

## Summary of Recent Load Rating Changes May 24<sup>th</sup>, 2024

- SNBI:
  - o **Ratings along with the rest of the SNBI data must be fully up to date by the March 2028 submittal.**
  - o Legal truck ratings are now being collected as part of the SNBI data. Item B.EP.02 is collecting the rating factors for the legal load configurations before any restrictions are considered. The rating factors will be based on the multi-lane tonnage column in the Load Rating Report in SIIMS. Here are some changes in how the legal load ratings should be filled out for multilane vs single lane in the new SNBI Load Rating Report:
    - Under the column “Tons,” only the multi-lane tonnages are required. **If the roadway is < 18’, which requires single lane analysis, the multi-lane column must be populated with the single lane values so the rating factor calculation can be done correctly for SNBI Item B.EP.02.**
    - If a bridge with a roadway 18’ or greater is being restricted to single lane to avoid load posting, the Rating Engineer will add the single lane values in the single tonnages column, fill out B.EP.03 with “L-Number of lanes restricted,” and add a note in the comments the bridge is restricted one lane.
    - If a bridge with a roadway 18’ or greater is being posted based on single lane, the Rating Engineers will add the single lane values in the single tonnages column, fill out B.EP.03 with “G - Gross Load” or “T-Truck Load”, add the single lane posting tonnages under column B.EP.04, and include a comment on Load Rating Form indicating tonnages under B.EP.04 are for single lane restrictions. This is the recommended posting, not what the bridge is actually posted for.
    - The recommended posting values displayed on the Bridge Data page in SIIMS will be auto populated with the minimum tonnage from B.EP.04 for each truck type.
    - There is no change in posting requirements with the change to SNBI.
  - o Inventory and Operating ratings are reported as Rating Factors only. Legal loads are entered as tonnages and converted to Rating Factors automatically.
  - o The new SNBI Item B.LR.08 (Routine Permit Loads) is used to report whether the bridge can carry routine permits using one of the codes shown at the end of this email. Note that there is an option N – Bridge does not carry routine permit loads if your county/city does not issue routine permits. The permit trucks that are considered routine (also called annual) and would need to be considered for B.LR.08 (Routine Permit Loads) are the following trucks:
    - 90k
    - 136k A
    - 136k B
    - 156k
    - Quint- The Quint is to be considered for issuing annual crane permits. It is not a conventional truck like the 90k-156k but created intending to conservatively represent an annual crane with axles  $\leq 20k$ .
    - Small Annual Crane- This is for cranes  $\leq 80k$  but with axles  $\leq 24k$ . See more information in the paragraph below.

- The Small Annual Crane configuration was created due to legislation passed in 2022 and went into effect January 1, 2023. The Iowa Code 321E.8(4) allows annual permits for cranes with gross weights  $\leq 80k$  with single axles  $\leq 24k$  to be issued. Before this, an annual crane could not exceed 20k axles. These permits are allowed on state and local routes and are similar to the 90k-156k annual permits. I originally created a configuration based on the data we had at the time. However, after a year of permitting these, I reviewed the permit configurations we've received. The original configuration did govern over all those vehicles but was very close with some. Therefore, based on the new data, we decided to alter the crane configuration. **If you were using the original configuration (20k-24k-24k-12k with a 15'-4'-4' spacing), the small annual crane configuration has been changed and updated. The new configuration (16k-24k-24k-16k with a 13'-4'-4' spacing) is in the attached list.**
- The Fluid Milk Truck is also an annual permit, but it is only allowed on primary roads and primary road extensions in cities. **It is not allowed and therefore doesn't need to be rated for secondary roads.**
- EV's came out with the 2015 FAST Act:
  - o They are exempt from posting in Iowa. LPA's have been instructed to work with the fire departments in their jurisdiction to determine if they have any of these vehicles. They then need to rate for EV2, EV3, or heavier if needed and inform the fire departments of any bridges that do not pass.
  - o **The ratings need to be documented on the load rating reports in SIIMS, and the deadline is December 31<sup>st</sup>, 2024. Email Scott Neubauer to notify him when this work is complete.**
  - o The DOT is allowing the use of the 1.1 factor in accordance with NCHRP Project 20-07 task 410.
  - o Restrictions such as requiring the EV to cross down the centerline of the bridge, crossing at crawl speed (5 mph), and crossing with no other vehicles on the bridge at the same time can also be considered to evaluate capacity.
- All-Systems Permits:
  - o The all-systems overweight permit allows a typical legal truck to exceed the legal load tables in Iowa code section 321.462, paragraph 6a – 6c, by up to 12%.
    - Single axles  $\leq 20k$
    - The 46k tandem rule for permits DOES NOT APPLY to the All-Systems Permit.
  - o Research and Analytics Bureau are working on setting it up so checking N/Y in the Load Rating Report in SIIMS will automatically update the All-Systems map. However, last I knew, this has not been implemented so all passing/failing bridges should still be reported to the people managing the all-systems map directly.
  - o When the bill passed, it provided a deadline of July 1<sup>st</sup>, 2025 for locals to provide which bridges the permit is not valid for. **However, the permit is already being issued as of January 2023 and is allowed on any bridge that has not been reported as restricted. If a county or city has not reported a bridge as restricted yet, the carrier is allowed to cross that bridge.**
  - o For LFR, you can simply check the legal loads  $RF \geq 1.12$ .
  - o For LRFR, legal trucks and permit trucks do not use the same live load factors like LFR. Most of the time, the legal live load factors are more conservative than the permit live load factors, but there are a few scenarios where the permit live load factors are larger depending on the ADTT.

- If the live load factor for a bridge from MBE Tables 6A.4.4.2.3a-1 and 6A.4.4.2.3b-1 is greater than the permit factor from MBE Table 6A.4.5.4.2a-1, you can simply check the legal loads  $RF \geq 1.12$ . If the all-systems permit does not pass with live load factor and the rater would like a less conservative rating, the live load factors for Routine Permits in MBE Table 6A.4.5.4.2a-1 can be considered.
  - If a bridge's live load factor from MBE Tables 6A.4.4.2.3a-1 and 6A.4.4.2.3b-1 is greater than the permit factor from MBE Table 6A.4.5.4.2a-1, then permit load factors should be used. (Ex. When a multilane bridge's ADTT = 1,000, the live load factors from MBE Tables 6A.4.4.2.3a-1 and 6A.4.4.2.3b-1 is  $\gamma_L = 1.30$ , but the permit factor from MBE Table 6A.4.5.4.2a-1 is  $\gamma_L = 1.35$ .)
- AASHTOWare BrR Update:
- Background on what this is and Iowa's endeavors:
    - AASHTOWare BrR is a load rating program used in many states across the country. For those unaware, a taskforce has been working to obtain an agency sponsored license to give all load raters in Iowa access to the load rating program.
    - The program has a lot of aspects that if a load rater is properly trained in BrR and willing to put in the initial work of modeling your bridges in the program, it could be very beneficial to LPA's and their load raters. Benefits include:
      - Batch analysis so you can run all your modeled bridges at once for new vehicle configurations.
      - A wide variety of bridge structure types can be modeled in the program.
      - Bridge owners will own the models.
      - It can be used to quickly perform permitting analysis and (if modeled correctly) it can analyze non-standard gauge vehicles.
  - Update:
    - Funding has been approved for 50 BrR licenses in fiscal year 2025.
      - The taskforce is currently working on how to set up distribution of licenses, initial training, pilot project, etc. so it will still be some time before licenses are ready to be installed.
    - Standard Models Creation – We have a research project with Michael Baker, HGM, and Kirkham Michael to model standard bridge templates in BrR.
      - Instead of only being able to provide tables of standard load ratings according to plans as we do currently, the goal is to create standard template models in BrR that the rater can take and modify for their individual bridge, adjusting for any deterioration, repair work, etc.
      - This research kicked off January, 2024 and will take multiple years to make all the models.

5.1 – LOADS AND LOAD RATING

<b><i>Routine Permit Loads</i></b>											
Format AN (1)	Frequency I	Item ID B.LR.08									
Specification	Commentary										
<p>Report whether the bridge carries routine permit loads or whether routine permit loads are restricted from the bridge using one of the following codes.</p> <table border="0"> <thead> <tr> <th style="text-align: left;"><u>Code</u></th> <th style="text-align: left;"><u>Description</u></th> </tr> </thead> <tbody> <tr> <td>A</td> <td>Bridge carries routine permit loads. Load capacity is adequate for all routine permit loads <u>approved for the route segment</u>; no routine permit loads are restricted.</td> </tr> <tr> <td>B</td> <td>Bridge carries routine permit loads. Load capacity is adequate for some routine permit loads <u>approved for the route segment</u>, but some routine permit loads are restricted.</td> </tr> <tr> <td>C</td> <td>Bridge does not carry routine permit loads. <u>Load capacity is inadequate for all routine permit loads approved for the route segment.</u> Routine permit loads are restricted from the bridge.</td> </tr> <tr> <td>N</td> <td>Bridge does not carry routine permit loads. <u>Routine permit loads are not approved for the route segment.</u> <del>Agency does not issue routine permits.</del></td> </tr> </tbody> </table>	<u>Code</u>	<u>Description</u>	A	Bridge carries routine permit loads. Load capacity is adequate for all routine permit loads <u>approved for the route segment</u> ; no routine permit loads are restricted.	B	Bridge carries routine permit loads. Load capacity is adequate for some routine permit loads <u>approved for the route segment</u> , but some routine permit loads are restricted.	C	Bridge does not carry routine permit loads. <u>Load capacity is inadequate for all routine permit loads approved for the route segment.</u> Routine permit loads are restricted from the bridge.	N	Bridge does not carry routine permit loads. <u>Routine permit loads are not approved for the route segment.</u> <del>Agency does not issue routine permits.</del>	<p>This item is used to identify bridges where State routine permit loads must be considered in load rating and posting evaluations and to identify bridges where routine permit loads are restricted due to bridge load capacity limitations.</p> <p>Agencies have varying policies for issuing routine permits, from not issuing routine permits to issuing various routine permits when these loads exceed State legal loads. Some agencies may utilize maps that indicate highways and bridges that are restricted to routine permit loads or that allow routine permit loads.</p> <p><u>Use code A when all routine permit loads allowed to travel the route segment are also allowed to travel on the bridge.</u></p> <p><u>Use code B when not all routine permit loads allowed to travel the route segment are allowed to travel on the bridge.</u></p> <p>Use code C when <u>all routine permit loads allowed to travel the route segment are restricted from the bridge</u><del>the agency issues routine permits, but all routine permit loads are restricted from the bridge.</del></p> <p>Use code N when the agency does not issue routine permits <u>or routine permit loads are not approved for the route segment that is carried by the bridge</u><del>and therefore the bridge does not carry routine permit loads.</del></p>
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