



# 129,000 Pound Evaluation of US-89

## US-89 MP 0.0 to MP 41.17

(Case #201702US89)

### Executive Summary

Kiva Energy, Inc. submitted a request for 129,000 pound trucking approval on US-89 between the Utah border at milepost (MP) 0.0 and the Wyoming border at MP 44.24. The requested route merges with US-30 between MP 25.98 and MP 26.28, with this section of US-30 having been previously approved for 129,000 pound trucking. In addition, MP 41.17 (Geneva, Idaho) to MP 44.24 (Wyoming border) is currently under evaluation with case #201618US89 and is not considered in this report. The requestor will transport propane and liquid petroleum gas (LPG) with approximately 75 trips annually which is a 15-20% reduction from current operations. All of US-89 in Idaho is coded a "Red Route" where vehicles with 115-foot overall length and 6.5-foot off-track are authorized. ITD Bridge Section evaluated the 17 bridges on requested section of highway and confirms all are capable of supporting 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 the US-89 has no Non-Interstate High Accident Intersection Location (HAL) and has one HAL Cluster south of Bloomington. District 5 evaluation describes the route as asphalt pavement in good to poor condition and rated deficient in cracking, roughness, or ruts in two sections. The entire route is scheduled for seal coat in 2017. 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 route falls under one of the above categories and meets all length and off-tracking requirements for that route. **More specifically, the requested section of US-89 from MP 0.0 to MP 41.17 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 Section 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 **17** 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

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. 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.

### District 5 Evaluation

This segment has been evaluated and the District recommends proceeding.

**General:** District Five evaluated the roadway characteristics, pavement condition, and traffic volumes on SH-89 between MP 0.0 – MP 41.17 in response to the request to make this segment a 129,000-pound trucking route to service Kiva Energy, Inc. The District found no concerns with this action and recommends proceeding.

### Roadway Characteristics

The roadway is a rural principal arterial rated from poor to good condition with 12 foot lanes and shoulder widths ranging from 0 up to 5 feet. There are two sections rated as poor and deficient for a total of 3.7 miles with one of these sections scheduled of rehabilitation in 2019. The roadway geometry is outlined in the table below.



*US-89 Roadway Geometry*

MILEPOST	THROUGH LANES	TWO-WAY LEFT TURN LANE	SHOULDER	PARKING LANE
0.00 – 2.62	2 – 1 each direction	No	Yes	No
	12'	-	2	-
2.62 – 2.82	2 – 1 each direction	No	Yes	No
	12'	-	2	-
2.82 – 7.80	2 – 1 each direction	No (Turn bays are present)	Yes	No
	12'	-	2	-
7.80 – 8.61	2 – 1 each direction	No (Turn bays are present)	Yes	No
	12'	-	2	-
8.61 – 9.04	2 – 1 each direction	No (Turn bays are present)	Yes	No
	12'	-	2	-
9.04 – 15.650	2 – 1 each direction	No (Turn bays are present)	Yes	No
	12'	-	2	-
15.650 – 16.24	4 – 2 each direction	No	No	Yes
	12'	(City of Paris)	0	8'
16.24 – 19.75	2 – 1 each direction	No	Yes	No
	12'	-	1	-
19.75 – 25.29	2 – 1 each direction	No	Yes	No
	12'	-	2	-
25.29 – 25.98	4 – 2 each direction	Yes	No	Yes
	12'	10' (City of Montpelier)	0	8'
26.28 – 26.70	2 – 1 each direction	Yes	No	Yes
	12'	12'	0	8'
26.70 – 29.70	2 – 1 each direction	No	Yes	No
	12'	-	1	-
29.70 – 31.12	2 – 1 each direction	No	Yes	No
	12'	-	1	-
31.12 – 34.00	3 – 1 each direction and passing lane	No	Yes	No
	12'	-	5	-
34.00 – 35.5	3 – 1 each direction and passing lane	No	Yes	No
	12'	-	5	-
35.5 – 37.66	3 – 1 each direction and passing lane	No	Yes	No
	12'	-	5	-



MILEPOST	THROUGH LANES	TWO-WAY LEFT TURN LANE	SHOULDER	PARKING LANE
37.66 – 38.37	3 – 1 each direction and passing lane	No	Yes	No
	12'	-	2	-
38.37 – 40.20	2 – 1 each direction	No	Yes	No
	12'	-	2	-
40.20 – 40.92	2 – 1 each direction	No	Yes	No
	12'	-	6	-
40.92 – 41.40	2 – 1 each direction	No (Turn bays are present)	Yes	No
	12'	-	5	-

**Pavement Condition**

The road is asphalt pavement and is in good to poor condition and is deficient in cracking, roughness, or ruts in two sections. These sections have received multiple seal coats in the past 20 years. Another seal coat is scheduled for 2017 for the entire route. Starting in 1994 through 2014 the entire route has received some type of rehabilitation. Spring breakup limits do not pertain to this section at this time.

**Traffic Volumes**

The speed limit of the highway varies between 25 (in the cities) to 65 mph. There are stop lights in this segment located in the City of Montpelier. The traffic volumes are provided below.

**2016 Traffic Volumes**

MILEPOST	AADT	CAADT	% TRUCKS
0.00 – 2.62	2700	270	10
2.62 – 2.82	2700	270	10
2.82 – 7.80	2641	263	10
7.80 – 8.61	1663	163	10
8.61 – 9.04	1460	160	11
9.04 – 15.65	1434	149	10
15.65 – 16.24	1507	180	12
16.24 – 19.75	2000	180	9
19.75 – 25.29	2543	218	9
25.29 – 25.98	4890	150	3
26.28 – 26.70	1360	112	8
26.70 – 29.70	939	90	10
29.70 – 31.12	800	90	11
31.12 – 34.00	773	90	12
34.00 – 35.5	690	90	13
35.5 – 37.66	649	90	14
37.96 – 38.37	640	90	14
38.37 – 40.20	640	90	14
40.20 – 40.92	602	90	15
40.92 – 41.40	829	124	15



### Truck Ramps

The terrain varies from flat to mountainous areas. However, the grades do not require truck ramps. In the mountainous areas, passing lanes are available.

### Port of Entry (POE)

The POE maintains one rover site on this section of highway at approximately MP 40.47 on US-89.

### Highway Safety Evaluation

This US 89 section has no Non-Interstate High Accident Intersection Location (HAL) and has one HAL Cluster.

Analyses of the 5-year accident data (2011-2015) shows there were a total of 161 crashes involving 219 units (1 fatality and 75 Injuries) on US-89 between MP 0.0 to MP 41.17 of which five crashes involved a tractor-trailer combination. The tractor trailer crashes involved contributing circumstances of speed too fast for conditions and failure to maintain lane as the most prevalent. The crashes resulted in two injuries. Implementation of 129,000 pound trucking is projected to reduce truck traffic on this route.

*Table of HAL Segments US 89*

Route	Statewide Rank	Milepost Range	Length (miles)	County
US 89	56	12.240-12.740	0.5	Bear Lake





**Additional Data:**

**Tams Data:**

MILEPOST	PAVEMENT TYPE	DEFICIENT (YES/NO)	CONDITION STATE	CRACKING INDEX (CI)	ROUGHNESS INDEX (RI)	RUT AVERAGE (IN)
0.00 – 2.62	Flexible	No	Good	4.00	3.09	0.11
2.62 – 2.82	Flexible	No	Good	5.00	3.11	0.10
2.82 – 7.80	Flexible	No	Good	4.00	3.45	0.08
7.80 – 8.61	Flexible	No	Good	3.50	3.04	0.09
8.61 – 9.04	Flexible	No	Fair	5.00	2.83	0.10
9.04 – 15.65	Flexible	No	Good	3.50	3.38	0.08
15.65 – 16.24	Flexible	No	Fair	3.90	2.94	0.07
16.24 – 19.75	Flexible	No	Good	3.50	3.54	0.10
19.75 – 25.29	Flexible	No	Good	4.00	3.09	0.18
25.29 – 25.98	Flexible	Yes (RI)	Poor	3.00	2.49	0.14
26.28 – 26.70	Flexible	No	Fair	5.00	2.63	0.11
26.70 – 29.70	Flexible	Yes (CI)	Poor	2.00	3.14	0.06
29.70 – 31.12	Flexible	No	Fair	5.00	2.86	0.09
31.12 – 34.00	Flexible	No	Good	4.00	3.21	0.09
34.00 – 35.5	Flexible	No	Good	3.50	3.06	0.15
35.5 – 37.66	Flexible	No	Fair	3.50	2.84	0.12
37.96 – 38.37	Flexible	No	Good	4.40	3.27	0.07
38.37 – 40.20	Flexible	No	Good	4.00	3.72	0.09
40.20 – 40.92	Flexible	No	Good	4.00	3.09	0.05
40.92 – 41.40	Flexible	No	Good	4.50	2.58	0.12

MP25.29 – 25.98 is due to be rehabilitated in 2019.



**Bridge Data:**

**Route Number:** US 89  
**Department:**  
**Date:** 4/5/2017

<b>Route</b>	<b>From:</b>	US 89/UT State Line
	<b>Milepost:</b>	0.00
	<b>To:</b>	Geneva, ID
	<b>Milepost:</b>	41.17

Highway Number	Milepost Marker	Bridge Key	121 Rating <sup>a</sup> (lbs)
89	2.57	16668	OK EJ
89	8.39	16670	226,000
89	8.76	16676	278,000
89	12.91	16677	OK EJ
89	15.40	16679	OK EJ
89	19.77	16680	460,000
89	19.84	16685	178,000
89	20.40	16691	360,000
89	22.61	16695	228,000
89	23.34	16700	214,000
89	25.14	16705	148,000
89	30.99	16708	808,000
89	31.18	16709	228,000
89	33.31	16711	644,000
89	40.32	16716	OK EJ
89	40.72	16721	OK EJ
89	41.02	16726	328,000

