



# 129,000 Pound Evaluation of SH-34 M.P. 78.07 to M.P 113.6 (Case #201617SH34)

## Executive Summary

Handy Truck Line submitted a request for 129,000 pound trucking approval on SH-34 between mile post (MP) 78.07 and MP 113.6 for transportation of cement. The request projects up to 60-80 trips annually which is a 15-20% reduction from current operations. The requested section of SH-34 from MP 78.07 to 93.716 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. The section from MP 93.716 to MP 113.60 is designated as a blue route and as such all trucks must adhere to the 5.5-foot off-track and 95-foot overall vehicle length criteria. ITD Bridge Section confirms the 13 bridges on the route will safely support 129,000 pound vehicles. District 5 analysis shows this section of road as a rural major collector in fair to good condition with portions of an 11-mile section being deficient for cracking. The section that is deficient has cracks on the shoulders that are starting to penetrate into the roadway. 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-34 has no Non-Interstate High Accident Intersection Locations (HAL) and has two HAL Clusters with details provided below. Department of Motor Vehicles, Materials Section, Highway Safety, Bridge Asset Management, and District 5 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-34 from MP 78.07 to MP 93.716 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. Additionally the requested section of SH-34 from MP 93.716**

**to MP 113.60 is designated as a blue route and as such all trucks must adhere to the 5.5-foot off-track and 95-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 **13 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.

## ITD District 5 Evaluation

This segment has been evaluated and the District recommends proceeding.

District 5 has evaluated the roadway characteristics, pavement condition, and traffic volumes on SH-34 between milepost 78.07 – 113.60 in response to the request to make this segment a 129,000-pound trucking route to service Handy. The District has found no concerns with this action and recommends proceeding. Details of the evaluation are provided below.

## Roadway Characteristics

This section of road is a rural major collector from MP 78.07 – 113.60. The roadway geometry is outlined in the table below.

**Table 1. SH-34 Roadway Geometry**

	THROUGH LANES	TWO-WAY LEFT TURN LANE (TWLTL)	SHOULDER (FT.)	PARKING LANE
<b>MP 78.07 – 113.60</b>	2 – 1 each direction	No (Turn bays are present)	Yes	No
	12'	-	2 - 4	-

The area does have various tight curves which could cause issues for trucks that are over a certain length. The maintenance crew has been working in the area to widen the shoulders on the curves.

### Pavement Condition

The road is asphalt pavement and is in good to fair condition with small section deficient in cracking. The rest of the roadway is not deficient in cracking, roughness, or ruts. The section that is deficient in cracking has cracks on the shoulders that are starting to penetrate into the roadway. The maintenance crew recently completed a project to repave various sections of the shoulders in 2016. In 2005 the entire section received a seal coat and will again in 2017. This seal coat will help prevent the cracks from getting worse. Spring breakup limits do not pertain to this section at this time.

**Table 2. 2015 TAMS Visual Survey Data**

	PAVEMENT TYPE	DEFICIENT (YES/NO)	CONDITION STATE	CRACKING INDEX (CI)	ROUGHNESS INDEX (RI)	RUT AVERAGE (IN)
<b>MP 78.07 -82.00</b>	Flexible	No	Fair	3.3	2.92	0.12
<b>MP 82.00 -85.19</b>	Flexible	Yes – CI	Poor	1.7	2.35	0.07
<b>MP 85.19 – 93.30</b>	Flexible	Yes - CI	Poor	1.7	2.57	0.07
<b>MP 93.30 – 98.71</b>	Flexible	No	Good	3.3	3.64	0.15
<b>MP 99.00 – 99.79</b>	Flexible	No	Fair	3.3	2.59	0.14
<b>MP 99.79 – 102.46</b>	Flexible	No	Fair	2.3	2.50	0.15
<b>MP 102.46 – 103.90</b>	Flexible	No	Fair	2.3	2.66	0.14
<b>MP 103.90 – 113.60</b>	Flexible	No	Good	2.3	3.51	0.15

### Traffic Volumes

The speed limit of the highway is 55 - 65 mph. There is no stop lights in this segment. The traffic volumes are provided below.

**Table 3. 2015 Traffic Volumes**

	AADT	CAADT	% TRUCKS
<b>MP 78.07 -82.00</b>	300	70	23.3
<b>MP 82.00 -85.19</b>	300	70	23.3
<b>MP 85.19 – 93.30</b>	300	70	23.3
<b>MP 93.30 – 98.71</b>	291	70	24.0
<b>MP 99.00 – 99.79</b>	290	70	24.0
<b>MP 99.79 – 102.46</b>	317	74	23.3
<b>MP 102.46 – 103.90</b>	350	80	22.8
<b>MP 103.90 – 113.60</b>	351	80	22.8

### Truck Ramps

Due to the flat nature of this segment, no runaway truck ramps exist.

### Port of Entry (POE)

The POE maintains several rover sites on this section of highway. There are located at the following locations:

1. Conda Area – Approximately at MP 63.57
2. ITD Wayan Shed – Approximately at MP 93.57
3. Tincup Creek Area – Approximately at MP 105.12

### Highway Safety Evaluation

This SH 34 segment has no Non-Interstate High Accident Intersection Location (HAL) and has two HAL Clusters. The locations are shown in the table below with their statewide ranking.

Analyses of the 5-year accident data (2011-2015) shows there were a total of 69 crashes involving 73 units (4 fatalities and 34 Injuries) on SH-34 between MP 78.07 and MP 113.62 of which only 1 crash involved a tractor-trailer combination. The tractor trailer resulted from a failure to maintain lane and subsequent overcorrection. The crash resulted in one injury. Implementation of 129,000 pound trucking is projected to reduce truck traffic on this route.

Table of HAL Segments SH 34:

Route	Statewide Rank	Milepost Range	Length (miles)	County
SH 34	32	92.429-92.929	0.5	Caribou
SH 34	398	106.274-107.774	1.5	Caribou

**Additional Data:*****Bridge Data:***

**Route Number:** SH 34  
**Department:** Bridge Asset Management  
**Date:** 7/26/2016

<b>Route</b>	<b>From:</b>	SH 34
	<b>Milepost:</b>	78.07
	<b>To:</b>	SH 34/WY State Line
	<b>Milepost:</b>	113.600

<b>Highway Number</b>	<b>Milepost Marker</b>	<b>Bridge Key</b>	<b>121 Rating<sup>a</sup> (lbs)</b>
34	101.25	14046	OK EJ
34	104.50	14047	OK EJ
34	104.60	14048	OK EJ
34	105.25	14049	OK EJ
34	105.37	14051	OK EJ
34	105.85	14050	228,000
34	105.94	14055	238,000
34	106.40	14057	OK EJ
34	106.82	14058	OK EJ
34	108.31	14060	368,000
34	108.81	14065	380,000
34	110.71	14070	142,800
34	113.41	14072	OK EJ

<sup>a</sup>: 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).