# AASHTOWare Bridge Rating® Vehicle Library Setup

AASHTOWare Bridge Rating 6.5
1-20-2014

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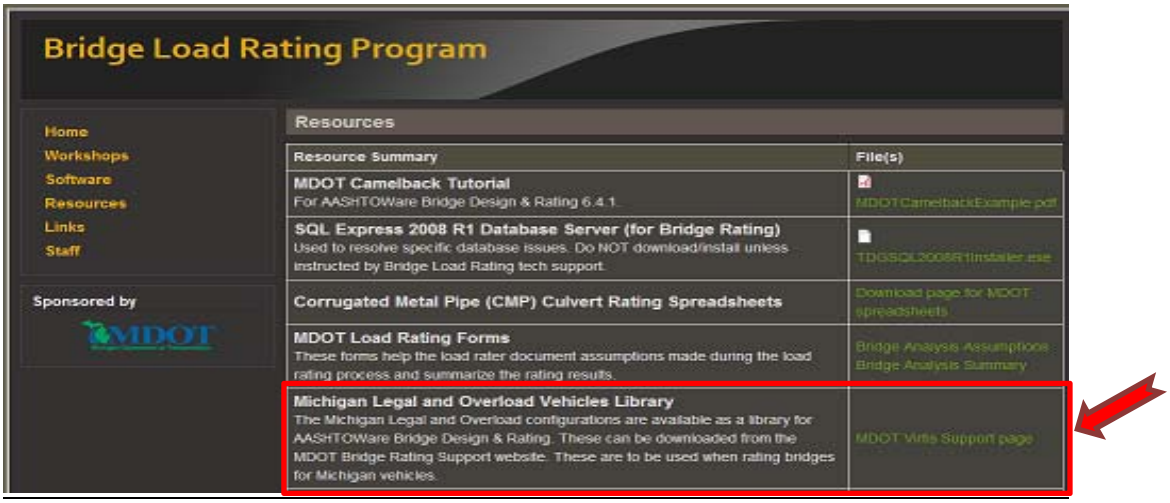
# MI Vehicle Description Database

## Michigan Legal and Overload Vehicles Library[1]

The Michigan Legal and Overload Vehicle configurations are available as a library for AASHTOWare Bridge Design & Rating. These can be downloaded from the MDOT Bridge Rating Support website[2] for rating bridges in Michigan vehicles.




[1] http://loadrating.michiganltap.org/resources
[2] http://www.michigan.gov/mdot/0,1607,7-151-9625_24768-244648--,00.html

## Download the "Library of Michigan – Legal Vehicles and Overload Vehicles XML files."

Download Instructions:
The Michigan Legal and Overload configurations are available as a Virtis library. Click on the zip file link below and choose "Save". Import the library files into your Virtis library after extracting the XML files from the download.

➡ Library of Michigan - Legal Vehicles and Overload Vehicles XML files ZIP[3]


[3] http://www.michigan.gov/documents/mdot/Library_of_Michigan_Vehicles-2_XML_Files_334570_7.zip

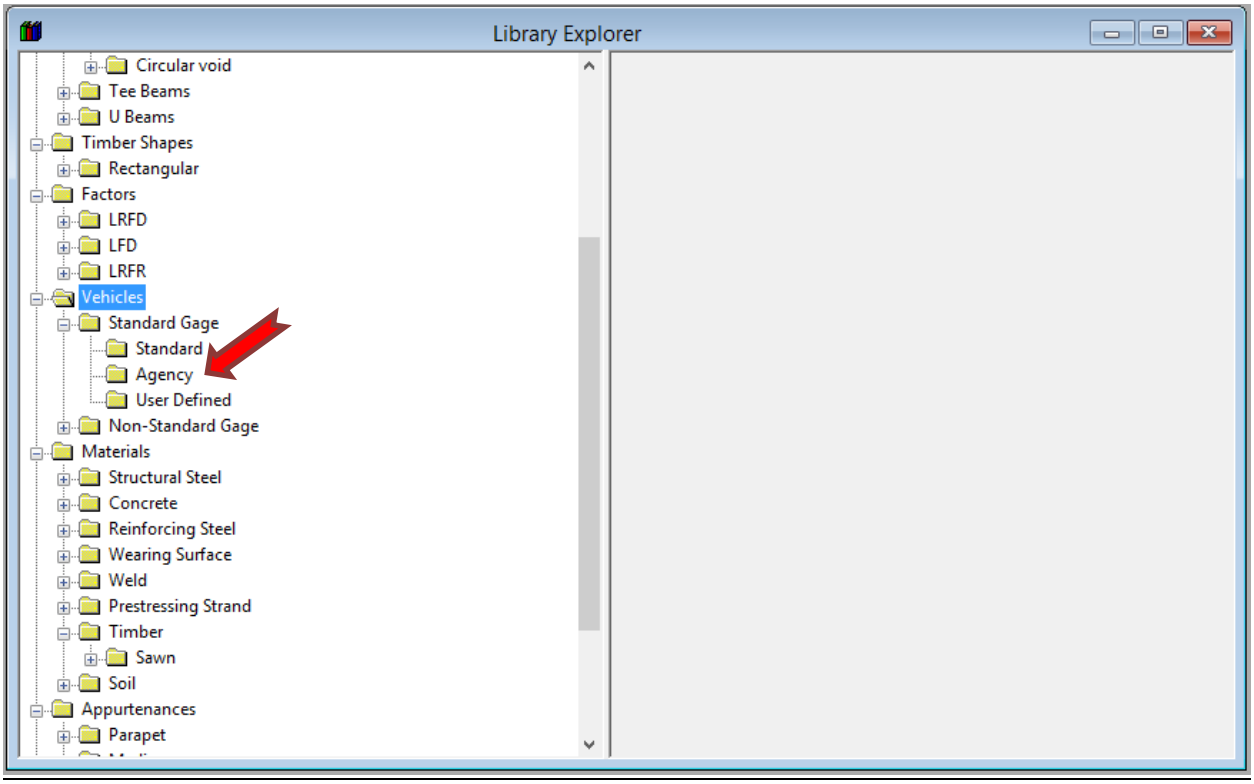
## Import MI Truck Descriptions to AASHTOWare Bridge Rating

Library:
Libraries allow for the description of items that are standardized or used frequently in the description of a bridge or by analysis events. There are two types of libraries, those that are included with installation and those created by the user.

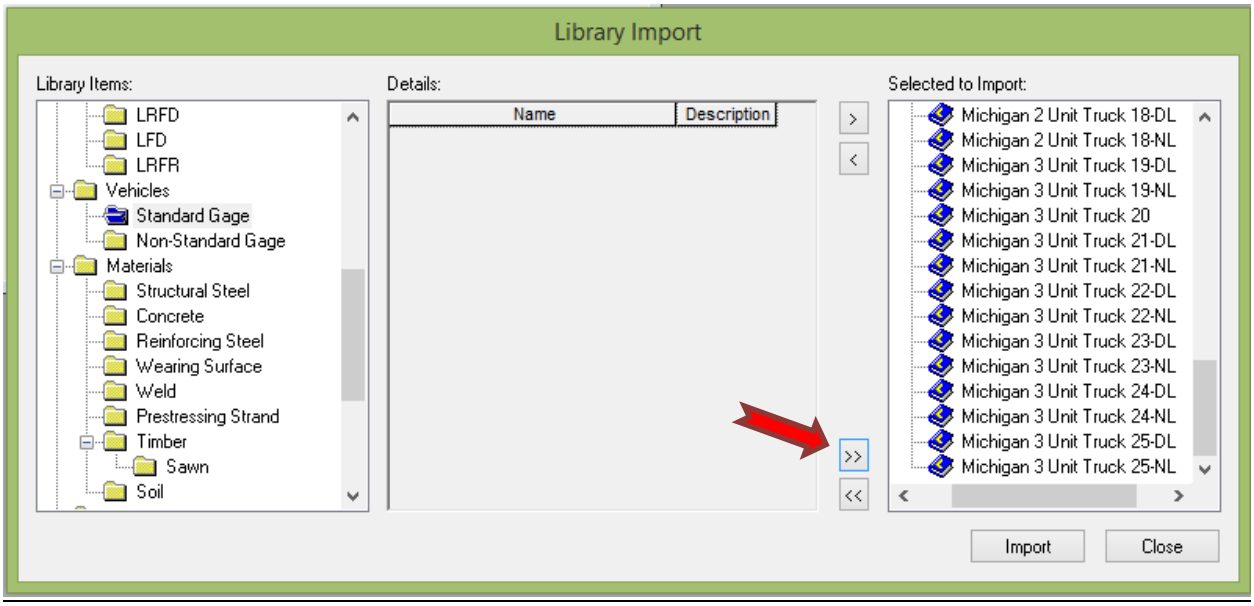
*Standard* - Items added to database by AASHTO. Standard library items are not editable.
*Agency* - All items added to the library by a user.

## Library Explorer

Go to *Window\Library Explorer* to open the Library Explorer Window.
The Library Explorer is used to navigate the various libraries. The tree in the left pane organizes the libraries. The item selected in the tree determines the library items to be listed in the right pane of the window.



Go to *File*|*Import*
Select “Michigan – Legal Vehicles” (or “Overload Vehicles”)




Select  to move all MI Truck Descriptions to the “Selected to Import” panel at the right side of the Library Import Window.

Select *Import* to import vehicles to the agency defined standard gage vehicles library.

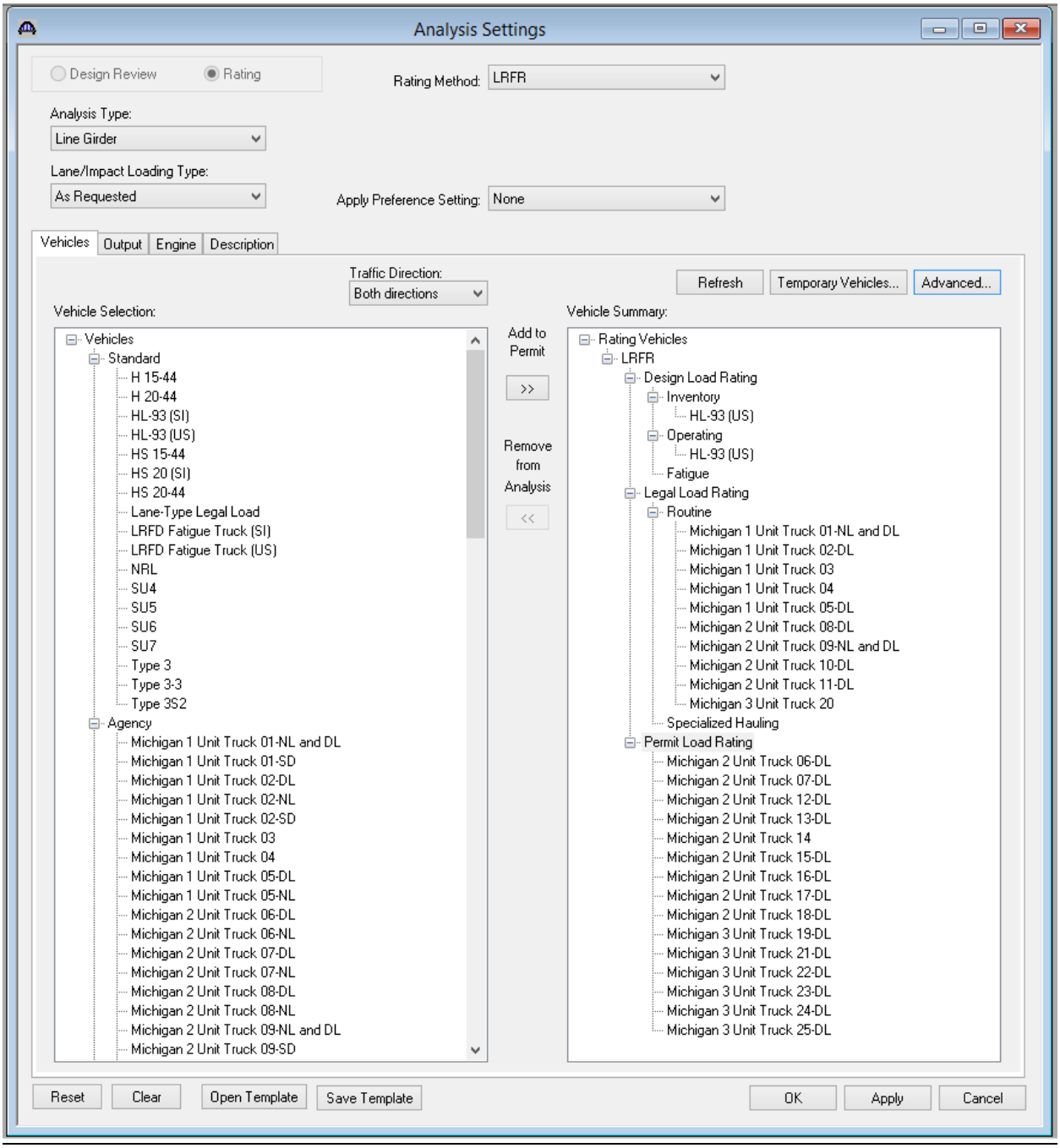
Repeat previous steps for MI Overload Vehicle Descriptions.

The axle load and spacing configurations for Michigan Legal and Overload Vehicles are now available for inclusion in Bridge Rating® analysis. The next section of the tutorial will guide you through the process to configure the line load factors for LRFR analysis as provided in the Michigan Bridge Analysis Guide[4]

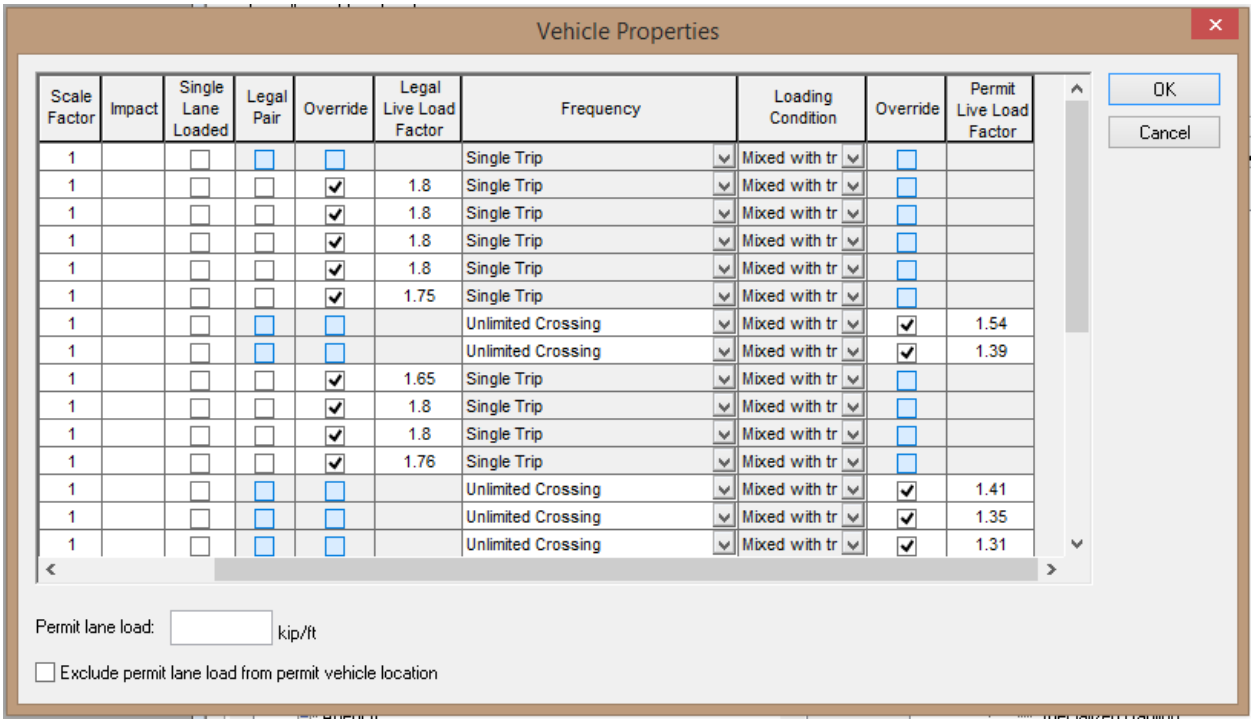
[4] http://www.michigan.gov/mdot/0,1607,7-151-9625_24768_24773-132786--,00.html

## LRFR Load Factor Overrides as per MDOT Bridge Analysis Guide.

Click **Analysis Settings** and add the appropriate trucks to the Vehicle Summary area. MDOT analyzes LRFR structures for all 28 Michigan vehicles as well as the 20 overload vehicles. The user must determine whether each Michigan vehicle is considered a Legal Vehicle or a Permit Vehicle based on gross vehicle weight. Vehicles less than 100 KPS are considered legal for LRFR analysis, those weighing more than or equal to 100 KPS are considered Permit Vehicles.



Select **Advanced** from the Analysis Settings Window.




Change the frequency to **Unlimited Crossing**, leave the loading condition as **Mixed w/ Traffic**, and check Override for the Permit Vehicles. Enter the load factor, $\gamma_{LL}$, as appropriate per the MDOT BAG for all Vehicles (Table 4a-1 for this example included for your reference on page 10 of this document). Repeat this process for Legal Vehicles.

It is useful to save truck templates so these steps do not have to be repeated. Once the trucks are in the **Vehicle Summary** area and the settings have been modified in the **Advanced** tab, you can select **Save Template** for ease of use in the future. Click **OK**, then analyze the structure.

## Load and Resistance Factor Rating (LRFR)

Similar to LFR, there are four categories of bridge rating for Load and Resistance Factor Rating (LRFR). These four categories use three different groups of live loads.

Federal Inventory Rating (also called Design Load Rating at Inventory Level)

1. HL-93 loading
2. This load rating is sometimes referred to as a "screening" level for other states, however, **some Michigan Legal Loads exceed this design loading and therefore the Legal Load Rating should always be calculated.**
3. As many lanes may be loaded as is required to produce the maximum desired effect
4. This rating is performed at the Inventory level

Federal Operating Rating (also called Design Load Rating at Operating Level)

1. HL-93 loading
2. As many lanes may be loaded as is required to produce the maximum desired effect
3. This rating is performed at the Operating level

Michigan Operating Rating (Legal or Posting Load Rating)

1. The controlling legal vehicle of the 28 different legal loads. Different vehicles may control different load effects (such as shear or moment). The truck that is recorded should be the truck that produces the lowest load factor for all limit states.
2. The Live Load Factor, $\gamma_{LL}$, to be used for the Strength I and II Limit States varies based on the Average Daily Truck Traffic (ADTT) of the structure and the weight of the truck being analyzed. See MDOT Research Report R-15115 for more information on the variable load factor. Tables 4a-1 through 4a-3 summarize the Live Load Factors for the Strength I and II Limit States. The Load Factor may be interpolated for a specific ADTT.
3. The Live Load Factor to be used for the Service II Limit State varies based on the weight of the truck being analyzed. Trucks with a Gross Vehicle Weight (GVW) less than 100-kip use a Load Factor of 1.3. Trucks with a GVW greater than or equal to 100-kip use a Load Factor of 1.0 for Service II.
4. As many lanes may be loaded as is required to produce the maximum desired effect.
5. The loading configuration of Legal Loads varies for moments and shear at interior supports as well as for span lengths greater than 200-ft. Table 4a-7 summarizes the loading configurations required to analyze Legal Loads. Spans greater than 400-ft require site-specific analysis. A research project is currently in progress to find the appropriate loading configurations for spans between 200-ft and 400-ft and to develop site-specific analysis criteria for spans greater than 400-ft (10-3-2008).
6. The analyst must determine if Normal, Designated, or Special Designated loading applies.
7. If posting is required, the lightest Posting Loads for each category (1 unit, 2 unit, and 3

unit) must be calculated
8. If all vehicles in a particular category (1-unit, 2-unit, 3-unit) can be safely carried by a bridge, the Posting Load will be the largest legal load in that category



Permit Load Rating

1. This capacity rating is used when a request has been made to transport a load that is not included in the Michigan legal loads
2. There are two levels of Permits identified in LRFR. See Table 6A.4.5.4.2a-1 of the AASHTO Manual for Bridge Evaluation6 (MBE) for more information. Routine Permits are annual or unlimited permits that are allowed to mix with traffic. Special or Limited Crossings are limited to less than 100 crossings and may or may not be escorted to prevent other vehicles on the structure.
3. Routine Permits should use Strength Limit State Live Load factors, $\gamma_{LL}$, as identified in MDOT Research Report R-1511 and as given in Tables 4a-4 through 4a-6, based upon ADTT and GVW. The load factor may be interpolated for a specific ADTT. These permits are based on as many lanes loaded as would produce the maximum effect.
4. Special or Limited Crossing Permits may use the Strength Limit State Live Load factors given in Table 6A.4.5.4.2a-1 of the MBE. These permits are based on single lane loading.
5. The Live Load Factor to be used for the Service II Limit State varies based on the weight of the truck being analyzed. Trucks with a Gross Vehicle Weight (GVW) less than 100-kip use a Load Factor of 1.3. Trucks with a GVW greater than or equal to 100-kip use a Load Factor of 1.0 for Service II Limit State.
6. See Chapter 8 of the BAG for a chart illustrating the more common permit type vehicle configurations
7. See Chapter 10 of the BAG for tables for all maximum moments and shears for the more common permit type vehicle configurations, for simple span lengths between 5-ft and 300-ft
8. The loading configuration of Legal Loads varies for moments and shear at interior supports as well as for span lengths greater than 200-ft. Table A-9 summarizes the loading configurations required to analyze Permit Loads. Spans greater than 400-ft require site-specific analysis. A research project is currently in progress to find the appropriate loading configurations for spans between 200-ft and 400-ft and to develop site-specific analysis criteria for spans greater than 400-ft (10-3-2008).

| Michigan Legal Vehicle Load Factors for Strength Limit States, 5000 ADTT | | | | | | |
|---|---|---|---|---|---|---|
| | Normal Loading | | Designated Loading | | Special Designated Loading | |
| Truck | GVW (kips) | Load Factor, $\gamma_{LL}$ | GVW (kips) | Load Factor, $\gamma_{LL}$ | GVW (kips) | Load Factor, $\gamma_{LL}$ |
| 1 | 33.4 | 1.80 | 33.4 | 1.80 | 39.0 | 1.80 |
| 2 | 41.4 | 1.80 | 47.4 | 1.80 | 45.4 | 1.80 |
| 3 | 54.4 | 1.80 | 54.4 | 1.80 | 54.4 | 1.80 |
| 4 | 67.4 | 1.80 | 67.4 | 1.80 | 67.4 | 1.80 |
| 5 | 78.0 | 1.80 | 84.0 | 1.75 | 84.0 | 1.75 |
| 6 | 95.4 | 1.61 | 101.4 | 1.54 | 101.4 | 1.54 |
| 7 | 113.4 | 1.44 | 119.4 | 1.39 | 119.4 | 1.39 |
| 8 | 85.4 | 1.73 | 91.4 | 1.65 | 91.4 | 1.65 |
| 9 | 51.4 | 1.80 | 51.4 | 1.80 | 49.5 | 1.80 |
| 10 | 59.4 | 1.80 | 65.4 | 1.80 | 56.4 | 1.80 |
| 11 | 77.4 | 1.80 | 83.4 | 1.76 | 67.1 | 1.80 |
| 12 | 111.4 | 1.45 | 117.4 | 1.41 | 117.4 | 1.41 |
| 13 | 119.4 | 1.39 | 125.4 | 1.35 | 125.4 | 1.35 |
| 14 | 132.4 | 1.31 | 132.4 | 1.31 | 132.4 | 1.31 |
| 15 | 137.4 | 1.28 | 143.3 | 1.25 | 143.3 | 1.25 |
| 16 | 132.4 | 1.31 | 138.4 | 1.28 | 138.4 | 1.28 |
| 17 | 145.4 | 1.24 | 151.4 | 1.21 | 151.4 | 1.21 |
| 18 | 148.0 | 1.23 | 154.0 | 1.20 | 154.0 | 1.20 |
| 19 | 111.4 | 1.45 | 117.4 | 1.41 | 117.4 | 1.41 |
| 20 | 87.4 | 1.71 | 87.4 | 1.71 | 87.4 | 1.71 |
| 21 | 145.4 | 1.24 | 151.4 | 1.21 | 151.4 | 1.21 |
| 22 | 155.4 | 1.20 | 161.4 | 1.17 | 161.4 | 1.17 |
| 23 | 148.0 | 1.23 | 154.0 | 1.20 | 154.0 | 1.20 |
| 24 | 116.0 | 1.42 | 122.0 | 1.37 | 122.0 | 1.37 |
| 25 | 158.0 | 1.18 | 164.0 | 1.16 | 164.0 | 1.16 |
| 26 | 50.0 | 1.80 | 50.0 | 1.80 | 50.0 | 1.80 |
| 27 | 72.0 | 1.80 | 72.0 | 1.80 | 72.0 | 1.80 |
| 28 | 80.0 | 1.80 | 80.0 | 1.80 | 80.0 | 1.80 |

Table 4a-1

| Michigan Legal Vehicle Load Factors for Strength Limit States, 1000 ADTT | | | | | | |
|---|---|---|---|---|---|---|
| | Normal Loading | | Designated Loading | | Special Designated Loading | |
| Truck | GVW (kips) | Load Factor, $\gamma_{LL}$ | GVW (kips) | Load Factor, $\gamma_{LL}$ | GVW (kips) | Load Factor, $\gamma_{LL}$ |
| 1 | 33.4 | 1.65 | 33.4 | 1.65 | 39.0 | 1.65 |
| 2 | 41.4 | 1.65 | 47.4 | 1.65 | 45.4 | 1.65 |
| 3 | 54.4 | 1.65 | 54.4 | 1.65 | 54.4 | 1.65 |
| 4 | 67.4 | 1.65 | 67.4 | 1.65 | 67.4 | 1.65 |
| 5 | 78.0 | 1.65 | 84.0 | 1.65 | 84.0 | 1.65 |
| 6 | 95.4 | 1.57 | 101.4 | 1.51 | 101.4 | 1.51 |
| 7 | 113.4 | 1.40 | 119.4 | 1.36 | 119.4 | 1.36 |
| 8 | 85.4 | 1.65 | 91.4 | 1.61 | 91.4 | 1.61 |
| 9 | 51.4 | 1.65 | 51.4 | 1.65 | 49.5 | 1.65 |
| 10 | 59.4 | 1.65 | 65.4 | 1.65 | 56.4 | 1.65 |
| 11 | 77.4 | 1.65 | 83.4 | 1.65 | 67.1 | 1.65 |
| 12 | 111.4 | 1.42 | 117.4 | 1.37 | 117.4 | 1.37 |
| 13 | 119.4 | 1.36 | 125.4 | 1.32 | 125.4 | 1.32 |
| 14 | 132.4 | 1.28 | 132.4 | 1.28 | 132.4 | 1.28 |
| 15 | 137.4 | 1.25 | 143.3 | 1.22 | 143.3 | 1.22 |
| 16 | 132.4 | 1.28 | 138.4 | 1.25 | 138.4 | 1.25 |
| 17 | 145.4 | 1.21 | 151.4 | 1.19 | 151.4 | 1.19 |
| 18 | 148.0 | 1.20 | 154.0 | 1.18 | 154.0 | 1.18 |
| 19 | 111.4 | 1.42 | 117.4 | 1.37 | 117.4 | 1.37 |
| 20 | 87.4 | 1.65 | 87.4 | 1.65 | 87.4 | 1.65 |
| 21 | 145.4 | 1.21 | 151.4 | 1.19 | 151.4 | 1.19 |
| 22 | 155.4 | 1.17 | 161.4 | 1.15 | 161.4 | 1.15 |
| 23 | 148.0 | 1.20 | 154.0 | 1.18 | 154.0 | 1.18 |
| 24 | 116.0 | 1.38 | 122.0 | 1.34 | 122.0 | 1.34 |
| 25 | 158.0 | 1.16 | 164.0 | 1.14 | 164.0 | 1.14 |
| 26 | 50.0 | 1.65 | 50.0 | 1.65 | 50.0 | 1.65 |
| 27 | 72.0 | 1.65 | 72.0 | 1.65 | 72.0 | 1.65 |
| 28 | 80.0 | 1.65 | 80.0 | 1.65 | 80.0 | 1.65 |

Table 4a-2

| Michigan Legal Vehicle Load Factors for Strength Limit States, 100 ADTT | | | | | | |
|---|---|---|---|---|---|---|
| | Normal Loading | | Designated Loading | | Special Designated Loading | |
| Truck | GVW (kips) | Load Factor, $\gamma_{LL}$ | GVW (kips) | Load Factor, $\gamma_{LL}$ | GVW (kips) | Load Factor, $\gamma_{LL}$ |
| 1 | 33.4 | 1.40 | 33.4 | 1.40 | 39.0 | 1.40 |
| 2 | 41.4 | 1.40 | 47.4 | 1.40 | 45.4 | 1.40 |
| 3 | 54.4 | 1.40 | 54.4 | 1.40 | 54.4 | 1.40 |
| 4 | 67.4 | 1.40 | 67.4 | 1.40 | 67.4 | 1.40 |
| 5 | 78.0 | 1.40 | 84.0 | 1.40 | 84.0 | 1.40 |
| 6 | 95.4 | 1.40 | 101.4 | 1.40 | 101.4 | 1.40 |
| 7 | 113.4 | 1.35 | 119.4 | 1.31 | 119.4 | 1.31 |
| 8 | 85.4 | 1.40 | 91.4 | 1.40 | 91.4 | 1.40 |
| 9 | 51.4 | 1.40 | 51.4 | 1.40 | 49.5 | 1.40 |
| 10 | 59.4 | 1.40 | 65.4 | 1.40 | 56.4 | 1.40 |
| 11 | 77.4 | 1.40 | 83.4 | 1.40 | 67.1 | 1.40 |
| 12 | 111.4 | 1.36 | 117.4 | 1.32 | 117.4 | 1.32 |
| 13 | 119.4 | 1.31 | 125.4 | 1.27 | 125.4 | 1.27 |
| 14 | 132.4 | 1.23 | 132.4 | 1.23 | 132.4 | 1.23 |
| 15 | 137.4 | 1.21 | 143.3 | 1.18 | 143.3 | 1.18 |
| 16 | 132.4 | 1.23 | 138.4 | 1.20 | 138.4 | 1.20 |
| 17 | 145.4 | 1.17 | 151.4 | 1.14 | 151.4 | 1.14 |
| 18 | 148.0 | 1.16 | 154.0 | 1.13 | 154.0 | 1.13 |
| 19 | 111.4 | 1.36 | 117.4 | 1.32 | 117.4 | 1.32 |
| 20 | 87.4 | 1.40 | 87.4 | 1.40 | 87.4 | 1.40 |
| 21 | 145.4 | 1.17 | 151.4 | 1.14 | 151.4 | 1.14 |
| 22 | 155.4 | 1.13 | 161.4 | 1.11 | 161.4 | 1.11 |
| 23 | 148.0 | 1.16 | 154.0 | 1.13 | 154.0 | 1.13 |
| 24 | 116.0 | 1.33 | 122.0 | 1.29 | 122.0 | 1.29 |
| 25 | 158.0 | 1.12 | 164.0 | 1.10 | 164.0 | 1.10 |
| 26 | 50.0 | 1.40 | 50.0 | 1.40 | 50.0 | 1.40 |
| 27 | 72.0 | 1.40 | 72.0 | 1.40 | 72.0 | 1.40 |
| 28 | 80.0 | 1.40 | 80.0 | 1.40 | 80.0 | 1.40 |

Table 4a-3

| Overload Class Vehicle Load Factors for Strength Limit States, Annual Permits, 5000 ADTT | | | | | | |
|---|---|---|---|---|---|---|
| | Class A | | Class B | | Class C | |
| Truck | GVW (kips) | Load Factor, $J_{LL}$ | GVW (kips) | Load Factor, $J_{LL}$ | GVW (kips) | Load Factor, $J_{LL}$ |
| 1 | 120.0 | 1.39 | 120.0 | 1.39 | 120.0 | 1.39 |
| 2 | 120.0 | 1.39 | 120.0 | 1.39 | 120.0 | 1.39 |
| 3 | 120.0 | 1.39 | 118.0 | 1.40 | 114.0 | 1.43 |
| 4 | 120.0 | 1.39 | 108.0 | 1.48 | 98.0 | 1.58 |
| 5 | 120.0 | 1.39 | 104.0 | 1.52 | 88.0 | 1.70 |
| 6 | 126.0 | 1.35 | 108.0 | 1.48 | 90.0 | 1.67 |
| 7 | 138.0 | 1.28 | 114.0 | 1.43 | 93.0 | 1.64 |
| 8 | 149.6 | 1.22 | 127.6 | 1.34 | 105.6 | 1.50 |
| 9 | 158.4 | 1.18 | 129.6 | 1.33 | 105.6 | 1.50 |
| 10 | 177.0 | 1.12 | 146.4 | 1.24 | 122.0 | 1.37 |
| 11 | 180.0 | 1.11 | 159.0 | 1.18 | 138.0 | 1.28 |
| 12 | 190.6 | 1.10 | 160.2 | 1.18 | 134.4 | 1.30 |
| 13 | 195.0 | 1.10 | 168.8 | 1.14 | 147.4 | 1.23 |
| 14 | 211.2 | 1.10 | 179.2 | 1.11 | 153.6 | 1.20 |
| 15 | 238.0 | 1.10 | 204.0 | 1.10 | 170.0 | 1.14 |
| 16 | 244.4 | 1.10 | 203.6 | 1.10 | 173.0 | 1.13 |
| 17 | 272.6 | 1.10 | 232.4 | 1.10 | 182.8 | 1.10 |
| 18 | 283.4 | 1.10 | 241.6 | 1.10 | 200.0 | 1.10 |
| 19 | 277.2 | 1.10 | 234.4 | 1.10 | 200.8 | 1.10 |
| 20 | 264.0 | 1.10 | 225.8 | 1.10 | 191.4 | 1.10 |

Table 4a-4

| Overload Class Vehicle Load Factors for Strength Limit States, Annual Permits, 1000 ADTT | | | | | | |
|---|---|---|---|---|---|---|
| | Class A | | Class B | | Class C | |
| Truck | GVW (kips) | Load Factor, $J_{LL}$ | GVW (kips) | Load Factor, $J_{LL}$ | GVW (kips) | Load Factor, $J_{LL}$ |
| 1 | 120.0 | 1.36 | 120.0 | 1.36 | 120.0 | 1.36 |
| 2 | 120.0 | 1.36 | 120.0 | 1.36 | 120.0 | 1.36 |
| 3 | 120.0 | 1.36 | 118.0 | 1.37 | 114.0 | 1.40 |
| 4 | 120.0 | 1.36 | 108.0 | 1.45 | 98.0 | 1.54 |
| 5 | 120.0 | 1.36 | 104.0 | 1.48 | 88.0 | 1.65 |
| 6 | 126.0 | 1.32 | 108.0 | 1.45 | 90.0 | 1.63 |
| 7 | 138.0 | 1.25 | 114.0 | 1.40 | 93.0 | 1.59 |
| 8 | 149.6 | 1.19 | 127.6 | 1.31 | 105.6 | 1.47 |
| 9 | 158.4 | 1.16 | 129.6 | 1.30 | 105.6 | 1.47 |
| 10 | 177.0 | 1.10 | 146.4 | 1.21 | 122.0 | 1.34 |
| 11 | 180.0 | 1.10 | 159.0 | 1.16 | 138.0 | 1.25 |
| 12 | 190.6 | 1.10 | 160.2 | 1.15 | 134.4 | 1.27 |
| 13 | 195.0 | 1.10 | 168.8 | 1.12 | 147.4 | 1.20 |
| 14 | 211.2 | 1.10 | 179.2 | 1.10 | 153.6 | 1.18 |
| 15 | 238.0 | 1.10 | 204.0 | 1.10 | 170.0 | 1.12 |
| 16 | 244.4 | 1.10 | 203.6 | 1.10 | 173.0 | 1.11 |
| 17 | 272.6 | 1.10 | 232.4 | 1.10 | 182.8 | 1.10 |
| 18 | 283.4 | 1.10 | 241.6 | 1.10 | 200.0 | 1.10 |
| 19 | 277.2 | 1.10 | 234.4 | 1.10 | 200.8 | 1.10 |
| 20 | 264.0 | 1.10 | 225.8 | 1.10 | 191.4 | 1.10 |

Table 4a-5

| Overload Class Vehicle Load Factors for Strength Limit States, Annual Permits 100 ADTT | | | | | | |
|---|---|---|---|---|---|---|
| | Class A | | Class B | | Class C | |
| Truck | GVW (kips) | Load Factor, $J_{LL}$ | GVW (kips) | Load Factor, $J_{LL}$ | GVW (kips) | Load Factor, $J_{LL}$ |
| 1 | 120.0 | 1.30 | 120.0 | 1.30 | 120.0 | 1.30 |
| 2 | 120.0 | 1.30 | 120.0 | 1.30 | 120.0 | 1.30 |
| 3 | 120.0 | 1.30 | 118.0 | 1.32 | 114.0 | 1.34 |
| 4 | 120.0 | 1.30 | 108.0 | 1.39 | 98.0 | 1.40 |
| 5 | 120.0 | 1.30 | 104.0 | 1.40 | 88.0 | 1.40 |
| 6 | 126.0 | 1.27 | 108.0 | 1.39 | 90.0 | 1.40 |
| 7 | 138.0 | 1.20 | 114.0 | 1.34 | 93.0 | 1.40 |
| 8 | 149.6 | 1.15 | 127.6 | 1.26 | 105.6 | 1.40 |
| 9 | 158.4 | 1.12 | 129.6 | 1.25 | 105.6 | 1.40 |
| 10 | 177.0 | 1.10 | 146.4 | 1.16 | 122.0 | 1.29 |
| 11 | 180.0 | 1.10 | 159.0 | 1.12 | 138.0 | 1.20 |
| 12 | 190.6 | 1.10 | 160.2 | 1.11 | 134.4 | 1.22 |
| 13 | 195.0 | 1.10 | 168.8 | 1.10 | 147.4 | 1.16 |
| 14 | 211.2 | 1.10 | 179.2 | 1.10 | 153.6 | 1.14 |
| 15 | 238.0 | 1.10 | 204.0 | 1.10 | 170.0 | 1.10 |
| 16 | 244.4 | 1.10 | 203.6 | 1.10 | 173.0 | 1.10 |
| 17 | 272.6 | 1.10 | 232.4 | 1.10 | 182.8 | 1.10 |
| 18 | 283.4 | 1.10 | 241.6 | 1.10 | 200.0 | 1.10 |
| 19 | 277.2 | 1.10 | 234.4 | 1.10 | 200.8 | 1.10 |
| 20 | 264.0 | 1.10 | 225.8 | 1.10 | 191.4 | 1.10 |

Table 4a-6