

## NJDOT LARS Clarification (12-20-2011)

1. HAUNCH: For CSC case, if haunch is defined in the “Member Shape Description” - Concrete, the haunch load is calculated by LARS in Composite case only. In case of SS, haunch will not be defined and user is required to calculate haunch and deck load and enter appropriately in the LARS.

The screenshot shows the "Member Shape Description - CSC - CC001" dialog box on the left and a cross-section diagram on the right. In the dialog box, the "Composite" option is selected in the "Child ID" dropdown menu, which is highlighted with a red box. The "Length (ft.)" is set to 102.750. The cross-section diagram on the right shows a bridge cross-section with a haunch labeled "XSec Dist = 41.202" and a section line labeled "TF002". The diagram also shows a vertical line labeled "W001" and a horizontal line labeled "BF002".

2. In LARS Customization under “LRFR – General” tab, if  $\gamma_{LL}$  values are assigned as 0.0, then correct  $\gamma_{LL}$  values are picked by the LARS program based on ADTT on “General Bridge Information”.

The screenshot shows two dialog boxes side-by-side. The left dialog box is "Analysis Customization" with the "LRFR - General" tab selected. In this tab, the "YI Strength I Limit State" and "YI Strength II Limit State" are both set to 0.000, which are highlighted with a red box. The right dialog box is "General Bridge Information". In this dialog box, the "Average Daily Truck Traffic" is set to 3720, which is highlighted with a red box. Other fields include Bridge ID (8888888), State Bridge ID (I ### Westboun), Structure Type (CSC), and Analyst Name (JAS).

3. Average Daily Truck Traffic (ADTT) is required for LARS input and can be easily calculated using Average Daily Traffic (ADT) and Percentage of Truck Traffic.

4. In LARS Customization under “LRFR – General” tab,  $\gamma_{DW}$  value for Strength Limit State is assigned as 1.25 for decks with or without Asphalt Overlays.

The screenshot shows the 'Analysis Customization' dialog box with the 'LRFR - General' tab selected. The 'Ydw Strength Limit State' field is highlighted with a red box and contains the value 1.250. Other fields include Condition Factor (1.000), System Factor (1.000), Average Daily Traffic Total (0), Ydc Strength Limit State (1.250), YI Strength Limit State - Inventory (1.750), YI Strength Limit State - Operating (1.350), YI Strength I Limit State (0.000), YI Strength II Limit State (0.000), Ydc Service Limit State (1.000), Ydw Service Limit State (1.000), YI Service I Limit State (1.000), YI Service II Limit State (1.300), YI Service III Limit State - Legal (0.800), Ydc Fatigue Limit State (0.000), Ydw Fatigue Limit State (0.000), and YI Fatigue Limit State (0.750). The dialog has 'OK' and 'Cancel' buttons at the bottom.

Field	Value
Condition Factor	1.000
System Factor	1.000
Average Daily Traffic Total	0.
Ydc Strength Limit State	1.250
<b>Ydw Strength Limit State</b>	<b>1.250</b>
YI Strength Limit State - Inventory	1.750
YI Strength Limit State - Operating	1.350
YI Strength I Limit State	0.000
YI Strength II Limit State	0.000
Ydc Service Limit State	1.000
Ydw Service Limit State	1.000
YI Service I Limit State	1.000
YI Service II Limit State	1.300
YI Service III Limit State - Legal	0.800
Ydc Fatigue Limit State	0.000
Ydw Fatigue Limit State	0.000
YI Fatigue Limit State	0.750

5. In LARS, the weight of end diaphragm can be added as needed.
6. For calculating the distribution factors for exterior girder, Rigid Cross-Section Requirements as per NJDOT Load Rating Manual, Appendix D.4 (Refer to MBE 2010, Example A1) must be checked manually since LARS is not going to calculate this requirement.
7. LARS is currently not calculating LLDF for Exterior Girder correctly. Use spreadsheet (see file “**LRFD\_lldf\_calc\_user.xlsx**”) or calculate using hand calculations referring current NJDOT Load Rating Manual.
8. When calculating load ratings for all three methodologies - ASD, LFD and LRFD, enter LLDF for ASD/LFD in “General Member Information” for each member rated:
  - a. Enter Moment LLDF in “Live Load Distribution Factor”
  - b. Enter Shear LLDF in “Live Load Distribution Factor 2”

**General Member Information**

Member ID:  Member Desc.:

Type:  Function:

Location (interior/fascia):

Distance from edge of roadway to face of beam (ft.):

Live Load Distribution Factor:

Live Load Distribution Factor 2:

Phi System (member):

Phi Condition (member):

Impact Factor ( % )	Max	Min
Inventory	<input type="text" value="30"/>	<input type="text" value="10"/>
Operating	<input type="text" value="30"/>	<input type="text" value="10"/>
Posting	<input type="text" value="30"/>	<input type="text" value="10"/>
Special	<input type="text" value="30"/>	<input type="text" value="10"/>

Buttons: New Member, Load Member, Copy Member, Delete Member, Close, >

- When calculating load ratings for LRFD, select LRFD in the Design method under “Analysis Options” and check Shear Rating Analysis as shown below:

**Analysis Options**

☒ Shear Rating Analysis

Design Method:  ☐ Stretch Truck

Buttons: OK, Cancel