129,000 Pound Evaluation of SH-32
M.P. 0.0 to M.P 20.64
(Case #201631SH32)

Executive Summary

K/K Transportation submitted a request for 129,000 pound trucking approval on SH-32 between milepost (MP) 0.0 (intersection with SH-33) and MP 20.64 for transportation of liquid fertilizer. Of note, the original request was for MP 0.0 to MP 28.39. MP 20.64 to MP 28.39 is being considered under case #201614SH32 submitted by Winmill Transportation. The request projects up to 120 trips annually which is reduction of approximately 15% - 25% from current operations. This section of SH-32 is coded a "Red Route," where vehicles with 115-foot overall length and 6.5-foot off-track are authorized. ITD Bridge Section confirms the 3 bridges on the route will safely support 129,000 pound vehicles. The Department's Materials Section evaluation shows that increased vehicle weight with a corresponding increased number of axles will reduce loads per axle compared to 80,000 or 105,500 pound vehicles and thereby produce lower loads on the road surface and subsurface resulting in equal or lesser damage. The Office of Highway Safety analysis shows this section of SH-32 has no Non-Interstate High Accident Intersection Locations (HAL) and no HAL Clusters. Department of Motor Vehicles, Materials Section, Highway Safety and Bridge Asset Management all recommend proceeding with this request.

Detailed Analysis

Department of Motor Vehicles (DMV) Review

All Idaho Transportation Department routes are currently categorized by their ability to handle various extra-length vehicle combinations and their off-tracking allowances. The categories used when considering allowing vehicle combinations to carry increased axle weights above 105,500 pounds and up to 129,000 pounds are:

- Blue routes at 95 foot overall vehicle length and a 5.50-foot off-track
- Red routes at 115 foot overall vehicle length and a 6.50-foot off-track.

Off-tracking is the turning radius of the vehicle combination, which assists in keeping them safely in their lane of travel. Off-tracking occurs because the rear wheels of trailer trucks do not pivot, and therefore will not follow the same path as the front wheels. The greater the distance between the front wheels and the rear wheels of the vehicle, the greater the amount of off-track. The DMV confirms that the requested routes falls under one of the above categories and meets all length and off-tracking requirements for that route. **More specifically, the requested section of SH-32 from MP 0.00 to MP 20.64 is designated as a red route and as such all trucks must adhere to the 6.5-foot off-track and 115-foot overall vehicle length criteria.**

Bridge Review

Bridges on all publicly owned routes in Idaho, with the exception of those meeting specific criteria, are inspected every two years at a minimum to ensure they can safely accommodate vehicles. A variety of inspections may be performed including routine inspections, in-depth inspections, underwater inspections, and complex bridge inspections. All are done to track the current condition of a bridge and make repairs if needed.

When determining the truck-carrying capacity of a bridge, consideration is given to the types of vehicles that routinely use the bridge and the condition of the bridge. Load limits may be placed on a bridge if, through engineering analysis, it is determined the bridge cannot carry legal truck loads.

ITD Bridge Asset Management has reviewed the **three bridges** pertaining to this request and has determined they will safely support the 129,000-pound truck load, provided the truck's axle configuration conforms to legal requirements. To review load rating data for each of the bridges, see the Bridge Data chart below.

Materials Section Review

The Idaho Transportation Department's 129,000 pound pilot project report to the Idaho State Legislature in 2013 states, "For pavements, axle weight is a more significant determinant of pavement damage than gross vehicle weight. Truck weight limits that allow a higher GVW distributed over more axles do not necessarily lead to higher pavement costs and can even produce savings." Based on the increased number of axles required for 129,000 pound vehicles to maintain legal axle weights, the equivalent single axle loads (ESAL) for 129,000 pound vehicles are lower than for 80,000 pound and 105,500 pound vehicles. The implementation of the 129,000 pound configuration also reduces the number of truck trips compared to performing the same work with 80,000 or 105,000 pound trucks. The reduction in truck traffic further reduces the pavement wear. Therefore, for this section of roadway, our assessment is the increased vehicle weight with a corresponding increased number of axles will reduce loads per axle compared to 80,000 or 105,500 pound vehicles and thereby produce lower loads on the road surface and subsurface resulting in equal or lesser damage.

Highway Safety Evaluation

This SH-32 segment has no Non-Interstate High Accident Intersection Locations (HALs) and has no HAL Clusters.

Analyses of the 5-year accident data (2011-2015) shows there were a total of 26 crashes involving 32 units (0 fatalities and 10 Injuries) on SH-32 between MP 0.0 and 20.64 of which one crash involved a tractor-trailer combination. None of the injuries were due to crashes with tractor trailers. Implementation of 129,000 pound trucking is projected to reduce truck traffic on this route.

Additional Data:

Bridge Data:

Route Number: SH 32
Department: Bridge Asset Management
Date: 11/14/2016

Route		
	From:	SH-33
	Milepost:	0.00
	To:	Simplot
	Milepost:	20.640

Highway Number	Milepost Marker	Bridge Key	121 Rating[a] (lbs)
32	2.79	13865	242,000
32	7.34	13870	OK EJ
32	7.91	13876	230,000

[a]: The bridge is adequate if it has a rating value greater than 121,000 pounds or is designated as "OK EJ" (okay by engineering judgment).