



## Tice Creek Bridge Load Rating – Technical Memo

Date: November 14<sup>th</sup>, 2024  
Project: Tice Creek Bridge Strengthening  
To: Neil Mock  
City of Walnut Creek  
Project Engineer  
From: Jared Wilson, PE  
Conсор North America, Inc.  
Professional Engineer  
Reviewed By: Matt Vaggione, PE, SE  
Re: Castle Hill Rd-Bridge Strengthening Plan

---

### Background

In 2021, a bridge inspection was performed on the Tice Creek Bridge on Castle Hill Road by others. The inspecting firm discovered substantial decay in several supporting piles and various levels of deterioration in the superstructure and substructure. The load rating analysis performed by the inspecting firm concluded that the bridge should be posted for reduced vehicle load for two out of the three AASHTO legal vehicles.

Conсор North America, Inc. (Conсор) was tasked by the City of Walnut Creek (City) to design a temporary bridge strengthening to allow AASHTO legal vehicles and commercial vehicles of interest to safely cross the bridge until a full replacement could be performed. Given multiple strengthening options with various effectiveness, the City chose to strengthen the structure by adding steel girders to the underside of the bridge. This strengthening was installed in August, 2024.

### Load Rating

The previous load posting for the AASHTO legal vehicles recommended by the inspecting firm following their inspection was:

Posting Load:	Type 3: 19 US Tons	Type 3S2: 30 US Tons	Type 3-3: LEGAL
---------------	--------------------	----------------------	-----------------

After the strengthening, the new load capacity is as follows:

Posting Load:	Type 3: LEGAL	Type 3S2: LEGAL	Type 3-3: LEGAL
---------------	---------------	-----------------	-----------------

The bridge load capacity now satisfies all three legal vehicles, so **a posting is no longer required at this structure**. The city may remove the existing load posting sign. If Caltrans is involved with this structure in any capacity, inform Caltrans of the posting removal.

Listed below are the City's commercial vehicles of interest:

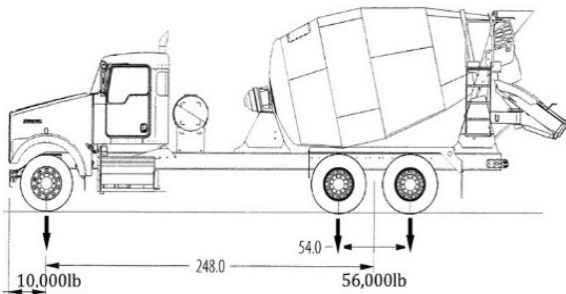
- Type EV3 – Emergency Vehicle



- Garbage Truck – 3 Axle “Rear Load”



- Ready-Mix Concrete Truck)



The listed vehicles are now within the load capacity of the strengthened structure. They are safe to cross the strengthened structure.

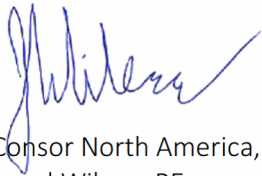
## Conclusion

The strengthened structure is now sufficient for all AASHTO legal truck loads and the specific commercial vehicles of interest. If the City would like other specific vehicles to be checked, they may contact Consor to discuss this. To respond to the City's concern regarding design life: in general, heavier vehicles and/or larger ADT will decrease the life of a structure compared to a similar structure experiencing less loading. However, this heavier vehicle loading is accounted for in the design standards and does not change the stated design life of a structure. For our specific project, restricting the garbage service to a slightly smaller truck would not have a notable impact on the design life of the strengthening.

It is Consor's recommendation that the structure be inspected shortly after these heavier vehicles start crossing the structure again, and that the structure be placed on an annual inspection cycle moving forward throughout the duration of the structure's use. This is due to possible deficiencies in the existing structure that may be present or may develop over time, and that were not readily observable during inspection and strengthening design.

Please reach out with any questions regarding the load rating of this structure.

Sincerely,

A handwritten signature in blue ink, appearing to read 'J. Wilson', with a stylized flourish at the end.

Consor North America, Inc.  
Jared Wilson, PE  
Professional Engineer