# 2021

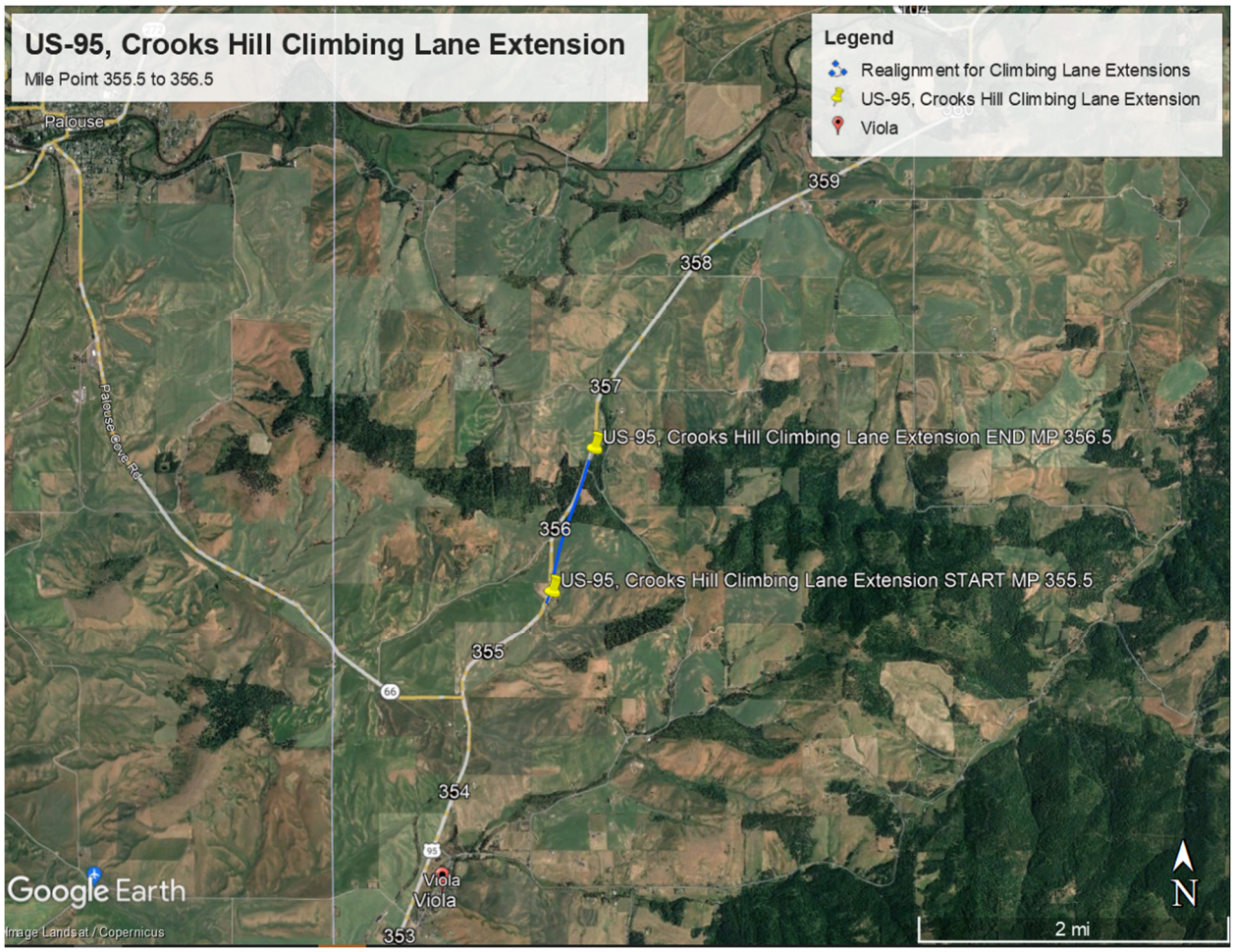
# Freight Program

# Project Application

## US-95, Crooks Hill

## Climbing Lane Extension,

## Latah Co



Projects selected for freight formula funds require a minimum of 7.73% match for interstate projects and 7.34% match for projects not on an interstate.

Submit applications via electronic means to scott.luekenga@itd.idaho.gov. When transmitting the application include all supporting maps, letters and other documents, as a pdf. If the file size exceeds e-mail transmittal capabilities (15MB), submit using a thumb drive and send via FedEx/UPS delivery to the following address:

Idaho Transportation Department
Attn: Scott Luekenga
HQ – Highway Planning Service
P.O. Box 7129
Boise, Id. 83707-1129

## Applicant Information:

| | |
|---|---|
| Applicant: | Idaho Transportation Department, District 2 |
| Mailing Address: | P. O. Box 837 |
| City: | Lewiston |
| State: | Idaho |
| Zip Code: | 83501 |
| Contact person: | Bob Schumacher |
| Title: | District Engineering Manager |
| Phone: | 208-799-5090 |
| Email: | bob.schumacher@itd.idaho.gov |

Co-Applicant *(if different from Applicant):* Not Applicable

Mailing Address:
City:
State:
Zip Code:

Contact Person:
Title:
Phone:
Email:

# Application Specifics

**Project Cost Estimate**:

The US-95, Crooks Hill Climbing Lane Extension project, sponsored by the Idaho Transportation Department District 2, is located in Latah County, on US-95 between MP 355.5 and MP 356.5. This portion of US-95 will be reconstructed and realigned to extend the northbound and southbound climbing lanes.

The District has had a goal of extending all the climbing lanes that do not go over the vertical crest and terminate on the other side of the hill. Along US-95, this has been completed on top of Moscow Mountain (MP 350.8) just north of Moscow Idaho, Riverside Hill (MP 358.8) just south of the junction of US-95 and SH-6, and Marsh Hill (MP 371.6) located at the District 1 and District 2 border.

US-95 is not on the interstate system. Therefore, the project match will be 7.34% and State funds will be used for the match.

The design of the US-95, Crooks Hill Climbing Lane Extension, Latah Co project has not been started. In order to design the project with District resources, District 2 is requesting the following funding in FY23: $100,125 PE and $150,000 PC. Consultant funds are needed in order to complete the on-site surveying. The environmental and administration requirements are included in the Preliminary Engineering line item in the Project Cost Estimate shown in Table 1 below. There will be Right-of–Way needed on the East side of US-95 for the realignment so $101,440 R/W and LP will need to be programmed in FY25. This project could be companioned with the Key No. 23222, US-95 Top of Crooks Hill to Freeze Road, which is a FY28 Pavement Preservation project. ITD is flexible to adjust the project construction schedule later to FY26, FY27, or FY28 based on funding availability.

It is anticipated that the project will be ready for PS&E and Construction in FY26. District 2 is requesting $100,125 CE and $98,800 CC for Construction Engineering. The total cost of this project is anticipated to be $ 3,923,622 CN and the Idaho Transportation Department will match at 7.34% for a total of $ 287,994.

Photo: Slower moving northbound vehicle impeding traffic flow at the crest of Crooks Hill

| Work Item | Quantity | Unit Cost | Units | Item Cost |
|---|---|---|---|---|
| Excavation | 103,710 | 15 | CY | $ 1,555,650 |
| Plantmix Pavement | 7,440 | 90 | TON | 669,600 |
| Roadway Base Aggregate | 9,430 | 25 | TON | 235,750 |
| Roadway Open Graded Base | 23,100 | 15 | TON | 346,500 |
| Temporary Traffic Control (10%) | | | | 280,750 |
| Miscellaneous Items (10%) | | | | 308,825 |
| Mobilization (10%) | | | | 339,708 |
| Base Construction Cost | | | | 3,736,783 |
| Construction Contingency (5%) | | | | 186,839 |
| Total Construction Cost | | | CN | 3,923,622 |
| Preliminary Engineering | | | PE | 100,125 |
| Preliminary Engineering by Consultant | | | PC | 149,500 |
| Construction Engineering | | | CE | 100,125 |
| Construction Engineering by Consultant | | | CC | 98,800 |
| Right-of-Way | | | RW | 21,440 |
| Land Purchase | | | LP | 80,000 |
| Total Project 2021 Present Cost (OTIS Total) | | | | $ 4,473,612 |
| Total Project 2028 Future Cost (With Inflation) | | | | $ 5,140,070 |

Table 1. Project Cost Estimate

Photo: Existing Inadequate Passing Sight Distance at the Crest of Crooks Hill and Potential Risk of a Dangerous Passing Maneuver

Photo: Crooks Hill Northbound Climbing Lane End

Photo: Crooks Hill Southbound Climbing Lane End

**Project Details**:

This project, sponsored by the Idaho Transportation Department, District 2, will re-align and reconstruct approximately 1.0 mile of US Highway 95 between MP 355.5 and MP 356.5.

The project will include the reconstruction of both vertical and horizontal curves with a new alignment at the top of Crooks Hill and extending both the northbound and southbound climbing lanes approximately 0.30 miles (1,600 ft.) over the crest of the hill. This work will include subgrade construction, base coarse, plant mix asphalt paving, shoulders, and roadway obliteration. Other improvements will include reconstructing the county road approach at Potter Road to bring the approach up to current design standards which will improve the sight distance. Construction will include new culverts, highway signage, pavement markings, and guardrail. All construction will adhere to the current version of the ITD Standard Specification for Highway Construction Standards.

Utility relocations are anticipated to be performed at the Utilities expense.

Presently, US-95 is classified as a Principal Arterial which handles intrastate, interstate, and international cargo. As an intrastate route, US-95 is used to transport logs and finished lumber products from the mills in Lewiston, Clarkston WA, and Potlatch along with agricultural products from the Palouse Prairie to the Port of Lewiston for barge transport to the Pacific Coast. As an interstate / international route, the route is a major north – south highway for the transport of agricultural goods to and from Canada to US facilities such as the beef processing facilities in Idaho and Washington State.

Extending the Crooks Hill climbing lanes over the crest of the hill will increase mobility by providing additional passing opportunities for northbound and southbound trucks and passenger vehicles to pass slow vehicles before descending the hill. Realigning the top of the hill to flatten the vertical and horizontal alignment will greatly improve the sight distance which will improve the safety for trucks and passenger vehicles on US Highway 95 and for turning traffic entering the highway from Potter Road. This project will meet the Department's goal to improve safety, economic opportunity, and enhance the mobility of the traveling public.

## **Safety, Economic and Mobility Improvement Details**:

Flattening the vertical and horizontal curves, along with the extension of the climbing lanes by a re-alignment, will decrease conflicts between passenger vehicles and commercial vehicles.

The 2019 Average Annual Daily Traffic (AADT) was 4,400 vehicles per day with 530 (12%) being commercial truck traffic. The 2050 projection for AADT indicates 7,460 vehicles per day with 1,190 (16%) being commercial truck traffic. The 2020 AADT data is not available for use.

Re-aligning and flattening of the upper portion of this project should allow current commercial vehicles to crest the hill at higher speeds. In addition, lighter and unloaded trucks and passenger vehicles will have more opportunities to pass the heavier commercial vehicles.

Flattening the horizontal and lowering the vertical crest on Crooks Hill will improve the sight distance for US-95 traffic and for the turning traffic to and from Potter Road, and should reduce intersection related crashes at the crest of the hill. Extending the ends of the truck climbing lanes over the crest of the hill improves the sight distance where the faster passing lanes merge with the slower climbing lanes and should reduce traffics conflicts. The 2016 to 2020 Crash Data shows that there were 15 crashes within the project limits in the following categories:

1 Fatality
2 Serious Injuries
4 Minor Visible Injuries
3 Possible Injuries / Complaint Crash
5 Property Damage

Idaho's fatality rate on US and State Highways per 100 million vehicle miles traveled (AVMT) was 1.6. The proposed project has a fatality rate of 12.8 per 100 million AVMT. Idaho's total crash rate on US and State Highways was 139.4 per 100 million AVMT in 2019. This project has a total crash rate of 191.9 per 100 million AVMT. This project location was identified for consideration as a safety project due to both the fatal and total crash rates within the project limits exceeding the Idaho average rate for US and State Highways. See Appendix I for more details on the crash history within the proposed project limits.

ITD used the following three counter measures to evaluate the safety benefit of the proposed project: Flatten Crest Vertical Curve, Flatten Horizontal Curve, and Installing Shoulder Rumble Strips and Widened the Shoulder. It is estimated that these counter measures would prevent approximately 100 crashes over the 20 year service life. The calculated safety cost benefit ratio is 19.61. See Appendix II for more details about the Benefit Cost Ratio.

This section of US-95 has a posted speed limit of 60 MPH. The design intersection sight distance for a passenger vehicle to make a left turn from a stop is 665 ft. on grades of 3 percent or less. It appears the geometry provides adequate sight distance for passenger vehicles. The design intersection sight distance for a single-unit truck to make a left turn from a stop is 840 ft. on grades of 3 percent or less. Although it is not anticipated to have significant commercial traffic on Potter Road, the proposed realignment will provide better sight distance and a safer county road approach.

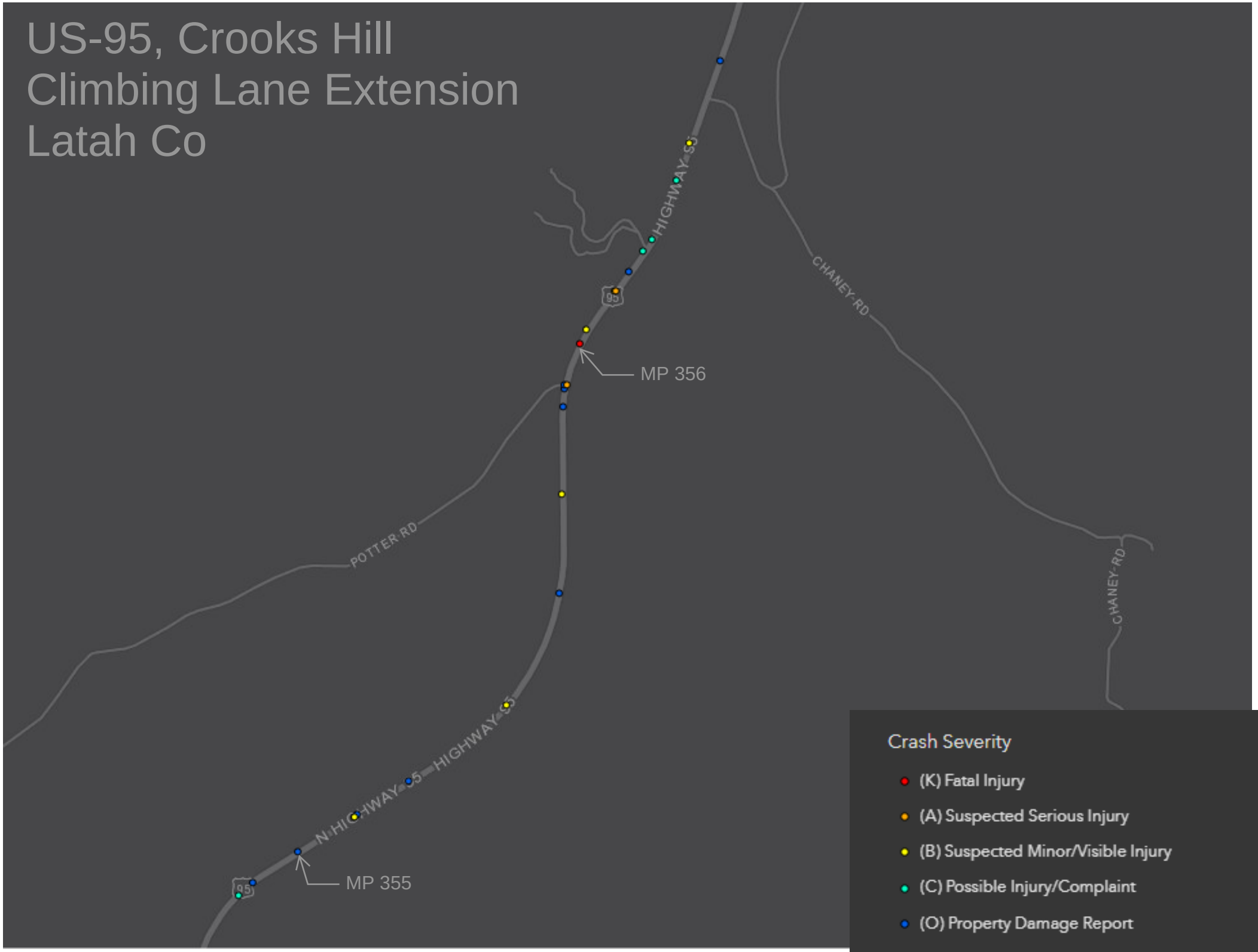
Photo: Crooks Hill Northbound View from Potter Rd

Photo: Crooks Hill Southbound View from Potter Rd

This project is not located on the National Highway Freight Network, nor is the route currently listed as one of Idaho's Critical Rural Freight Corridors (CRFC). However, US-95 is highly recommended to be included as one of Idaho's CRFCs due to the large range of industries served by US-95 and it is the only north – south connection servicing the State of Idaho. In addition, US-95 connects I-90 with I-84, it is currently classified as a 129k route, and it provides essential connectivity for the communities in north central Idaho.

# Appendix I-
# Crash Map and Crash Report

# US-95, Crooks Hill Climbing Lane Extension Latah Co



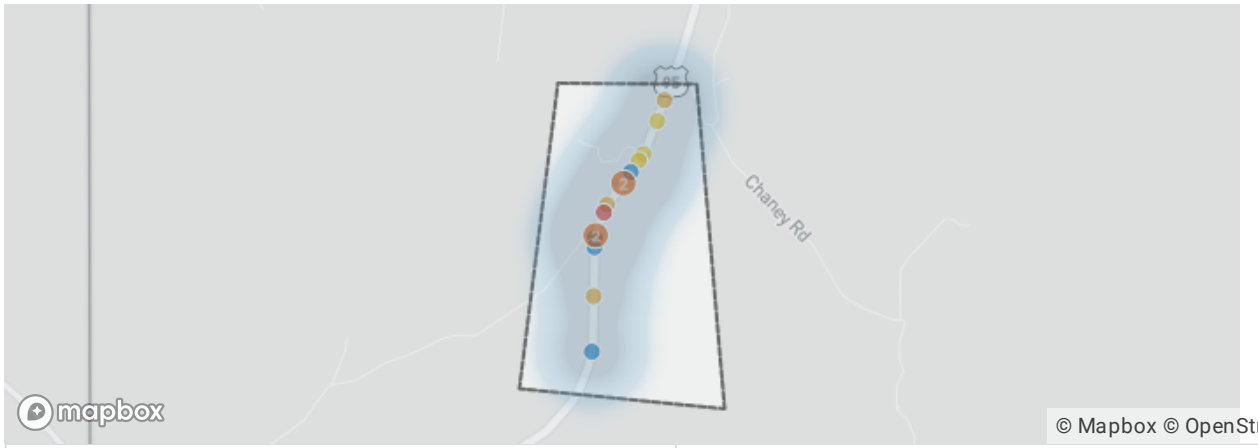
CRASH SUMMARY REPORT

# US-95, Crooks Hill Climbing Lane Extension

Created on November 30, 2021
Created by Janet Zarate
Requested by Janet Zarate
Data extents: January 22, 2016 to December 3, 2020

## Applied Filters

Accident Date | ≤≥ | 01/01/2016 - 12/31/2020 | Shape: Polygon




| Total Crashes | 15 | Fatal Crashes | 1 |
|---|---|---|---|

| ITD Crash Summary | | Crashes |
|---|---|---|
| Total Crashes | 15 | 100.00% |
| Fixed Object Related | 7 | 46.67% |
| Wild Animal Related | 4 | 26.67% |
| Distracted Driver Related | 3 | 20.00% |
| Intersection Related | 2 | 13.33% |
| Motorcycle Related | 2 | 13.33% |
| Alcohol Related | 1 | 6.67% |
| Fatal Crashes | 1 | 6.67% |
| + 4 more | 1 | 6.67% |

| Crash Severity | | Crashes |
|---|---|---|
| (O) Property Damage Report | 5 | 33.33% |
| (B) Suspected Minor/Visible Injury | 4 | 26.67% |
| (C) Possible Injury/Complaint | 3 | 20.00% |
| (A) Suspected Serious Injury | 2 | 13.33% |
| (K) Fatal Injury | 1 | 6.67% |

| Date & Time (Year) | | Crashes |
|---|---|---|
| 2020 | 1 | 6.67% |
| 2019 | 3 | 20.00% |
| 2018 | 4 | 26.67% |
| 2017 | 3 | 20.00% |
| 2016 | 4 | 26.67% |
| + 9 more | 0 | 0% |

| Urban / Rural | | Crashes |
|---|---|---|
| Rural | 11 | 73.33% |
| Urban | 0 | 0.00% |

| Intersection Related | | Crashes |
|---|---|---|
| No | 13 | 86.67% |
| Yes | 2 | 13.33% |

| Date & Time (Month of Year) | | Crashes |
|---|---|---|
| January | 2 | 13.33% |
| February | 1 | 6.67% |
| April | 1 | 6.67% |
| May | 1 | 6.67% |
| July | 3 | 20.00% |
| September | 1 | 6.67% |
| November | 1 | 6.67% |
| December | 5 | 33.33% |
| + 4 more | 0 | 0% |

| Date & Time (Day of Week) | | Crashes |
|---|---|---|
| Tuesday | 4 | 26.67% |
| Wednesday | 1 | 6.67% |
| Thursday | 2 | 13.33% |
| Friday | 3 | 20.00% |
| Saturday | 2 | 13.33% |
| Sunday | 3 | 20.00% |
| Monday | 0 | 0.00% |

| County | | Crashes |
|---|---|---|
| Latah | 15 | 100.00% |
| + 43 more | 0 | 0% |

| Most Harmful Event | | Crashes |
|---|---|---|
| Overturn | 5 | 33.33% |
| Animal - Wild | 4 | 26.67% |
| Ditch | 2 | 13.33% |
| Embankment | 2 | 13.33% |
| Guardrail Face | 1 | 6.67% |
| Head-On Turning | 1 | 6.67% |
| Side Swipe Opposite | 1 | 6.67% |
| Tree | 1 | 6.67% |
| + 55 more | 0 | 0% |

| Contributing Circumstances (All) | | Crashes |
|---|---|---|
| Animal(s) in Roadway | 4 | 26.67% |
| Speed Too Fast For Conditions | 4 | 26.67% |
| Failed to Maintain Lane | 3 | 20.00% |
| Asleep, Drowsy, Fatigued | 2 | 13.33% |
| Inattention | 2 | 13.33% |
| Alcohol Impaired | 1 | 6.67% |
| Distracted IN or ON Vehicle | 1 | 6.67% |
| Drove Left of Center | 1 | 6.67% |
| + 32 more | 4 | 26.68% |

# Appendix II-
# Highway Safety Improvement Program (HSIP) Analysis

*Please input data in the colored cells:*

| | |
|---|---|
| District: | 2 |
| Contact Person: | Janet Zarate |
| Email Address: | janet.zarate@itd.idaho.gov |
| Phone: | |
| Route: | US-95 |
| Project Name | US-95, Crooks Hill Climbing Lane Extension |
| Key Number: | |
| Segment Code: | 1540 |
| Intersection/Cross Street: | |
| Beg MP: | 355.500 |
| End MP: | 356.500 |
| Total Project Cost (include non safety costs): | $ 4,473,612 |

**PROJECT CRASH DATA AND COSTS**

| | Total Crash Count Previous 5 Years | Idaho Crash Costs (2017) | Economic Cost |
|---|---|---|---|
| *Fatal | 1 | $10,179,994.00 | $10,179,994 |
| *Serious Injury Crashes (A injury) | 2 | $486,859.00 | $973,718 |
| *Non-Incapacitating Injury Crashes (B injury) | 4 | $132,605.00 | $530,420 |
| *Possible Injury Crashes (C injury) | 3 | $67,712.00 | $203,136 |
| *Property Damage Only Crashes | 5 | $3,430.00 | $17,150 |
| **TOTAL:** | **15** | **-** | **$ 11,904,418** |

**Countermeasure #1 :**

**Countermeasure:** Flatten Crest Vertical Curve **CMF ID:** 721 **Service Life, years:** 20

**Crash Reduction Factor (%):** 51% **Star Rating (1-5):** 3 **Type of Crashes:** All **Crash Serevity:** K, A, B, C **Area Type:** All

**Countermeasure Analysis**

| | Crash Count for Previous 5 Years | % Crashes Addressed | Annulized Crashes | Est. Crashes Prevented Over Service Life | Cost Savings over Service Life | Annualized Crash Prevented |
|---|---|---|---|---|---|---|
| *Fatal* | 1 | 100.00% | 0.20 | 2.04 | $20,767,188 | 0.10 |
| *Serious Injury Crashes (A injury)* | 2 | 100.00% | 0.40 | 4.08 | $1,986,385 | 0.20 |
| *Non-Incapacitating Injury Crashes (B injury)* | 4 | 100.00% | 0.80 | 8.16 | $1,082,057 | 0.41 |
| *Possible Injury Crashes (C injury)* | 3 | 100.00% | 0.60 | 6.12 | $414,397 | 0.31 |
| *Property Damage Only Crashes* | 0 | 0.00% | 0.00 | 0.00 | $0 | - |
| **TOTALS:** | **10** | **67%** | **2.00** | **20.40** | **$ 24,250,027** | **1.02** |

*Notes:*

**Countermeasure #2 :**

**Countermeasure:** Flatten Horizontal Curve **CMF ID:** 9525 **Service Life, years:** 20

**Crash Reduction Factor (%):** 69% **Star Rating (1-5):** 4 **Type of Crashes:** All **Crash Serevity:** All **Area Type:** Rural

**Countermeasure Analysis**

| | Crash Count for Previous 5 Years | % Crashes Addressed | Annulized Crashes | Est. Crashes Prevented Over Service Life | Cost Savings over Service Life | Annualized Crash Prevented |
|---|---|---|---|---|---|---|
| *Fatal* | 1 | 100.00% | 0.20 | 2.74 | $27,893,184 | 0.14 |
| *Serious Injury Crashes (A injury)* | 2 | 100.00% | 0.40 | 5.48 | $2,667,987 | 0.27 |
| *Non-Incapacitating Injury Crashes (B injury)* | 4 | 100.00% | 0.80 | 10.96 | $1,453,351 | 0.55 |
| *Possible Injury Crashes (C injury)* | 3 | 100.00% | 0.60 | 8.22 | $556,593 | 0.41 |
| *Property Damage Only Crashes* | 5 | 100.00% | 1.00 | 13.70 | $46,991 | 0.69 |
| **TOTALS:** | **15** | **100%** | **2.80** | **41.10** | **$ 32,618,105** | **2.06** |

*Notes:*

**Countermeasure #3 :**

**Countermeasure:** Install shoulder rumble strips and widen shoulder **CMF ID:** 2826 **Service Life, years:** 20

**Crash Reduction Factor (%):** 65% **Star Rating (1-5):** 3 **Type of Crashes:** All **Crash Serevity:** All **Area Type:** Rural

**Countermeasure Analysis**

| | Crash Count for Previous 5 Years | % Crashes Addressed | Annulized Crashes | Est. Crashes Prevented Over Service Life | Cost Savings over Service Life | Annualized Crash Prevented |
|---|---|---|---|---|---|---|
| *Fatal* | 1 | 100.00% | 0.20 | 2.60 | $26,427,264 | 0.13 |
| *Serious Injury Crashes (A injury)* | 2 | 100.00% | 0.40 | 5.19 | $2,527,772 | 0.26 |
| *Non-Incapacitating Injury Crashes (B injury)* | 4 | 100.00% | 0.80 | 10.38 | $1,376,970 | 0.52 |
| *Possible Injury Crashes (C injury)* | 3 | 100.00% | 0.60 | 7.79 | $527,341 | 0.39 |
| *Property Damage Only Crashes* | 5 | 100.00% | 1.00 | 12.98 | $44,521 | - |
| **TOTALS:** | **15** | **100%** | **3.00** | **38.94** | **$ 30,903,869** | **1.30** |

*Notes:*

**Countermeasures Summary:**

Countermeasure Analysis

| | Total Crashes for Mitigation Measures Previous 5-Years | Annulized Total Crashes | Annulized Service Life Est. Crashes Prevented | Annualized Economic Cost Savings | % Crashes Mitigated |
|---|---|---|---|---|---|
| *Fatal | 1 | 0.20 | 0.37 | $ 3,754,382 | 184.4% |
| *Serious Injury Crashes (A injury) | 2 | 0.40 | 0.74 | $ 359,107 | 184.4% |
| *Non-Incapacitating Injury Crashes (B injury) | 4 | 0.80 | 1.48 | $ 195,619 | 184.4% |
| *Possible Injury Crashes (C injury) | 3 | 0.60 | 1.11 | $ 74,917 | 184.4% |
| *Property Damage Only Crashes | 5 | 1.00 | 0.69 | $ 2,350 | 68.5% |
| **TOTALS:** | **15** | **3.00** | **4.37** | **$ 4,386,374** | **29.2%** |

***BENEFIT COST RATIO***

**Benefit cost ratio is computed by multiplying the Annualized Economic Cost Savings by the assumed service life of the project, 20-years, and then dividing by the total construction cost.**

19.61