6	Investigate Use of Miner's Rule		20	40	0	0	2	8	60	50	180	$ 23,454	11.3%	11.4%
7	Establish Refined Live Load Factors (multiple presence)		30	50	0	0	4	16	16	12	128	$ 19,494	8.1%	9.4%
8	Perform Load Comparisons		4	16	0	0	2	6	24	40	92	$ 11,006	5.8%	5.3%
9	Write/Submit Report		40	50	0	20	6	16	32	30	194	$ 27,376	12.2%	13.3%
	Time Subtotal		144	570	40	60	31	66	317	362	1590			
	Cost Subtotal		$28,224	$78,090	$ 3,600	$ 5,400	$ 7,254	$11,022	$42,795	$30,046	$ 206,431	$ 206,431	100.0%	100.0%
	Materials (Printing)											$ 500		
	Project Total											**$ 206,931**		

Table 6: Estimated Budget by Fiscal Year

Task No.	Task Description	Task Subtotal	% Complete		Cost	
			FY 2014	FY 2015	FY 2014	FY 2015
1	Collect Vehicle Data	$ 26,246	100%		$ 26,246	$ -
2	Develop Structure Configurations	$ 12,232	100%		$ 12,232	$ -
3	Determine Force Effects	$ 31,308	100%		$ 31,308	$ -
4	Determine Force Effects Using Rigorous LL Dist. Analysis	$ 52,379	67%	33%	$ 35,094	$ 17,285
5	Determine Rating Factors	$ 2,936	33%	67%	$ 969	$ 1,967
6	Investigate Use of Miner's Rule	$ 23,454		100%	$ -	$ 23,454
7	Establish Refined Live Load Factors	$ 19,494		100%	$ -	$ 19,494
8	Perform Load Comparisons	$ 11,006		100%	$ -	$ 11,006
9	Write/Submit Report	$ 27,376		100%	$ -	$ 27,376
ODC	Materials	$ 500		100%		$ 500
	Project Total	**$ 206,931**			**$ 105,849**	**$ 101,082**

Implementation Process

The research team will work directly with the WYDOT Bridge Staff to review progress and make any decision regarding any software developed that might become part of the BRASS-GIRDER™ system for the long term. This is important as this research will not only result in a report, but also in tools that can be used in the future.

The team will also provide methods that can be used in the future as more WIM data becomes available for bridge assessment and calibration.

Technology Transfer

The team will work as outlined above in the Implementation Process and will publish any papers possible to advise other agencies of this work.

Appendix A – FHWA Memo Assigned Load Ratings

U.S. Department of Transportation
Federal Highway Administration

Memorandum

Subject: **<u>ACTION</u>**: Assigned Load Ratings

Date: September 29, 2011

/s/ Original Signed by

From: M. Myint Lwin, P.E., S.E.
Director, Office of Bridge Technology

In Reply Refer To:
HIBT-30

To: Division Administrators

The purpose of this memorandum is to clarify FHWA's position on the use of assigned load ratings as a means of complying with the requirements of the National Bridge Inspection Standards (NBIS). Section 650.313 of the NBIS stipulates each bridge is to be load rated in accordance with the AASHTO Manual for Bridge Evaluation (MBE), First Edition/2008, which is incorporated into the regulation by reference. The recently published MBE, Second Edition/2011, introduced changes in the load rating section, specifically the concept of assigning ratings for certain bridges based on the design loading. As a result, some confusion exists over the applicability of the second edition of the MBE and the acceptability of the assigned load rating method under the current NBIS regulation.

The intent of the load rating provisions of the NBIS is to insure that all bridges are appropriately evaluated for their safe load carrying capacity. An established bridge analysis and rating model can be an important element of the bridge records, allowing bridge owners to make quick management decisions regarding the safe load carrying capacity when emergencies arise. FHWA recognizes that certain bridges currently in service with benign condition deterioration, designed and checked by modern methods for modern bridge loadings, and with no changes to dead loads and State legal and routine permit vehicular loads since the design was completed may adequately have those capacities already calculated.

Although the second edition of the MBE is not currently part of the NBIS regulation, FHWA has determined that the inventory or operating level ratings may be assigned based on the design loading, at the discretion of the bridge owner, provided the following conditions, outlined in the commentary to the MBE Second Edition/2011, sections C6A.1.1 and C6B.1 are all met:

(1) The bridge was designed and checked using either the AASHTO Load and Resistance Factor Design (LRFD) or Load Factor Design (LFD) methods to at least HL-93 or HS-20 live loads, respectively; and
(2) The bridge was built in accordance with the design plans; and

(3) No changes to the loading conditions or the structure condition have occurred that could reduce the inventory rating below the design load level; and
(4) An evaluation has been completed and documented, determining that the force effects from State legal loads or permit loads do not exceed those from the design load; and
(5) The checked design calculations, and relevant computer input and output information, must be accessible and referenced or included in the individual bridge records.

A summary of the assigned load rating, which demonstrates these five conditions are met, is to be included in the bridge records and approved by the individual charged with the overall responsibility for load rating bridges, or by an individual meeting 23 CFR 650.309(c) qualifications and delegated, in writing, this approval authority. If any of these conditions cannot be met for a bridge at any point during its service life, load ratings cannot be assigned and must be determined by other methods defined in the MBE.

If complete design files have not been retained for existing bridges, design plans that clearly identify the loading as at least HL-93 or HS-20 and bear the stamp of a licensed professional engineer may be used by the individual responsible for load rating under 23 CFR 650.309(c) as the basis for an assigned load rating. The approval needs to be documented as the basis for the assigned rating and become part of the official bridge records. This information demonstrates satisfaction of conditions (1) and (5) above. Conditions (2), (3), and (4) still need to be met.

Please contact Lubin Gao of our office with any questions regarding this interpretation.

Appendix B – Truck Weight Data Formats

Table 6-5-1: Truck Weight Record

Field	Columns	Length	Description
1	1	1	Record Type
2	2-3	2	FIPS State Code
3	4-9	6	Station ID
4	10	1	Direction of Travel Code
5	11	1	Lane of Travel
6	12-13	2	Year of Data
7	14-15	2	Month of Data
8	16-17	2	Day of Data
9	18-19	2	Hour of Data
10	20-21	2	Vehicle Class
11	22-24	3	Open
12	25-28	4	Total Weight of Vehicle
13	29-30	2	Number of Axles
14	31-33	3	A-axle Weight
15	34-36	3	A-B Axle Spacing
16	37-39	3	B-axle Weight
17	40-42	3	B-C Axle Spacing
18	43-45	3	C-axle Weight
19	46-48	3	C-D Axle Spacing
20	49-51	3	D-axle Weight
21	52-54	3	D-E Axle Spacing
22	55-57	3	E-axle Weight
23	58-60	3	E-F Axle Spacing
24	61-63	3	F-axle Weight
25	64-66	3	F-G Axle Spacing
26	67-69	3	G-axle Weight
27	70-72	3	G-H Axle Spacing
28	73-75	3	H-axle Weight
29	76-78	3	H-I Axle Spacing
30	79-81	3	I-axle Weight
31	82-84	3	I-J Axle Spacing
32	85-87	3	J-axle Weight
33	88-90	3	J-K Axle Spacing
34	91-93	3	K-axle Weight
35	94-96	3	K-L Axle Spacing
36	97-99	3	L-axle Weight
37	100-102	3	L-M Axle Spacing
38	103-105	3	M-axle Weight

Note: The number of axles determines the number of axle weight and spacing fields.

3. **Station Identification** (Columns 4-9)

This field should contain an alphanumeric designation for the station where the survey data are collected. Station identification field entries must be identical in all records for a given station. Differences in characters, including spaces, blanks, hyphens, etc., prevent proper match. Right justify the Station ID if it is less than 6 characters. There should be no embedded blanks.

4. **Direction of Travel Code** (Column 10)

Do not combine directions. There should be a separate record for each direction. Whether or not lanes are combined in each direction depends on the next field.

Code	Direction
1	North
2	Northeast
3	East
4	Southeast
5	South
6	Southwest
7	West
8	Northwest
9	North-South or Northeast-Southwest combined (ATR stations only)
0	East-West or Southeast-Northwest combined (ATR stations only)

5. **Lane of Travel** (Column 11)

Either each lane is considered a separate station or all lanes in each direction are combined.

Code	Lane
0	Data with lanes combined
1	Outside (rightmost) lane
2-9	Other lanes

10. **Vehicle Class** (Columns 20-21)

Enter the class of the vehicle from FHWA Vehicle Classes 1 to 13. Classes 1 - 3 are ordinarily omitted.

A dummy vehicle class of -1 indicates that weight data for this hour are missing. A dummy vehicle class of 0 indicates that weight data for this hour are not missing, and thus if there are no Truck Weight records for the hour, then there were no trucks during that hour. Without these indications, no Truck Weight records for an hour might be interpreted to mean that the WIM system was not working.

11. **Open** (Columns 22-24) - *Optional*

This field is for special studies or State use such as for vehicle speed (kilometers per hour) or pavement temperature (degrees Celsius in the range -99 to +99).

12. **Total Weight of Vehicle** (Columns 25-28)

Enter the gross vehicle weight to the nearest tenth of a metric ton (100 kilograms) without a decimal point. This should equal the sum of all the axle weights except for rounding.

13. **Number of Axles** (Columns 29-30)

Enter the total number of axles in use by the vehicle (including any trailers).

The Number of Axles determines how many Axle Weight and Spacing fields will be expected. Axle Weight and Spacing fields that are not needed may be omitted. If a fixed-length record is desired, pad the record with blanks to the desired length.

The rest of the record alternates between axle weights and axle spacings, starting from the front of the vehicle. Axle weights are to the nearest tenth of a metric ton (100 kilograms) without a decimal point. Axle spacings are to the nearest tenth of a meter (100 millimeters) without a decimal point.

14. **A-axle Weight** (Columns 31-33)

15. **A-B Axle Spacing** (Columns 34-36)

16. **B-axle Weight** (Columns 37-39)

17. **B-C Axle Spacing** (Columns 40-42)

18. **C-axle Weight** (Columns 43-45)

19. **C-D Axle Spacing** (Columns 46-48)

20. **D-axle Weight** (Columns 49-51)

21. **D-E Axle Spacing** (Columns 52-54)

22. **E-axle Weight** (Columns 55-57)

23. **E-F Axle Spacing** (Columns 58-60)

24. **F-axle Weight** (Columns 61-63)

25. **F-G Axle Spacing** (Columns 64-66)

26. **G-axle Weight** (Columns 67-69)

27. **G-H Axle Spacing** (Columns 70-72)

28. **H-axle Weight** (Columns 73-75)

29. **H-I Axle Spacing** (Columns 76-78)

30. **I-axle Spacing** (Columns 79-81)

31. **I-J Axle Spacing** (Columns 82-84)

32. **J-axle Weight** (Columns 85-87)

33. **J-K Axle Spacing** (Columns 88-90)

34. **K-axle Weight** (Columns 91-93)

35. **K-L Axle Spacing** (Columns 94-96)

36. **L-axle Weight** (Columns 97-99)

37. **L-M Axle Spacing** (Columns 100-102)

38. **M-axle Weight** (Columns 103-105)

Additional axle spacing and axle weight fields may be added in the same manner if needed

Appendix C – Stations Available

Station Identification	Description	Collection Years
160	I-25, RM 19.45	2002-2008
156	WY 59, RM 103.12	2002-2007
bh0173	WY 789, RM 234.7	2002-2008
cb0027	US 287, RM 39.3	2006-2008
la0176	I-80, RM 399.35	2002-2008
na0028	US 20/26, RM 12.08	2006-2008
ui0177	I-80, RM 2.20	2002-2008
============================== active ==============================		
sw0172 (NEW STATION 2009)	US 30, RM 99.0	Active 9 Months
59 (NEW STATION 2009)	I-25, RM 1.0	Active 1 Month