Department of Transportation & Public Facilities
DMIO - Statewide Traffic and Safety Office
Phone: 907-451-2283

MEMORANDUM

TO: Distribution

DATE: May 7, 2025

FROM: Pam Golden, P.E. PKG
Statewide Traffic & Safety Engineer

SUBJECT: HSIP Handbook 24th Edition

The HSIP Handbook 24th Edition is adopted effective May 7, 2025. This manual replaces the previous March 10, 2023 Handbook.

The HSIP Handbook 24th Edition is distributed for your information and will soon be available online at: http://www.dot.state.ak.us/stwddes/dcstraffic/hsip.shtml

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Alaska Department of Transportation & Public Facilities

Alaska Highway Safety Improvement Program

Handbook

24th Edition

Effective Date: May 7, 2025

Foreword

This Handbook defines the Alaska Department of Transportation & Public Facilities (DOT&PF) program to identify, select, develop, implement, and evaluate Highway Safety Improvement Program (HSIP) projects. This Handbook is to be used in preparing new HSIP nominations beginning with the FFY26 nomination year. Historically, the HSIP Handbook was republished annually in order to update rates and due dates. Moving forward, the HSIP Handbook will be active through the life of the current transportation bill[1] unless substantial revision is required for programmatic purposes. Required annual updates for new dates or rates will be published in a separate announcement.

The purpose of the HSIP program is to construct highway improvements that maximize lives saved and serious injuries eliminated per dollar spent. Other DOT&PF program funds address a wide variety of transportation needs. In contrast, HSIP funds are targeted single-mindedly at saving lives and reducing serious injuries.

The words “accident” and “crash” are used interchangeably in the Alaska Highway Safety Improvement Program Handbook without distinction or implying fault, and neither term should be interpreted to imply whether an event was predictable or preventable. In the context of this Handbook and the Alaska HSIP, the usage of either term is inherently blame-neutral. The HSIP is focused on evaluating and advancing solutions regardless of fault.

[1] The current federal transportation bill is the Infrastructure Investment and Jobs Act of 2021, also known as the Bipartisan Infrastructure Law. Previous federal legislation authorizing the HSIP includes ISTEA-21 (1991), SAFETEA-LU (2005), MAP-21 (2012), FAST Act (2015), and IIJA/BIL (2021).

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List of Acronyms

ATM *Alaska Traffic Manual*

B/C Benefit/Cost

BIL Bipartisan Infrastructure Law

CMF Crash Modification Factor

CRF Crash Reduction Factor

EMS Emergency Medical Services

F&SI Fatal and Serious Injury

FHWA Federal Highway Administration

FFY Federal Fiscal Year

HRRR High Risk Rural Road

HSIP Highway Safety Improvement Program

HSM Highway Safety Manual

IIJA Infrastructure Investment and Jobs Act of 2021

MPO Metropolitan Planning Organization

NHPP National Highway Performance Program

PDA Project Development Authorization

RSE Roadway Safety Engineer

RTSE Regional Traffic & Safety Engineer

SHSP Strategic Highway Safety Plan

SMS Safety Management System

STBG Surface Transportation Block Grant

STIP Statewide Transportation Improvement Program

STSE State Traffic & Safety Engineer

T&S Traffic and Safety

TIP Transportation Improvement Program (prepared by MPOs)

1. Overview

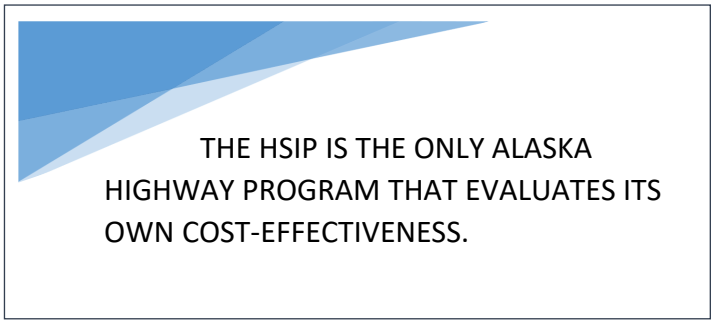
1.1. What is the Alaska Highway Safety Improvement Program?

Alaska's Highway Safety Improvement Program (HSIP) is a federally mandated program managed by the Alaska Department of Transportation and Public Facilities (DOT&PF). Its purpose is to reduce fatalities and serious injuries from crashes on Alaskan roads. HSIP currently represents approximately 5.7% of the total federal surface transportation funds managed by the Department.

From its formalization as a discrete program in 1979 through the authorization of SAFETEA-LU in 2005, HSIP focused solely on engineering countermeasures. With SAFETEA-LU, Congress expanded the scope to include a Strategic Highway Safety Plan (SHSP) which coordinates enforcement, education, emergency services, and engineering. In 2012 MAP-21 instituted the requirement to update and evaluate the SHSP on a regular basis and established performance measures for fatalities and serious injuries. The Infrastructure Investment and Jobs Act of 2021 (IIJA) added a requirement that states conduct a Vulnerable Road User Safety Assessment. The 2023 SHSP, which was organized around the Safe Systems Approach, includes this Vulnerable Road User Safety Assessment.

In 2023, the Department consolidated the Alaska Highway Safety Office, the Statewide Traffic & Safety Office, and the Transportation System Management and Operations Office under the State Traffic & Safety Engineer (STSE). This reorganization delegated HSIP to the State Traffic & Safety Office (TSO) under the management of the Roadway Safety Engineer (RSE, formerly known as the Assistant State Traffic & Safety Engineer).

Statewide and Regional[2] staff manage HSIP to address SHSP strategies, mainly through infrastructure projects. The HSIP and SHSP are coordinated to maximize crash reduction. All HSIP projects must align with at least one SHSP Strategy.



The HSIP is the only Alaska highway program that evaluates its own cost-effectiveness on projects.Proposed projects are ranked according to potential for crash reduction and completed infrastructure projects undergo a benefit-cost analysis using before and after crash data. As of 2024, Alaska HSIP projects have an average benefit-cost ratio of 5.96:1, weighted by project cost. This ratio is calculated using the most recent five years of ranked projects having three years of post-project crash data and actual construction costs. DOT&PF reports the benefit-cost ratio to the FHWA in the annual HSIP Report.

[2] DOT&PF is organized into a Statewide Headquarters and three regional offices: Central Region, Northern Region and Southcoast Region.

The following excerpts are from Title 23, Part 924 of the Code of Federal Regulations, which provides the legal basis for the HSIP:

924.5 Policy

(a) Each State shall develop, implement, and evaluate on an annual basis a HSIP that has the objective to significantly reduce fatalities and serious injuries resulting from crashes on all public roads.

(b) HSIP funds shall be used for highway safety improvement projects that are consistent with the State's SHSP. HSIP funds should be used to maximize opportunities to advance highway safety improvement projects that have the greatest potential to reduce the State's roadway fatalities and serious injuries.

(c) Safety improvements should also be incorporated into projects funded by other Federal-aid programs, such as the National Highway Performance Program (NHPP) and the Surface Transportation Program (STP). Safety improvements that are provided as part of a broader Federal-aid project should be funded from the same source as the broader project.

924.7 Program Structure

(a) The HSIP shall include:

(1) An SHSP;

(2) A Railway-Highway Crossing Program; and

(3) A program of highway safety improvement projects.

(b) The HSIP shall address all public roads in the State and include separate processes for the planning, implementation, and evaluation of the HSIP components described in paragraph (a) of this section. These processes shall be developed by the States in cooperation with the FHWA Division Administrator in accordance with this section and the requirements of 23 U.S.C. 148. Where appropriate, the processes shall be developed in consultation with other safety stakeholders and officials of the various units of local and Tribal governments.

1.2. Special Rules

Each spring, FHWA notifies Alaska if any special rules apply for that year based on data reported in the preceding year's annual report. The IIJA continued two special rules and introduced a new one.

The continued rules address safety concerns for High Risk Rural Roads (HRRR) and Older Drivers and Pedestrians by comparing five-year rolling average fatality crash rates to determine if the rates are increasing or decreasing. If rates are increasing, specific actions are required under the HSIP. The new rule covers bicycle and pedestrian crashes, collectively referred to as vulnerable road users (VRUs).

- High Risk Rural Roads – MAP-21 eliminated HRRR annual set-aside funding but requires a State to obligate a specified amount of funds on HRRRs if the fatality rate increases on rural roads in that State. FHWA computes the fatality rates on routes functionally classified as Rural Major Collector, Rural Minor Collector, or Rural Local. The Alaska HSIP evaluates roads of

these functional classifications for significant safety risks by frequency and/or rates of fatal and serious injury crashes and proposes projects to address problem areas on those roads.

- Older Driver and Pedestrians – If Older Driver/Pedestrian crash rates increase (the sum of fatal and serious injuries for persons aged 65 years or older per 1,000 of state population), states are required to update their next SHSP to address the increase in the older driver and older pedestrian fatal and serious injuries rate, taking into account the recommendations included in the 2014 FHWA publication, "Handbook for Designing Roadways for the Aging Population" and any subsequently revised and updated versions. Further, the state will conduct a secondary analysis to determine whether the increase is attributable to driver fatalities and injuries, pedestrian fatalities and injuries, or a combination of the two.
- Vulnerable Road Users – The new rule addresses vulnerable road user safety. Per 23 U.S.C. 148 (g)(3), if the total annual fatalities of vulnerable road users (non-motorists) in a state account for 15 percent or more of the state's total annual crash fatalities, the state is required to allocate at least 15 percent of its Highway Safety Improvement Program (HSIP) funding in the subsequent fiscal year to highway safety improvement projects specifically aimed at enhancing the safety of these users.

All HSIP project nominations must indicate whether the projects would apply to any of the special rules. This ensures the program can meet the rules if they are applied.

1.3. How is the Alaska HSIP funded?

HSIP funding is apportioned by Congress and subject to annual obligation limits established by congressional finance committees. Since 2001, the Highway Safety Improvement Program (HSIP) funding for Alaska has included "penalty" funds due to the state's non-compliance with federal recommendations for open container laws (23 U.S.C. 154) and repeat offender drunk driving laws (23 U.S.C. 164). These penalty funds must be allocated between the HSIP and (NHTSA) Section 402 alcohol-impaired driving programs. DOT&PF notifies FHWA and NHTSA each fall of the penalty funding split.

Under IIJA, Alaska HSIP receives funding provided under the following United States Code Title 23 Sections. Collectively, they are referred to as HSIP funds. Only projects nominated and approved through the HSIP Program through the process in this Handbook may use these funds:

- 130: Railroad Safety
- 148: Highway Safety Improvement Program
- 154, 164: Penalty Funding

1.4. Project Eligibility and Funding

HSIP projects must be consistent with the Alaska SHSP and must address a highway safety problem included in Appendix A (pp. A-9 and A-10) of this handbook, a reprinting of 23 U.S.C. 148 (a)(4)(B) and 148 (a)(11)(B). HSIP funds are eligible for use on qualified projects on all public roads, including non-State-owned public roads and roads on tribal land.

HSIP EFFECTIVENESS SHOULD NOT BE DILUTED BY DIVERTING ITS FUNDS TO SAFETY IMPROVEMENTS THAT SHOULD ROUTINELY BE MADE UNDER NON-HSIP PROJECTS.

Projects within the boundaries of established Metropolitan Planning Organizations (MPOs) must be included in the MPO Transportation Improvement Program (TIP) prior to fund obligation, but they may be nominated prior to acceptance into the TIP. An annual HSIP funding plan is used to guide planned and unplanned funding decisions. A funding plan is prepared for the current federal fiscal year based on project schedule and funding needs provided by DOT&PF regions and the TSO. The Roadway Safety Engineer is responsible for overall coordination of the HSIP funding plan.

Unfunded projects approved more than two years prior must be resubmitted with updated crash history and costs to remain eligible for funding.

1.5. Maximizing the HSIP

The HSIP program represents less than 6% of Alaska's surface transportation funding. It is essential to target these funds to activities with the highest potential for saving lives and reducing serious injuries. Safety improvements occur in both HSIP and non-HSIP projects, and the greatest safety is achieved when both have a strong safety focus. By proactively including safety features in non-HSIP projects, the need for future corrective HSIP projects can be reduced, allowing HSIP to address safety issues beyond the reach of non-HSIP projects. HSIP funds should not be diverted to safety improvements that should be routinely made in non-HSIP projects. However, HSIP participation may be considered in broader non-HSIP projects to provide safety measures not routinely included. The following excerpt from Part 924 of Title 23 of the Code of Federal Regulations supports this approach to safety project funding:

THE HSIP PROGRAM REPRESENTS LESS THAN 6% OF OVERALL SURFACE TRANSPORTATION FUNDING IN ALASKA.

924.5 Policy

(c) Safety improvements should also be incorporated into projects funded by other Federal-aid programs, such as the National Highway Performance Program (NHPP) and the Surface Transportation Program (STP). Safety improvements that are provided as part of a broader Federal-aid project should be funded from the same source as the broader project.

HSIP funds may be used for cost-effective safety improvements within the limits of broader non-HSIP projects, but only with prior approval. For approval, the HSIP nominated work must be limited to

improvements not required by design standards and not routinely constructed on similar projects. HSIP funding cannot replace work eligible under an existing project. The HSIP nomination should demonstrate how combining HSIP work with the broader project will be more cost-effective than completing it as a standalone project.

HSIP-funded projects can be bundled with non-HSIP projects, when feasible, to achieve economies of scale in construction administration.

2. Process Steps

2.1. Annual HSIP Process

The annual HSIP Process is outlined in the table below. Each of the activities is explained in greater detail within the sections of this chapter. With the exception of the federal mandate for annual report submission, the dates for each relevant activity are targets, and may be adjusted.

Date	Action	Section
January 5	Roadway Safety Engineer notifies FHWA of crash analysis years and costs to be used in current year nomination cycle.	2.14
January 15	Roadway Safety Engineer delivers current crash years and crash costs.	2.2
January 15 - June 15	Regions screen data, identify candidate projects and prepare scopes, estimates, and regional rankings. Statewide T&S staff identify, scope, estimate, and rank proposed new projects of statewide scope.	2.3 2.4
May 15	Deadline for regions to request approval from Roadway Safety Engineer for any deviation from the HSIP Handbook, including crash reduction factors. Draft nominations may also be submitted to statewide for feedback by this date.	2.3
June 15	HSIP project nominations due to Roadway Safety Engineer.	2.5
June 15 - July 15	Roadway Safety Engineer reviews nominations and works with RTSEs for any clarifications.	2.6
July 15	Roadway Safety Engineer recommends eligible projects to the STSE for approval.	2.6
August 1	Regions submit funding needs by year and phase for new and ongoing projects to Roadway Safety Engineer.	2.7
August 15	Regions submit regional annual reports to Roadway Safety Engineer for the prior FFY, including post-project comparison of actual and estimated costs, benefits and crash reductions.	2.12
August 31	Roadway Safety Engineer assembles and submits to FHWA statewide HSIP Annual Report for the prior FFY.	2.13
Sept. 1	STSE and Roadway Safety Engineer present draft program and funding plan to Commissioner's Office.	2.8
Oct. 1	Roadway Safety Engineer finalizes HSIP funding plan and informs the Program Management & Administration Division, Regions and FHWA Alaska Division Office. Project starts may be initiated after this point.[1]	2.9

[1]Projects within MPO boundaries must be in the MPO TIP before project starts can be initiated. Regions are responsible for actions necessary to add projects to the respective TIPs.

2.2. Statewide provides guidance documents and crash data to Regions (January 15*)

Guidance Documents – The Roadway Safety Engineer provides updated average crash rates, crash costs, nomination templates, worksheets, etc. for the current FFY nomination cycle to the Regions.

Crash Data – In coordination with the Crash Data Manager, the Roadway Safety Engineer will notify the Regions when the most recent crash data is complete and available for the screening process to start.

The Statewide Traffic & Safety Office may perform preprocessing and/or preliminary analysis of the most recent five years' crash data to the Regions for HSIP purposes. They may also deliver reports or analyses highlighting areas of statewide interest, such as High Risk Rural Roads, Older Driver/Pedestrian, Vulnerable Road Users, systemic screening, moose-vehicle or other analyses.

2.3. Regions identify, scope, estimate, and rank proposed new projects (January 15-June 15)

DOT&PF Regions review all fatal or serious injury (F&SI) crashes within the years that will be used for HSIP analysis. They determine the location of all F&SI crashes for which a location has not been provided and check, and correct, if necessary, the location of those for which a location has been provided. They provide the necessary revisions to the Department's Statewide Crash Data Manager so they can revise the crash database.

RTSEs shall use the process below to identify and nominate new HSIP Projects:

I. Identify High Crash Locations.

(1) Open the Hotspot Analysis tool from the Alaska CARE Portal located at http://akhotspot.caps.ua.edu. Make selections and enter criteria into the Hotspot Analysis window on the left using the information below:

(a) Box 1: Select "New Hotspot Analysis".

(b) Box 2: Select the "Alaska eCrash Version 3" dataset. Enter the start and end dates that correspond to the most recent available years provided by the Roadway Safety Engineer.

(c) Box 3: Select "Region" from the "Region/City/Borough" drop down menu. Select your region from the "Region" drop down menu.

(d) Box 4: Skip this box. A route selection is not necessary for this analysis.

(e) Box 5: Skip this box. A filter is not necessary for this analysis.

(f) Box 6: Select "Sliding Spot" from the "Method" drop down menu. Enter 2 for the spot size and 1 for the step size. Both the Spot Size and Step Size are measured in miles. Enter the crash costs in thousands from the "Crash Cost Derivation" spreadsheet in Appendix A for the injury severity weights. Leave the "Use crash rates instead of crash counts" check box unchecked.

(g) Box 7: Include spots with at least 1 crash, at least 1 fatal crash, at least 2 severe injury crashes, or at least 0 minor injury crashes. Select "Include intersection and non-intersection crashes" from the "Intersections" drop down menu. Return the top 100% of the sites.

(h) Box 8: Select "Run Hotspot Analysis". The results spreadsheet will be emailed once the analysis is complete. The data in the results spreadsheet "Hotspot Summary" tab will be used to determine the HSIP project candidates.

(2) Combine overlapping locations and sort.

(a) Sort to remove locations without one fatal or two serious injury crashes.

(b) Identify and combine locations with overlapping spots on the same route. Determine how many crashes by severity are in the overlapping spots by referring to each route's tab in the results spreadsheet. The combined spot length will be defined by the "FromMp" of the first spot to the "ToMp" of the last spot being combined. Multiply the number of crashes in each severity category by the crash costs in thousands from the "Crash Cost Derivation" spreadsheet in Appendix A to get a new "CrashRating" for the combined spot. For this analysis, the "CrashRating" column is the sum of HSIP crash costs in thousands for that location.

(c) Change the "CrashRating" column name to "Crash Costs (1000s)". Add a new column called "Crash Costs/Mile (1000s)" to compute crash costs divided by the length of the spot. Sort using the "Crash Costs/Mile (1000s)" column to rank locations. The top 50 sites listed are HSIP candidates.

(3) For all HSIP project candidates identified under (2) above, provide an explanation of the planned actions to address the safety concern. If no actions are planned, explain the reason. Note that this explanation might need to be updated as more information becomes available later in the HSIP process. Put this information in a new "Comments" column. Add and populate a column for "Route Name." Finally, include the data from the Hotspot results spreadsheet's "Hotspot Parameter" tab at the top of the candidate list.

(4) The final HSIP candidate list should resemble the example shown in Appendix A-2.

(5) Additionally, consider sites with a high potential for severe crashes that are not identified through the reported crash data screening. Potential sources of this data include tribal representatives, law enforcement personnel, MPOs, locations identified through the DOT&PF Safety Concern app, a Local Road Safety Action Plan, or third party crowdsourced data (e.g. hard braking locations). These locations do not need to be included in the HSIP candidate list at this time.

II. Scope potential new projects.

(1) Identify crash patterns.

(a) Identify patterns and causes for intersections and segments, using appropriate methods:

(i) Create crash diagrams for intersections that remain on the list, or

(ii) Use tabular analysis methods such as Excel pivot tables.

(b) Discard locations that do not have clear patterns.

(2) Determine which high-crash and potential high-crash locations have safety problems that are feasibly correctable.

(3) Conduct field reviews of locations where infrastructure projects are being considered.

(a) At a minimum, invite the Roadway Safety Engineer and FHWA Division Office to participate in the site visit. If they are unable to attend in person, perform a virtual desktop review after the field review, existing conditions and proposed mitigation(s).

(b) Document the site review using the Site Visit Checklist (Appendix A-23 and A-24) or similar document. If it is not feasible to visit a location, engage local M&O to obtain photos and provide feedback about site specific conditions.

(c) Capture photos of existing conditions.

(4) For potential traffic signal projects, provide an analysis of traffic signal warrants and include in the nomination package.

III. Estimate project cost and determine need for Road Safety Audit.

(1) Project costs will include all expenses incurred by DOT&PF for the development and delivery of the project, regardless of the project phase or funding source. This includes matching funds, whether state, local, or tribal. For projects converted from other DOT&PF funding sources, include all costs to date for project development. Do not include costs from other projects that have been bundled with the proposed HSIP project.

(2) Infrastructure projects that exceed a total cost of $5M per location must include a Road Safety Audit as their initial phase, completed under Phase 9, before Phase 2 can begin. Projects being nominated with an up-to-date completed road safety audit or as part of a local government's Safe Streets and Roads for All (SS4A) program are exempt from this requirement. Upgrades to existing safety systems such as signals or guardrail are also exempt from this requirement.

IV. Decide whether projects should be ranked or non-ranked and if the project is systemic.

(1) Ranked Projects

(a) A ranked project must have approved CRFs.

(b) Compute a benefit/cost (B/C) ratio for each project using the "Pre-Project Ranking and Post-Project Evaluation" worksheet in Appendix A. Use crash reduction factors (CRFs) from the Crash Cost Reduction Factors table in Appendix A. Apply the reduction factors only to the crashes that table lists as susceptible to correction by the planned countermeasure(s).

(c) If a CRF for the proposed mitigation is not included in the Appendix or if an alternate CRF is desired, the RTSE shall submit a request for approval to use the CRF to the RSE by May 15. The request must include the full research report, sufficient information about the crash history and context of the proposed nomination, and a discussion of how the proposed CRF is applicable to the proposed nomination. CRFs obtained from the CMF Clearinghouse should be at least a 4-star rating.

(2) Non-ranked Projects

(a) The non-ranked category should not be used to promote projects that have little potential for cost-effective safety improvement. Projects should be ranked unless:

(i) There is no representative crash history, but the project improves or addresses a highway safety problem identified through operational, geometric, or non-traditional data, or

(ii) There is no approved crash reduction factor for the proposed countermeasure, or

(iii) Traffic volumes are too low for crash data to accurately represent hazard exposure, or

(iv) The project is a specified safety project that implements the SHSP, or

(v) The project is a road safety audit, or

(vi) The project is to achieve compliance with the *Alaska Traffic Manual*.

(b) If a project is non-ranked because there is no approved CRF for planned countermeasures, perform a sensitivity analysis by computing two projected B/C ratios assuming crash reduction factors of 5% and 100% for crashes susceptible to correction by the proposed countermeasure(s). Submit the results using both ratios and a narrative explaining the project benefits. If a project is non-ranked because crash data is not available, a sensitivity analysis is not required.

(3) Systemic Projects

(a) Systemic projects address comparable safety characteristics at multiple locations. Systemic projects should combine at least three locations with similar characteristics, risk factors, and potential for crash types that will be addressed by application of one or more effective low-cost countermeasures.

(b) Ranked systemic projects may include sites that do not have historical crash data targeted by the selected countermeasure but exhibit characteristics associated with those targeted crash types. Ranked systemic projects are submitted with a net B/C computation based on the subset of sites with a crash history. Nominations must list all proposed sites and clearly identify the subset of sites used to calculate the net B/C.

(c) Non-ranked systemic projects require preapproval by the RSE and should not be developed until the RSE has evaluated the proposed project.

(4) Specified Safety Projects

(a) All specified safety project nominations must be of statewide scope. RTSEs may propose project concepts to the RSE for consideration as a project managed by the Statewide TSO.

2.4. Statewide Traffic & Safety identify, scope, estimate, and rank proposed new projects of statewide scope (January 15-June 15)

Statewide Traffic & Safety may propose non-infrastructure projects to the program to advance the SHSP or address needs across the state. These projects are of statewide scope, typically non-ranked, and may include specified safety projects.

2.5. HSIP project nominations submitted to Statewide Traffic & Safety (June 15)

In addition to new projects, regions and statewide may update and resubmit previously approved projects. Project nomination approvals are valid for two years, counted as the year of initial approval and the following year. Projects not started within this timeframe must be renominated, and crash history, costs, and other pertinent data must be updated.

Regions must submit the following summary information in electronic form under cover of a memo signed by the Regional Director. Statewide project nominations will follow the same general process and are signed by the Division Director:

I. Regional Top 50 Locations list developed according to Section 2.3(i), formatted similarly to the example in Appendix A-2. Ensure all locations on lists (i) High Crash Locations and (ii) High Crash Risk Locations include an explanation of how the safety concern will be addressed. If no action is planned, explain the reason.

II. Use the "Regional Proposed Project Summary" or "Statewide Proposed Project Summary" spreadsheet to list ranked projects, ordered by B/C ratio, followed by non-ranked projects.

   (1) Projects should be numbered with a 6-digit number composed as follows:

      (a) Last 2 digits of the first Federal Fiscal Year in which project design could start. For example, numbers of projects submitted in July 2025 would start with "26." (HSIP design funding for these projects would not be available until FFY26 at the earliest.)

      (b) Region (N, C, or S) or Statewide (H).

      (c) Ranked or Non-ranked (R or N).

      (d) A two-digit sequential number in order of computed B/C for ranked projects and in order of estimated B/C for non-ranked projects. Start the sequential numbers with one (01) for both the ranked and non-ranked categories.

   Thus, the highest B/C Central Region project submitted in July of 2025 would be numbered 25CR01. The highest non-ranked CR project would be numbered 26CN01.

   (2) Modify the project numbers of previously submitted projects for which data and computations have been updated by appending the next fiscal year to the original number. For example, an updated project previously submitted as 18NR01, may be resubmitted in the FFY 25 proposal as 18NR01(25). Note this only applies to projects that are otherwise unchanged. If a project has been substantially changed, assign a new project number.

III. Project nominations must include the following:

   (1) Project Number

   (2) Location

      (a) Include route names, milepoints, city or community, and latitude/longitude coordinates.

(b) Note whether it is a DOT&PF or locally owned and/or maintained route. Projects not on the DOT&PF maintained system need to include an email or letter from the agency responsible for road maintenance that they support the project.

(3) Safety Problem Description

(a) This section should focus on the crash (or non-traditional) data that led to the proposed project being selected. Include the number and severity of crashes.

(b) Describe the context of the roadway, for example:

(i) Presence or absence of guardrail

(ii) Driveway density

(iii) Existence of transit

(iv) Traffic generators

(c) Include photos of the existing conditions

(4) Safety Problem Solution

(a) The proposed solutions must be tied directly to safety problems identified in the data analysis: for example, the CRF must apply to the mode of the crashes identified as being susceptible.

(b) Do not include additional measures in this section that are not directly tied to the safety problem. Additional proposed improvements not addressing the documented crash problem are captured in the next section.

(c) If multiple countermeasures are proposed, discuss whether and how the countermeasures may affect the efficacy of each other.

(5) Project Description

(a) This section may include incremental additional safety measures being proposed that do not directly address the documented crash problem but do enhance the overall safety of the roadway.

(b) Additional safety measures being proposed may not exceed the lesser of $1M or 10% of the overall project costs without pre-approval by the Roadway Safety Engineer. These requests must be submitted in writing to the Roadway Safety Engineer by June 1.

(c) If the proposed safety work is to be bundled within the limits of a non-HSIP project, explain why it is not funded under that project per Section 1.5.

(d) Include a discussion of potential impacts to capacity and safety elsewhere in the system.

(e) Impacts to Maintenance & Operations.

(f) Inclusion of proposed project in an existing Road Safety Audit or Planning Document, if applicable.

(g) Other pertinent information, including the potential for combining projects, scheduling concerns, and project benefits not described elsewhere that may affect a project's prospects for receiving funding.

(6) For ranked projects, B/C ratios based on safety benefits and maintenance costs.

(a) Do not submit ranked projects with a B/C ratio less than 0.2:1 for any project up to $10M.

(b) Do not submit ranked projects with a B/C ratio less than 0.5:1 for any project exceeding $10M.

(c) Do not submit any projects where the cost of the project exceeds the annual allocation of the HSIP, regardless of B/C.

(7) For non-ranked projects, a narrative explaining why they are non-ranked and how they will cost-effectively save lives and eliminate injuries.

(a) Do not submit non-ranked infrastructure projects exceeding $5M. ATM compliance projects and road safety audits are exempt from this requirement.

(b) If projects are non-ranked due to lack of reported crashes, include the relevant non-traditional data leading to project identification, any available CRFs for the selected countermeasures, and address the safety implications in the narrative.

(c) If projects are non-ranked due to lack of CRFs for planned countermeasures, submit the sensitivity analyses described under Section 2.3 and address the safety implications in the narrative.

(8) FHWA reporting requirements:

(a) SHSP Strategy

(b) Functional Classification

(c) Average Annual Daily Traffic

(d) Posted Speed

(e) Roadway Ownership

(f) Specified Safety Project (Y/N)

(g) VRU Eligible Project (Y/N)

(h) HRRR Eligible Project (Y/N)

(i) Older Drivers and Pedestrians Eligible Project (Y/N)

(j) Non-Infrastructure Project (Y/N)

(k) Proposed Proven Safety Countermeasures (list)

(9) Project Ranking Worksheet (submit in Excel format as well as in Adobe format).

(10) Cost Estimate.

(11) Sketch of improvement.

(12) HSIP project site review documentation (infrastructure projects only).

(13) Crash diagram (intersection improvements only): Highlight the crashes susceptible to reduction by each of the proposed improvements. If multiple countermeasures are being applied, use a different color to highlight crashes susceptible to correction by each improvement. Pivot tables or other concise tabular means may be used in lieu of crash diagrams to illustrate crash experience and identify crashes susceptible to correction by selected countermeasures. Tabular data should be clearly labeled and color coded as described above when multiple countermeasures are being applied.

(14) Signal warrant computations for intersections to be signalized or supporting reasoning indicating the likelihood of signalization. Include a justification for why a single-lane roundabout is not appropriate at the location.

(15) Abbreviated tabular crash data that supports the Project Ranking Worksheet that is legible in 8.5" x 11" landscape format. Highlight crashes susceptible to correction by each improvement using colors or other legible means. The complete crash data extract in Excel shall also be transmitted to the Roadway Safety Engineer at the time of the nomination.

2.6. Roadway Safety Engineer reviews nominations for program eligibility and submits project nominations to the STSE for approval (June 15 – July 15)

The RSE reviews regional project nominations, collaborates with the regions to clarify any discrepancies, and requests revisions as necessary. In cases where the RSE and RTSE are unable to reach agreement on compliance with the handbook for a specific nomination by July 1, the proposed project will not be forwarded for consideration. The RSE will reject ineligible projects or nominations that do not adhere to the guidelines in this Handbook. In cases where eligibility for HSIP funding is unclear, the RSE will consult with the State Traffic and Safety Engineer and FHWA Alaska Division Office.

Upon completing the review, the RSE will compile a list of eligible projects and submits the list of projects to the STSE for approval by July 15. Upon receipt of STSE approval, the RSE notifies Regions of project eligibility for their use in developing funding requests.

Occasionally, the RSE will identify additional HSIP funds available during a funding year and open the program for supplemental nominations. With the exception of due dates, all supplemental nominations are subject to the same requirements and process as described above; due dates will be provided as a part of the announcement.

2.7. Regions submit HSIP funding request to Roadway Safety Engineer (August 1)

Each Region submits their HSIP funding request under the cover of a memo signed by the Regional Preconstruction Engineer. This is an electronic transmittal and should be completed using the "Regional Proposed Project Summary" posted on the HSIP web site. Regions list previously initiated but not

completed HSIP projects at the top in order by nomination number, followed by new ranked projects in order of B/C ratio, and new non-ranked projects below. Provide estimated funding over 6 years (by year and phase) needed for each project. RTSEs should consult project managers to ensure current funding needs and scheduling changes of initiated projects are captured.

Projects must obligate funds during the nomination year or the next year. Projects not started within the nomination year or the subsequent fiscal year must be renominated with updated crash data and crash costs and will be reevaluated for inclusion in the program.

2.8. Roadway Safety Engineer prepares funding plan

The RSE will work with Statewide Program Management & Administrative Services to determine available funding for the next federal fiscal year and prepare the funding plan.

The RSE will prioritize projects using criteria that include:

I. Lives saved and serious injuries eliminated per dollar spent. On ranked projects, this is indicated by safety B/C ratios. On non-ranked projects, this is a subjective judgment made after reviewing the narratives provided by the regions.

   (1) Ranked projects are given higher priority for funding than non-ranked projects. Two tiers of ranked projects will be considered, with the first category taking precedence over the second:

      (a) projects with at least one fatal crash or 2 serious injuries in 5 years, then by B/C

      (b) projects without at least one fatal crash or 2 serious injuries in 5 years, then by B/C

   (2) Non-ranked projects are prioritized for funding after ranked projects. The STSE will prioritize the non-ranked projects based on their relative expected reduction in risk to road users. The subset of systemic non-ranked projects will have a higher priority than the subset of spot non-ranked projects.

II. Project deliverability.

III. Project duration.

IV. The Roadway Safety Engineer uses their discretion for project cost fitting within remaining funds and program balance between design and construction. As a part of cost fitting, the RSE will seek to ensure compliance with penalties and full utilization of all funding types. Examples:

   (1) There is $500,000 left after including higher priority projects and the next best project costs $2,000,000, it will be passed over for the next best project that costs $500,000 or less.

   (2) The next best project at the funding cut-off line isn't requesting initial Phase 2 (design start) funding. A review of recent and current year design starts indicates an imbalance between new project design and construction phase projects in upcoming years. Thus, the next construction project(s) may be passed over for the next best project(s) requesting initial Phase 2 to keep the program fully obligated in future years.

Project prioritization is competitive based on each year's available funding and quality of projects. There are no hard and fast benefit-cost or duration thresholds that determine which projects receive funding. For more information on the criteria for prioritizing funding, see pages A-25.

2.9. Funding plan approved by the Commissioner's Office

The RSE submits the following through the STSE and Division Director to the Commissioner's Office by September 1:

I. An HSIP project funding plan for the next federal fiscal year.

II. Regional and Statewide estimated scheduling and funding requested for the two following federal fiscal years.

When the Commissioner's Office approves the final funding plan, Statewide Traffic & Safety will notify the FHWA Alaska Division Office, Program Management & Administrative Services, and the RTSEs.

2.10. HSIP Project Development

Upon approval of the funding plan, HSIP projects are initiated and developed in accordance with current DOT&PF project delivery processes. Projects leading to construction within Municipal Planning Organization (MPO) boundaries must be incorporated into the respective Transportation Improvement Program (TIP). Regions are responsible for coordination with MPOs to ensure projects are included in MPO Transportation Improvement Programs and updated as appropriate.

Throughout the project life cycles, Traffic & Safety personnel should stay engaged with project managers to keep HSIP projects targeted at safety improvement, cost efficient, and on schedule. RTSEs will notify the RSE in writing on a quarterly basis of changes to delivery of the regional program, including schedule and budget changes.

2.11. Roadway Safety Engineer manages statewide HSIP funding

The Roadway Safety Engineer manages HSIP funding. HSIP funding is assigned to projects rather than as a regional allocation. Unused funding for projects included in the funding plan is not reserved to a region either in the current or future years. Unused funding includes:

I. Funds approved for project phases planned for the current year but unobligated; and

II. De-obligated project funding whether or not the project is in the current year funding plan. De-obligated funding should be re-obligated in the same federal fiscal year as de-obligation occurs.

The Roadway Safety Engineer must approve all obligations for HSIP projects. When there are deviations from the funding plan, the RSE will allocate HSIP funds to the regions on a project-by-project basis based on the following:

I. Changes in total program funding available:

   (1) Decreases will be allocated to regions in proportion to their share of the final funding plan.

   (2) Increases will be allocated based on project merit, rather than regional proportion. B/C ratio and the other factors listed in Section 2.5 will be considered when choosing projects to use the additional funds.

II. Changes in regional requested or used funding:

(1) Overruns reduce funding available for a region's other projects. Deobligated funds may be considered to offset overruns.

(2) Regions may request funds for overruns, provided the following:

(a) total regional obligations less total regional deobligations for the fiscal year will not exceed the total regional funds in the approved funding plan, and

(b) the project has been in an approved funding plan within the last 4 years

(3) Funding for projects not in the current funding plan that have received HSIP funds *more* than 4 years ago will be handled on a case-by-case basis.

III. Changes to HSIP projects within MPO boundaries:

(1) When a budget or schedule changes, RTSEs must identify and propose offset funds available within the TIP for Statewide reassignment in accordance with regional procedures.

(2) Project changes may not increase the total amount of HSIP funds allocated to the MPO in the HSIP funding plan.

(3) RTSEs are responsible for coordinating TIP offset with the RSE, who is responsible for overall fund management.

The HSIP Funding Plan allocates funding for the current federal fiscal year and forecasts future funding requirements and project schedules. When current year projects or phases become delayed and funding cannot be obligated for current year projects, all regions may propose advancement of project phases identified in the funding plan scheduled for future years. If multiple projects or phases compete for unobligated funding, the prioritization process of Section 2.7 will be used to allocate the funds. Projects without prior approval will not be considered for obligation.

2.12. RTSEs submit annual reports for the prior year (August 15)

Regional Traffic & Safety Engineers submit annual reports for the prior federal fiscal year to the Roadway Safety Engineer by August 15. The regional reports include:

I. HSIP Project Effectiveness Evaluation worksheet – Compute actual benefit cost and crash reduction factors for ranked HSIP projects for which there are three years of post-construction crash data available (use Workbook 2: Pre-Project Ranking, Post-Project Evaluation). When computing total crash costs, use the most recent crash costs (see "Crash Cost Derivation" in Appendix A) for "before" as well as "after" crash data. If "after" crashes deviated significantly from expectations, provide an explanation. B/C analysis is required for projects started before the current HSIP process (initiated in 1998) as well as those started after. When practical, actual benefit-costs and crash reduction factors should be computed for non-ranked as well as ranked projects. If this is not practical, include a statement explaining why not. Submit the Pre-Project Ranking, Post-Project Evaluation workbook electronically in Excel format with other report materials.

II. Updated historical listing of all HSIP projects in the region.

III. HSIP Project Effectiveness Summaries for HSIP projects that are addressed under:

(1) Section 148(g), including High Risk Rural Roads (HRRR) if HRRR project phases are implemented; and

(2) Section 130(g) Railway-Highway Crossings.

Use the worksheets in the Regional HSIP Annual Report Templates (Worksheet 4) in Appendix A.

2.13. Roadway Safety Engineer publishes statewide HSIP Annual Report for the prior FFY (August 31)

The RSE submits a statewide HSIP report for the prior federal fiscal year to the FHWA by August 31 using the FHWA Online Reporting Tool. The report includes:

I. HSIP Report - Addresses intersections and road segments as required under 23 U.S.C. 148(h). The report includes sections on progress in implementing HSIP projects; program effectiveness; project evaluation; a narrative addressing methodology and effectiveness; and an explanation of how HSIP projects tie in with Alaska's Strategic Highway Safety Plan (SHSP).

II. Railroad-Highway Crossing Report – Addresses railroad-highway crossings as required under 23 U.S.C. 130(g). The report includes sections on general program information and project metrics.

2.14. Roadway Safety Engineer uses evaluation data to adjust next year's factors

The RSE analyzes crash reduction data from completed projects and uses the results to adjust the factors for the following year's HSIP.

2.15. Note on Electronic Document Transmittal

Submit all HSIP documents as electronic files. In order to facilitate statewide annual reporting and long-term analysis, submit the Pre-Project Ranking, Post-Project Evaluation, Regional Proposed Project Summary, and Annual Report worksheets in Excel format, as well as PDF.

3. Appendix A. HSIP Worksheets

HSIP Process Automation Tools and Submittal Templates (available online)

1. High Crash Location Screening
    - Top 50 Location List Example
2. Pre-Project Ranking, Post-Project Evaluation
    - Pre-Project Ranking: Predicted Benefit Cost Ratio
    - Post-Project Evaluation: Computation of Actual B/C and Crash Reduction Factors-Input
    - Post-Project Evaluation: Actual Crash Reduction Factors – Results
    - Post-Project Effectiveness Evaluation: Actual Benefit Cost Ratios
3. Regional Proposed Project Summary
4. Regional HSIP Annual Report
    - HSIP Project Effectiveness Summary (Section 148)–Highways and High Risk Rural Roads
    - HSIP Project Categories
    - HSIP Project Effectiveness Summary (Section 130)–Railroad-Highway Crossings

HSIP Data (for use with the Pre-Project Ranking and Post-Project Evaluation spreadsheet)

- Crash Cost Reduction Factors
- Crash Cost Derivation
- Project Life and M&O Costs for Various Improvements

Listing of HSIP/SMS Eligible Activities

Site Visit Checklist

HSIP Project Ranking Matrix

User:	jtraffic
Analysis Type:	Overlapping Bucket Analysis
Data Source:	Alaska eCrash V3
Start Date:	1/1/2019
End Date:	12/31/2023
Region	Example Region
Return Top:	100.00%
Bucket Size:	2.00
Bucket Size:	2.00
Step Size:	1.00
Fatal Weight:	2986
Serious Injury Weight:	1493
Minor Injury Weight:	567
Possible Injury Weight:	179.2
No Injury Weight:	29.9
Percent To Return:	100.00%
Minimum Crashes In Each Spot:	1
Minimum Fatal Crashes In Each Spot:	1
Minimum Serious Injury Crashes In Each Spot:	2
Minimum Minor Injury Crashes In Each Spot:	0
Minimum Possible Injury Crashes In Each Spot	0
Use Crash Counts/Rates:	Counts

Alaska DOT&PF
Highway Safety Improvement Program

High Crash Location Screening Process

Screening Date
5/10/2025

NOTES:
1. Explanations are required in the "Comments" column for all segments including at least one fatal crash or two major injury crashes occurred, where improvements are not recommended.
2. The location screening process flags locations with one or more fatals and/or two or more serious injury crashes for further study.
3. Only locations meeting criteria are shown on this template.
4. The Crash Costs per Mile column is used to sort locations in descending order.

Route Name	Route	FromMp	ToMp	Crash Costs (1000s)	Crash Costs / Mile (1000s)	Crashes / Mile	PDO Crash Count	Minor Injury Crash Count	Possible Injury Crash Count	Serious Injury Crash Count	Fatal Crash Count	Comments
Location 1	CDS #1	3.00	5.00	29413	14707	103	116	19	68	2	0	
Location 2	CDS #2	3.00	5.00	11227	5614	10	8	2	5	4	1	
Location 3	CDS #3	4.00	5.07	21021	19631	125	74	14	44	2	0	
Location 4	CDS #4	2.00	4.00	16601	8301	40	41	11	26	1	1	
Location 5	CDS #5	6.00	8.00	15736	7868	41	44	9	27	1	1	
Location 6	CDS #6	2.00	4.00	11107	5553	19	17	7	12	1	1	
Location 7	CDS #7	2.00	4.00	8958	4479	14	14	2	8	4	0	
Location 8	CDS #8	1.00	3.00	10272	5136	21	21	5	13	1	1	
Location 9	CDS #9	4.00	6.00	10481	5240	22	22	5	14	1	1	
Location 10	CDS #10	7.00	8.04	11945	11492	70	42	6	24	0	1	
Location 11	CDS #11	3.00	5.00	10838	5419	23	21	8	15	0	1	
Location 12	CDS #12	10.00	12.00	9971	4985	14	9	9	9	0	1	
Location 13	CDS #13	360.00	362.00	7196	3598	11	11	2	7	1	1	
Location 14	CDS #14	5.00	7.00	6718	3359	8	7	2	5	1	1	
Location 15	CDS #15	5.00	7.00	9496	4748	25	27	5	16	0	1	
Location 16	CDS #16	6.00	8.00	8838	4419	17	16	6	11	0	1	
Location 17	CDS #17	6.00	8.00	6240	3120	5	3	2	3	1	1	
Location 18	CDS #18	7.00	9.00	8032	4016	15	14	5	10	0	1	
Location 19	CDS #19	2.00	4.00	7554	3777	12	10	5	8	0	1	
Location 20	CDS #20	3.00	5.00	5196	2598	6	6	0	3	1	1	
Location 21	CDS #21	4.00	5.69	5166	3053	6	5	0	3	1	1	
Location 22	CDS #22	214.00	216.00	4957	2479	5	4	0	2	3	0	
Location 23	CDS #23	215.00	217.00	4957	2479	5	4	0	2	3	0	
Location 24	CDS #24	128.00	130.00	4479	2240	1	0	0	0	1	1	
Location 25	CDS #25	3.00	5.00	4479	2240	1	0	0	0	1	1	
Location 26	CDS #26	4.00	6.00	4479	2240	1	0	0	0	1	1	
Location 27	CDS #27	4.00	6.00	6479	3240	12	12	3	8	0	1	
Location 28	CDS #28	3.00	5.00	6240	3120	11	10	3	7	0	1	
Location 29	CDS #29	361.00	363.00	6181	3091	14	15	2	9	0	1	
Location 30	CDS #30	9.00	11.00	5016	2508	7	6	2	4	0	1	
Location 31	CDS #31	303.00	305.00	4986	2493	6	5	2	4	0	1	
Location 32	CDS #32	8.00	10.00	4747	2374	5	3	2	3	2	0	
Location 33	CDS #33	6.00	8.00	4927	2464	9	10	1	6	0	1	
Location 34	CDS #34	359.00	361.00	4957	2479	10	11	1	6	2	0	
Location 35	CDS #35	106.00	108.00	4508	2254	3	1	2	2	0	1	
Location 36	CDS #36	312.00	314.00	4927	2464	9	10	1	6	0	1	
Location 37	CDS #37	4.00	5.72	4299	2506	2	0	2	1	0	1	

Alaska DOT&PF

Highway Safety Improvement Program

Project Ranking Worksheet

Red fields are input fields. Black fields are fixed, computed, or derived.

HSIP Project Name:	Test Intersection - Regional Project for the Betterment of All Mankind				
Analysis Period:	1/1/19 to 12/31/23	Form Completed by:	Joe Traffic	Date:	5/31/25

Miscellaneous Data

Rate of Return:	3%
No of years of crash analysis	5

Crash Cost Data

Crash Severity	Crash Cost
Property Damage Only:	$29,900
Possible Injury:	$179,200
Minor Injury:	$567,000
Serious Injury:	$1,493,000
Fatality:	$2,986,000

Predicted Change in Crashes due to Improvement(s)

Imprv Type Num	Improvement	Type of Crash Susceptible to Reduction or Increase due to Improvement	Reduction Factor (+ or -)	# of Crashes Susceptible to Reduction or Increase				
				PDO	Poss	Min	Ser	Fat
108	Intersection Illumination	Night Crashes at unlighted intersections	-50%	6		2	1	
101.3	Install Lt Turn Pocket at Rural, Unsignalized Intersection (Major Road Approach Only)	Rear-ends and side-swipes involving turning cars making the target movement	-60%	5		2	2	
109	New Traffic Signal	Angle crashes Rear-end crashes (expected to increase)	-60% 25%	10 6		5 5	1	
		Total Crashes Susceptible to Reduction or Increase:		27		14	4	
		Predicted Change in Crashes:		-11		-4.0	-2.3	
		Predicted Change in Crash Cost ($1,000):		-314		-2,240	-3,434	

Benefit/Cost of Improvements (Safety and M&O Benefits Only)

Improvement	Total Proj Cost (K)	Ann M/O Cost (K)	Life of Impvt (yrs)	Predicted Change in Crashes					Predicted Change in Crash Cost	Annualized Safety and M&O Benefits	Annualized Constr. and M&O Costs	Benefit Cost (Safety and M&O Benefits only)
				PDO	Poss	Min	Ser	Fat				
Intersection Illumination	250	1.0	15	-3.0		-1.0	-0.5		-$1,403,200	**$280,640**	**$21,942**	**12.8 : 1**
Install Lt Turn Pocket at Rural, Unsignalized Intersection (Major Road Approach Only)	600	0.5	10	-3.0		-1.2	-1.2		-$2,561,700	**$512,340**	**$70,838**	**7.2 : 1**
New Traffic Signal	1250	10.0	10	-4.5		-1.8	-0.6		-$2,022,600	**$404,520**	**$156,538**	**2.6 : 1**
Subtotals:				-10.5		-4.0	-2.3					
Totals/Averages:	**2100**	**11.5**	**10.6**	**-16.8**					**-$5,987,500**	**$1,197,500**	**$249,318**	**4.8 : 1**

Benefit Cost Formula (Safety and M&O Benefits Only)

B/C Ratio = (Estimated Annual Reduction in Crash Cost)+(Decrease in Ann Maintenance Cost, 0 if increase) / (Annualized Construction Project cost)+(Increase in Ann Maintenance cost, 0 if decrease)

Combined Effects of Multiple Countermeasures

$$CRF_{combined} = \left[1 - \left(1 - \frac{CRF_1}{100}\right)\left(1 - \frac{CRF_2}{100}\right) \ldots \left(1 - \frac{CRF_n}{100}\right)\right] * 100$$

Compute a combined Crash Reduction Factor (CRF) only for crash types jointly influenced by dissimilar improvements at the location of interest. Consider limitations of this formula as discussed in TRB Special Report 214 Designing Safer Roads, 1987, pg. 253-255.

Alaska DOT&PF
Highway Safety Improvement Program
HSIP Project Evaluation Worksheet
Computation of Actual B/C and Crash Reduction Factors - INPUT

Red fields are input fields. Black fields are fixed, computed, or derived.

HSIP Project Name:	***Test Intersection - Regional Project for the Betterment of All Mankind***	Form Completed by:	*Joe Traffic*	Date:	*7/15/2032*

Project Identification Data

Construction Project Name:	**Test Construction Project**
Federal Project Number:	**TEST-PROJ-1**
State (AKSAS/IRIS) Proj. Number:	**12345**

Miscellaneous Data

Rate of Return:	3%
Intersection (I) or Segment (S)	I
If Segment, Length in Miles:	
Date Construction Began:	4/15/26
Date Project Accepted for Traffic:	10/31/28

Crash Cost Data

Crash Severity	*Crash Cost*
Property Damage Only:	$29,900
Possible Injury	$179,200
Minor Injury:	$567,000
Serious Injury:	$1,493,000
Fatality:	$2,986,000

CRASH HISTORY (All Crashes)

Period	Begin Date	End Date	No of Years	PDO	Poss	Min	Maj	Fat	Tot-al	Avg ADT
1) Before (HSIP Analysis Period)	1/1/19	12/31/23	5.0	29		12	6		47	10000
2) Before-Interim	1/1/24	12/31/25	2.0	12		3	3		18	10500
1 and 2 Combined	1/1/19	12/31/25	7.0	41	0	15	9		65	10143
3) After	1/1/29	12/31/31	3.0	13		6	2		21	11000

Crash Trend

Trend Control Area:	Mjr City / Borough
Crash Rate change from Before Period (1+2) to After Period (3)	**0.0%**

CRASH HISTORY (Crashes Susceptible to Reduction or Increase)

Improvement	**Type of Crash Susceptible to Reduction or Increase Due to Improvement**	**BEFORE (1+2)** HSIP Analysis Period 1/1/2019 to 12/31/2023					Interim 1/1/2024 to 12/31/2025					Total No of Crashes	Total Crash Cost ($K)	**AFTER (3)** 1/1/2029 to 12/31/2031					Total No of Crashes	Total Crash Cost ($K)
		PDO	Poss	Min	Ser	Fat	PDO	Poss	Min	Ser	Fat			PDO	Poss	Min	Ser	Fat		
Intersection Illumination	Night Crashes at unlighted intersections	6		2	1		2			1		12	4359	2					2	60
Install Lt Turn Pocket at Rural, Unsignalized Intersection (Major Road Approach Only)	Rear-ends and side-swipes involving turning cars making the target movement	5		2	2		1		1	1		12	6359	1			1		2	1523
New Traffic Signal	Angle crashes	10		5	1		6		2			24	5940	3		1			4	657
	Rear-end crashes (expected to increase)	6		5			2			1		14	4567	5		2	1		8	2777
	Totals / Averages:	27		14	4		11		3	3		62	21226	11		3	2		16	5016
	Total Crash Costs:	**$21,226,200**												**$5,015,900**						

**** The "Before – Interim" time period extends from the end of the HSIP analysis period to the start of construction. Only full data years should be used. Use of partial years will skew results.***
Set Trend to 0% in the absence of a significant change in area-wide crash rate between the Before/Interim period and the After period.

Alaska DOT&PF
Highway Safety Improvement Program

HSIP Project Evaluation Worksheet

Computation of Actual Crash Reduction Factors - RESULTS

Red fields are input fields.
Black fields are fixed, computed, or derived.

Project:	***Test Intersection - Regional Project for the Betterment of All Mankind***	Form Completed by:	*Joe Traffic*	Date:	*7/15/2032*

Change in Total Crashes

Period	Begin Date	End Date	No of Crashes	Crash Cost	Crash Rate	Accident Cost per Ent Veh or Veh-Mile	***Percent Change***			
							From - To	Crash Rate	Statistically Significant?	Crash Cost/Veh
1) Before (HSIP Analysis Period)	1/1/19	12/31/23	47	$16,629,100	2.58	$0.91	1 to 2	-8.8%	No	-6.4%
2) Before-Interim	1/1/24	12/31/25	18	$6,538,800	2.35	$0.85	2 to 3	-25.7%	No	-34.0%
1 and 2 Combined	1/1/19	12/31/25	65	$23,167,900	2.51	$0.89	(1+2) to 3	**-30.4%**	Yes	**-37.0%**
3) After	1/1/29	12/31/31	21	$6,776,700	1.75	$0.56				

Change in Crashes Susceptible to Reduction or Increase

Improvement	**Type of Crash Susceptible to Reduction or Increase due to Improvement**	**BEFORE (1+2)**		**AFTER (3)**		**Crash RATE Reduction Factor**				**Crash COST Reduction Factor**		
		No of Crashes per Year	Crash Cost /yr ($K)	No of Crashes per Year	Crash Cost /yr ($K)	Change in crashes/yr	Adj for Vol	Stat. Signif-icant?	Adj. for Trend	Change in crash cost/yr	Adj for Vol & Trend	Pre-dic-ted
Intersection Illumination	Night Crashes at unlighted intersections	***1.71***	623	***0.67***	20	-61%	-64.1%	YES	***-64.1%***	***-97%***	***-97%***	-50%
Install Lt Turn Pocket at Rural, Unsignalized Intersection (Major Road Approach Only)	Rear-ends and side-swipes involving turning cars making the target movement	***1.71***	908	***0.67***	508	-61%	-64.1%	YES	***-64%***	***-44%***	***-48%***	-60%
New Traffic Signal	Angle crashes Rear-end crashes (expected to increase)	***3.43*** ***2.00***	849 652	***1.33*** ***2.67***	219 926	-61% 33%	-64.1% 23.1%	YES NO	***-64%*** ***23%***	***-74%*** ***42%***	***-76%*** ***31%***	-60% 25%

Other Factors which may have impacted crash frequency - **(Provide explanation here if "After" crashesdeviated significantly from those predicted):**

Alaska DOT&PF
Highway Safety Improvement Program

HSIP Project Effectiveness Evaluation

Computation of Actual Benefit/Cost Ratio

Red fields are input fields. Black fields are fixed, computed, or derived.

Use the same crash costs for both before and after crashes when comparing actual vs predicted B/C and crash reduction.

HSIP Project Name:	***Test Intersection - Regional Project for the Betterment of All Mankind***
Construction Project Name:	***Test Construction Project***
Const. Project Number (Federal):	***TEST-PROJ-1***
Const. Project Number (AKSAS):	***12345***
Form Completed by:	*Joe Traffic*
Date:	*7/15/2032*

Financial/Time Factors	
Rate of Return (from Project Ranking worksheet):	3%
Average Life of Improvement (from Project Ranking worksheet):	10.6
Length of "After" evaluation period (years) (from Post Eval Input worksheet):	3.0

Actual B/C (Acc and M&O Benefits Only)	
Total Project Development and Construction Cost:	$2,500,000
Annual M&O Cost or Saving (from HSIP Project Ranking worksheet):	$11,500
Annualized Construction and M&O Costs:	$290,431
Projected Crash Cost in "After" period at "Before" rate (susceptible crashes only):	$9,088,635
Actual Crash Cost during "After" period (susceptible crashes only):	$5,015,900
Unadjusted Crash Cost Reduction:	$4,072,735
Crash Cost Reduction adjusted for crash trend:	$4,072,735
Annualized Safety and M&O Benefits	$1,358,819
Actual Benefit Cost Ratio (Crash and M&O Costs Only):	***4.68 : 1***

Comparison of Actual vs Predicted				
Total Project Development and Construction Cost:	Predicted:	$2,100,000	Difference:	***+19%***
	Actual:	$2,500,000		
Annualized Safety and M&O Benefits:	Predicted:	$1,197,500	Difference:	***+13%***
	Actual:	$1,358,819		
Project Benefit-Cost Ratio (Not Including Delay):	Predicted:	4.8 : 1	Difference:	***-2%***
	Actual:	4.68 : 1		

FFY 2026 Proposed HSIP Projects - XX Region

Project Name:	Project Type			IRIS No.	HSIP Project Number	B/C	Safety Index	Criteria 1	Criteria 2	Criteria 3A	Criteria 3B	Crashes Susc. to Corr.					Region	Phase	Federal Fiscal Year			Longterm View			FFY26 Quarter	Bundle?	In MPO?	In TIP?	Project Description	Regional Response/Adjustment
	New	FO	UFO									PDO	POS	MIN	MJR	FAT			26	27	28	29	30	31						
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HSIP Project Effectiveness Summary (Section 148)

Covering projects with 3 or more years of available post-project crash data & not previously reported

Section 148 HSIP Projects (not including HRRR)

Region	Location [1]	FHWA Rd Functional Classification [2]	Improvement Type [3]	Improvement Subcategory	Total Project Cost [4]	BEFORE & INTERIM Data (Years vary) [5]						AFTER Crash Data (3 years)					Evaluation Results (B/C Ratio) [6]
						Fatal	Serious Injury	Minor Injury	Possible Injury	PDO	Years	Fatal	Serious Injury	Minor Injury	Possible Injury	PDO	

Section 148 HSIP Projects - High Risk Rural Roads (HRRR) only

Region	Location [1]	FHWA Rd Functional Classification [2]	Improvement Type [3]	Improvement Subcategory	Total Project Cost [4]	BEFORE & INTERIM Data (Years vary) [5]						AFTER Crash Data (3 years)					Evaluation Results (B/C Ratio) [6]
						Fatal	Serious Injury	Minor Injury	Possible Injury	PDO	Years	Fatal	Serious Injury	Minor Injury	Possible Injury	PDO	

1. Location/identifier for project: basic information on where the project occurred
2. There are several applications found under Atlas (https://gis.dot.soa.alaska.gov) that allow you to look up the functional class, route ID, or urban/rural status. Applications such as Map49, Single Route Reports, or Multiple Route Reports will provide various levels of data. The Map49 application will also show you the physical layout of the road and features along it.
3. Type of improvement: base entry on information meeting descriptions from IIJA/BIL (Section 148 (a)(4) and (a)(11)), reprinted on page A-9 and A-10 of this HSIP Handbook. If multiple improvement types were combined in one project, list the predominant category. Project categories related to railway-highway grade crossing safety improvements should be reported separatly using the form under tab "130 Eff".
4. Cost of improvement: cost to implement the improvement
5. Includes crashes from before and "interim" time periods.
6. Enter actual benefit cost ratios from the Alaska HSIP post-project evaluation process.

Highway Safety Improvement Project Categories

The following is a complete extract from 23 USC Section 148 Highway Safety Improvement Program (a) Definitions, as amended by IIJA/BIL legislation under Section 11111 Highway Safety Improvement Program.

(4) Highway safety improvement project. –

(A) In general.-The term "highway safety improvement project" means strategies, activities, and projects on a public road that are consistent with a State strategic highway safety plan and-

(i) correct or improve a hazardous road location or feature; or

(ii) address a highway safety problem.

(B) Inclusions.-The term "highway safety improvement project" only includes a project for 1 or more of the following:

(i) An intersection safety improvement that provides for the safety of all road users, as appropriate, including a multimodal roundabout.

(ii) Pavement and shoulder widening (including addition of a passing lane to remedy an unsafe condition).

(iii) Installation of rumble strips or another warning device, if the rumble strips or other warning devices do not adversely affect the safety or mobility of bicyclists and pedestrians, including persons with disabilities.

(iv) Installation of a skid-resistant surface at an intersection or other location with a high frequency of crashes.

(v) An improvement for pedestrian or bicyclist safety or safety of persons with disabilities.

(vi) Construction and improvement of a railway-highway grade crossing safety feature, including installation of protective devices or a grade separation project.

(vii) The conduct of a model traffic enforcement activity at a railway-highway crossing.

(viii) Construction or installation of features, measures, and road designs to calm traffic and reduce vehicle speeds.

(ix) Elimination of a roadside hazard.

(x) Installation, replacement, and other improvement of highway signage and pavement markings, or a project to maintain minimum levels of retroreflectivity, that addresses a highway safety problem consistent with a State strategic highway safety plan.

(xi) Installation of a priority control system for emergency vehicles at signalized intersections.

(xii) Installation of a traffic control or other warning device at a location with high crash potential.

(xiii) Transportation safety planning.

(xiv) Collection, analysis, and improvement of safety data.

(xv) Planning integrated interoperable emergency communications equipment, operational activities, or traffic enforcement activities (including police assistance) relating to work zone safety.

(xvi) Installation of guardrails, barriers (including barriers between construction work zones and traffic lanes for the safety of road users and workers), and crash attenuators.

(xvii) The addition or retrofitting of structures or other measures to eliminate or reduce crashes involving vehicles and wildlife.

(xviii) Installation of yellow-green signs and signals at pedestrian and bicycle crossings and in school zones.

(xix) Construction and operational improvements on high risk rural roads.

(xx) Geometric improvements to a road for safety purposes that improve safety.

(xxi) A road safety audit.

(xxii) Roadway safety infrastructure improvements consistent with the recommendations included in the publication of the Federal Highway Administration entitled "Highway Design Handbook for Older Drivers and Pedestrians" (FHWA–RD–01–103), dated May 2001 or as subsequently revised and updated.

(xxiii) Truck parking facilities eligible for funding under section 1401 of the MAP–21.

(xxiv) Systemic safety improvements.

(xxv) Installation of vehicle-to-infrastructure communication equipment.

(continued on next page)

Highway Safety Improvement Project Categories

(continued)

(xxvi) Installation or upgrades of traffic control devices for pedestrians and bicyclists, including pedestrian hybrid beacons and the addition of bicycle movement phases to traffic signals.

(xxvii) Roadway improvements that provide separation between pedestrians and motor vehicles or between bicyclists and motor vehicles, including medians, pedestrian crossing islands, protected bike lanes, and protected intersection features.

(xxviii) A pedestrian security feature designed to slow or stop a motor vehicle.

(xxix) A physical infrastructure safety project not described in clauses (i) through (xxviii).Guidance from FHWA has not been issued at the data of this publication. When issued, FHWA guidance will supercede this direct quote from the federal statute.

(11) Specified safety project.-

(A) In general.-The term"specified safety project" means a project carried out for the purpose of safety under any other section of this title that is consistent with the State strategic highway safety plan.

(B) Inclusion.-The term "specified safety project" includes a project that-

(i) promotes public awareness and informs the public regarding highway safety matters (including safety for motorcyclists, bicyclists, pedestrians, individuals with disabilities, and other road users);

(ii) facilitates enforcement of traffic safety laws;

(iii) provides infrastructure and infrastructure-related equipment to support emergency services;

(iv) conducts safety-related research to evaluate experimental safety countermeasures or equipment; or

(v) supports safe routes to school noninfrastructure-related activities described in section 208(g)(2).

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HSIP Project Effectiveness Summary (Section 130-Railroad Crossings)

Covering projects with 3 or more years of available post-project crash data & not previously reported

Region	Project Number	Location [1] (County/ Municipality, Highway)	USDOT Crossing Number	FHWA Roadway Functional Class [2]	Project Type and Description (using the suggested groupings below)	Project Subcategory (if Project Type is "Active Grade Crossing Equipment Installation/Upgrade")	Crossing Protection (active, passive)	Crossing type (vehicle, pedestrian, etc)	Total Project Cost	Funding Type	Before & Interim Crash Data [3] (5 years)						After Crash Data (3 years)					Effectiveness [4]
											Fatal	Serious Injury	Minor Injury	Possible Injury	PDO	Years	Fatal	Serious Injury	Minor Injury	Possible Injury	PDO	

1. Location/identifier for project: basic information on where the project occurred
2. There are several applications found under Atlas (https://gis.dot.soa.alaska.gov) that allow you to look up the functional class, route ID, or urban/rural status. Applications such as Map49, Single Route Reports, or Multiple Route Reports will provide various levels of data.The Map49 application will also show you the physical layout of the road and features along it.
3. Includes crashes from before and "interim" time periods.
4. Enter actual benefit cost ratios from the Alaska HSIP post-project evaluation process.

Suggested grouping by project type is listed below.

- Crossing Approach Improvements - Projects such as channelization, new or upgraded signals on the approach (not including the active grade crossing signals), guardrail, pedestrian/bicycle path improvements near the crossing, and illumination.
- Crossing Warning Sign and Pavement Marking Improvements - Projects such as signs, pavement markings, and/or delineation where these project activities are the predominant safety improvements.
- Active Grade Crossing Equipment Installation/Upgrade - Projects such as new or upgraded flashing lights and gates, track circuitry, wayside horns, and signal improvements such as railway-highway signal interconnection and pre-emption.
- Visibility Improvements - Projects such as sight distance improvements and vegetation clearance.
- Roadway Geometry Improvements - Projects such as roadway horizontal and/or vertical alignment, sight distance, and elimination of high-profile ("humped") crossings.
- Grade Crossing Elimination - Projects such as crossing elimination through closure, relocation, or construction/reconstruction of a grade separation structure.
- Crossing Inventory Update - Projects such as efforts to update and manage the railway- highway grade crossing inventory and development of a web-based inventory.

Alaska DOT&PF
Highway Safety Improvement Program

Crash Cost Reduction Factors

Applicable at Locations With Statistically High Rates of Target Crashes

Revised November 2014

Imprvmt Type Number	Type of Improvement / Crash Types Susceptible to Reduction	Crash Cost Rdctn. Factor	Comments
100	**INTERSECTION AND TRAFFIC CONTROL**		
101	New Turn Lane		
101.1	Install Left-turn Lane at Rural, Unsignalized, 3-Leg Intersection (Major Road Approach, Only)	-55%	
101.2	Install Left-turn Lane at Urban, Unsignalized Intersection (Major Road Approach, Only)	-50%	
101.3	Install Left-turn Lane at Rural, Unsignalized Intersection (Major Road Approach, Only)	-60%	
101.4	Install Right-turn Lane at Urban, Signalized Intersection	-10%	
101.5	Install Right-turn Lane at Rural, Signalized Intersection	-20%	
101.6	Install Right-turn Lane at Urban, Unsignalized Intersection (Major Road Approach, Only)	-10%	
101.7	Install Right-turn Lane at Rural, Unsignalized Intersection (Major Road Approach, Only)	-25%	
101.8	Install Left-turn Lane at Rural or Urban Signalized Intersection	-15%	
	Rear-ends and side-swipes involving turning cars making the target movement (this does not include adding lanes to existing turn pockets or to adding lanes on approaches controlled by STOP signs)		
102	Increase Turn Lane Length		Intended for locations where the existing turn pocket is lengthened to accommodate the turning lane demand, eliminating turning traffic which backs up into the thru lanes.
	Rear-end crashes involving vehicles waiting to enter turn lane	-15%	
103	Install Two-Way Left Turn Lane	CLICK HERE for TWLTL Spreadsheet Solution	Best Practice is to treat CRF as a function as described in Research Results Digest 299.
	All crashes involving the target left turns: angle, sideswipe, and rear end. Only applies to crashes for which no turning lane currently exists.		
104	Acceleration lane for right turning traffic from side street		
	Multi-car crashes involving through traffic and vehicles making the target movement	-10%	
105	Improve Sight Distance at Intersection		
	Multi-car angle crashes involving vehicles on the limited sight distance approach	-10%	
106	Improvement 106 (Install Stop Ahead or Yield Ahead signs) removed from Crash Cost Reduction Factor table due to inconclusive study results.		
107	Change Two Way Stop to All-Way Stop Control		
	Angle crashes	-70%	
108	Intersection Illumination		
	Night crashes at unlighted intersections	-50%	
109	New Traffic Signal		
	Angle Crashes	-60%	
	Rear-end Crashes (expected to increase)	+25%	
110	Enlarge 8 inch Traffic Signal Head to 12 inches		
	All rear end and right angle crashes	-10%	

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Highway Safety Improvement Program

Crash Cost Reduction Factors

Applicable at Locations With Statistically High Rates of Target Crashes

Revised November 2014

Imprvmt Type Number	Type of Improvement / Crash Types Susceptible to Reduction	Crash Cost Rdctn. Factor	Comments
111	Improve Signal Display		
111.1	Conversion of Side-Mounted Signals to Overhead Signals	-40%	Reductions are independent of number of signal heads converted or added.
111.2	Increase number of signal heads	-10%	
111.3	Add 3-inch yellow retroreflective sheeting to signal backplates	-15%	
111.4	Increase Number Of Overhead Signal Heads	-28%	
	All rear end and angle crashes involving the target approach		
112	Left-Turn Phase Traffic Signal Modifications		
112.1	Permissive (green ball) to Permissive (flashing yellow arrow)	-20%	
112.2	Permissive (green ball) to Protected-Permissive (flashing yellow arrow)	-40%	
112.3	Protected-Permissive (5-section with green ball and arrows) to Protected-Permissive (flashing yellow arrow)	-30%	
112.4	Protected-Permissive (5-section with green ball and arrows) to Protected-Only (all arrows)	-60%	
	Angle crashes involving the target left turn movement		
113	Install Curb Bulb Across Intersection From Multi-Lane Approach with Mandatory Turning Lane		Intended to address crashes involving vehicle failing to make turn in mandatory turn lane.
	Crashes involving vehicle failing to make turn in mandatory turn lane to be blocked by curb bulb	-70%	
114	Install Overhead Lane Use Control Signs		Intended to address crashes involving vehicle failing to make turn in mandatory turn lane.
	Crashes involving vehicles that attempt to make a movement that is prohibited from their lane	-70%	
115	Rumble strips on approaches to intersections		
	Non ice/snow crashes on the target approach caused by cars failing to stop	-80%	
116	Active Advance Warning Flashers		
	Rear end and angle crashes involving vehicles on the target approach	-25%	
117	Install Intersection Flashing Beacon		
	All right angle crashes involving vehicles on target intersection approaches	-30%	
118	Install a Single-Lane Roundabout		
118.1	Replace Signal or Two-Way STOP-Controlled 4-Leg Intersections with a Single-Lane Roundabout	-75%	
118.2	Replace Signal or STOP-Controlled (on one approach) 3-Leg Intersections with a Single-Lane Roundabout	-30%	
118.3	Replace an All-Way Stop Control Intersection with a Single-Lane Roundabout	0%	No change in safety
	All Intersection crashes		
119	Improvement 119 has been intentionally left blank		

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Highway Safety Improvement Program

Crash Cost Reduction Factors

Applicable at Locations With Statistically High Rates of Target Crashes

Revised November 2014

Imprvmt Type Number	Type of Improvement / Crash Types Susceptible to Reduction	Crash Cost Rdctn. Factor	Comments
120	Improvement 120 (Intersection Skid Reduction Treatments) was removed from CRF Table because improvement of pavement traction is not easily quantifiable.		
200	**STRUCTURES**		
201	Replace or Widen Narrow Bridge Head-ons, Sideswipes, crashes with fixed objects on bridge or approaches	Use CRF computation: $CRF = 9.20 - 8.93 \times W_{before} + 10.68 \times W_{after}$ The variable W_{before} is the bridge shoulder width (feet) before widening. The variable W_{after} is the final bridge shoulder width (feet). The resulting dependent variable CRF is in percent.	
202	Construct Interchange All intersection crashes	CLICK HERE for Interchange Safety Analysis Tool (ISAT) Spreadsheet	Detailed Analysis, CLICK HERE Interchange Safety Analysis Tool Manual
300	**ROADWAY AND ROADSIDE**		
301	Widen Shoulder Run-off-road, head-on, opposite-direction sideswipe, and same direction sideswipe crashes within the widened segment	CLICK HERE for Shoulder Width Spreadsheet Solution	Best Practice is to treat CRF as a function as described in FHWA-RD-99-207
302	Widen Travel Lanes to PreConstruction Manual Standard Run-off-road, head-on, opposite-direction sideswipe, and same direction sideswipe crashes within the widened segment	CLICK HERE for Lane Width Spreadsheet Solution	Best Practice is to treat CRF as a function as described in FHWA-RD-99-207
303	Install Median Barrier Crashes within the median or resulting from vehicles crossing the median in which there are serious or fatal injuries	-90%	
304	Install Raised Median		
304.1	Install Raised Median on Undivided Street	-20%	
304.2	Install Raised Median to Replace Two Way Left Turn Lane Cross over and segment access-related vehicle crashes. Target crashes do not include vehicle-crossing pedestrian crashes (See Improvement 406 - Pedestrain Refuge Islands.)	-15%	
305	Close Median Opening REDUCES:Crashes involving vehicles making the movement(s) to be closed INCREASES: New crashes caused by diverted traffic *(Note: closing problem movements does not guarantee crash reduction. It is possible that more crashes will be caused by diversion than happened at the median opening.)*	-90% Increase Varies	Examine alternative routes, likely crash rates at intersections along those routes, estimate the number of crashes along those routes, and apply those crashes as an adjustment to the crashes expected to be reduced by -90% Submit documentation of assumptions and computations.
	Examine alternative routes for traffic diverted by the median closure. Estimate likely changes in volume at intersections along diversion routes. Using those volumes and existing crash rates, estimate the number of crashes at those intersections. Apply those crashes as an adjustment to the crashes at the project location which are expected to be reduced by CRF=-90%. Submit documentation of assumptions and computations with the project description and ranking worksheet.		
306	Install Rumble Strips on shoulders		
306.1	Two-lane rural highways (50 MPH and above)	-20%	
306.2	Four-lane rural highways (50 MPH and above) Non ice/snow run off the road crashes	-10%	

Alaska DOT&PF
Highway Safety Improvement Program

Crash Cost Reduction Factors

Applicable at Locations With Statistically High Rates of Target Crashes

Revised November 2014

Imprvmt Type Number	Type of Improvement / Crash Types Susceptible to Reduction	Crash Cost Rdctn. Factor	Comments
307	Flatten Horizontal Curves All non-intersection crashes within the realigned segment	CLICK HERE for Horz Curve Spreadsheet Solution	Best Practice is to treat CRF as a function as described in FHWA-RD-99-207
308	Flatten Crest Vertical Curves All non-intersection crashes within the realigned segment	Use Formula from Appendix E, pg 265, of TRB Special report 214	
309 through 313	When applying roadside treatment improvements 309 through 313 individually, apply the Crash Cost Reduction Factor or computational method described for that improvement. When applying two or more roadside treatments in combination, use Roadside Safety Analysis Program (RSAP) to determine the crash cost reduction effectiveness. When using RSAP compare various treatment options against the no treatment option to find the percent change in crash cost.		
309	Relocate Non-Crashworthy Utility Poles from within to beyond clear zone. Crashes with the poles to be relocated	Varies: Use Roadside Safety Analysis Program	Create "no-build alternative" (existing conditions) and "relocate utility poles" alternative. Run program to estimate CCRF. Use HSIPHB severity costs.
310	Flatten or Regrade Side Slopes All Run-off-the-road crashes	CLICK HERE for Slope Flattening Spreadsheet Solution	Best Practice is to use before/after table presented in NCHRP 617
311	Install Shoulder Guardrail Single car run-off-the-road crashes that would have been contained by the rail and resulted in fatal, serious, or minor injuries.	-45%	
312	Remove Obstacles Crashes with the obstacle to be removed	-100%	
313	Install Impact Attenuators on rigid objects Fatal and serious injury crashes with the object to be shielded	-70%	
314	New Curve Warning Signs and Delineators All non-intersection crashes within the target curve	-20%	
315	Signs, markings, delineators at narrow bridges All crashes on bridge and within 300 ft of bridge termini	-50%	
316	Install New Continuous Illumination Night crashes on currently unlighted segments to receive lighting (exclude crashes at intersections that currently have street lights)	-25%	
317	Install Centerline Rumble Strips (50 MPH and above) All non-ice/snow head-on and sideswipe crashes on rural 2-lane roads.	-25%	
318	Install Safety Edge on shoulder edge of pavement All crashes on rural 2-lane roads.	-5%	
400	**PEDESTRIAN AND BICYCLE SAFETY**		
401	Construct Sidewalk Crashes between vehicles and pedestrians walking on shoulder	-75%	

Alaska DOT&PF
Highway Safety Improvement Program

Crash Cost Reduction Factors

Applicable at Locations With Statistically High Rates of Target Crashes

Revised November 2014

Imprvmt Type Number	Type of Improvement / Crash Types Susceptible to Reduction	Crash Cost Rdctn. Factor	Comments
402	Construct Pedestrian and Bicycle Overpass/Underpass Crashes between vehicles and bikes or pedestrians at the Xing the OP or UP will replace	-100%	Only apply the CRF to likely users of the underpass or overpass
403	Install Countdown Timer Pedestrian Signals Crashes between vehicles and pedestrians crossing at the signal	-25%	
404	Install Mid-block Signal Controlled Pedestrian Crossings Target crashes between pedestrians and vehicles at the unsignalized location where the pedestrian crossing will be installed. Do not install too close to an existing traffic signal.	-12%	
405	Install Raised Pedestrian Crossings (Speed Tables) Target crashes between pedestrians and vehicles at the location where the raised pedestrian crossing it to be installed. Do not install too close to an existing traffic signal.	-12%	
406	Install Pedestrian Refuge Islands		
406.1	Install Raised Median as Refuge at Marked Crosswalk	-45%	
406.2	Install Raised Median as Refuge at Unmarked Crosswalk Target crashes between pedestrians and vehicles at an unsignalized pedestrian crossing.	-40%	
407	Install Dedicated Bicycle Lanes Target crashes between vehicles and cyclists on a roadway without a rideable shoulder or bike lane.	-10%	
408	Install Pedestrian Hybrid Beacon Target crashes between major street vehicles and pedestrains crossing uncontrolled major street locations within 150' location of proposed beacon.	-55%	
500	**RAILROAD-HIGHWAY CROSSINGS**		
501	Upgrade from RR signs to flashers Crashes involving trains and highway vehicles	-50%	
502	Upgrade from RR signs to gates & flashers Crashes involving trains and highway vehicles	-67%	
503	Upgrade from RR flashers to gates Crashes involving trains and highway vehicles	-45%	
504	Construct RR Grade Separation Crashes involving trains and highway vehicles	-100%	
505	Install RR Crossing Illumination Crashes involving trains and highway vehicles	-25%	
506	Improve RR Crossing Sight Distance Crashes involving trains and highway vehicles	-25%	25% CRF only used if full recommended sight distance is achieved with the improvement
900	**CUSTOM IMPROVEMENTS**		
999	Custom Improvement - Requires HQ Approval Crash Types by discussion with ST&SE	- %	Reduction factor(s) on approved basis

Alaska DOT&PF
Highway Safety Improvement Program

Crash Cost Derivation
for Analysis of FFY '25 HSIP Projects

Updated 1/31/2025

Crash Cost Source and Adjustment t o 2023

Crash Category FHWA Memo March 2021	Crash Costs: FHWA 03/01/21	Crash Costs: AK Categories Adj for fatals/crash	Crash Costs: Inflated to Current Yr	Proportion of PDO Cost (Actual)
Property Damage Only (O):	$ 8,923	$ 9,879	$ 10,821	1
Possible Injury (C)	$ 84,769	$ 93,852	$ 102,800	10
Suspected Minor Injury (B)	$ 160,615	$ 177,824	$ 194,779	18
Suspected Serious Injury (A)	$ 803,077	$ 889,121	$ 973,896	90
Fatality (K):	$ 11,600,000	$ 12,842,857	$ 14,067,384	1300

GDP Implicit Price Deflator	
20 GDP IPD ('17 dollars):	113.6
24 GDP IPD ('17 dollars):	124.5
Cost Inflation:	9.53%

GDP IDP: Gross Domestic Product Implicit Price Deflator. 2017=100.00

The GDP IPDs shown are 4-quarter averages.

Crash Cost Proportioning *(to reduce the impact of random severe crashes)*

Crash Category	Crash 5 Yr Avg (2019 - 2023)	Total Cost (Using Costs Inflated to current year above)	Proportion of PDO Cost (Input)	Adjusted Costs	Adjusted Costs-Rounded (Use for Analysis)
Property Damage Only (O)	5,347	$ 57,860,234		$ 29,860	$ 29,900
Possible Injury (C)	1,083	$ 111,332,526	6	$ 179,158.65	$ 179,200
Suspected Minor Injury (B)	1,041	$ 202,765,113	19	$ 567,335.74	$ 567,000
Suspected Serious Injury (A)	221	$ 215,230,980	50	$ 1,492,988.79	$ 1,493,000
Fatal (K)	62	$ 872,177,828	100	$ 2,985,977.58	$ 2,986,000
Total Crash Cost:	7754	$ 1,459,366,682		$ 1,459,366,682	$ 1,459,280,900

Adjust for Fatalities per Fatal Crash
1.11

Adjustment applied to FHWA Value for a Statistical Life, then distributed to other severity categories.

When past crash history is used to predict future crash costs at a location (as we do in the HSIP), adjustment to actual crash cost is necessary. If this is not done, rare and random severe crashes can attract a disproportionate share of safety funding even though they are not a good indicator of future crash experience. While the difference between a fatal crash and a property-damage-only crash might be measured in microseconds or depend on non-road-related factors such as driver health or vehicle condition, the ratio of actual cost between the two is 1300 to 1. Using the full cost of fatal and severe crashes would result in misallocation of highway safety funds. Crash cost adjustment should reduce, but not eliminate, the impact of severity on predicted future crash cost. Too much value assigned to severe crashes results in safety improvements where there is little likelihood of future crashes. Too little results in high speed roads with histories of severe crashes being given no more priority than low speed roads with no severe crashes.

We have adjusted the relative value of **PDO, possible injury, suspected minor injury, suspected serious injury, and fatal** crashes to correspond with pre-set proportions while still adding up to the same statewide total crash cost. PDO crashes are both the most common and least-reliably reported. Reporting can vary widely between communities and over time due to changes in reporting thresholds. Because of this and the low severity level, PDO crashes have been assigned a value 1/10 that of possible injury crashes. The **IIJA/BIL** highway bill maintains the requirement for HSIP programs to be targeted at serious injuries and fatals. Alaska's HSIP program establishes an emphasis on severe crashes by making suspected serious injury crashes 50 times and fatal crashes 100 times the value of a PDO, which strikes a balance between "Chasing fatals" (making the costs too high) and not weighing crash severity highly enough.

Adjusted crash costs need to be grounded in reality. Although we can re-allocate the cost between severity categories, we should not overstate or understate the total crash cost in the state. Aside from minor rounding, the adjusted costs shown here result in an exact match of total statewide crash costs using the average crash numbers from **2018 through 2022** (the latest five-year period available).

The FHWA's advisory memo **dated March 2021,** "Guidance on the Treatment of the Economic Value of a Statistical Life (VSL) in U.S. Department of Transportation Analyses – 2021 Update " (an update of a August 8, 2016 memo) estimates the economic value of preventing a human fatality at $**11.6 million dollars**. Alaska estimates crash costs for injuries of varying severity in accordance with percentages provided in FHWA's Technical Advisory T7570.2, October, 1994. On an annual basis, costs are temporally adjusted using the Gross Domestic Product Implicit Price Deflator. Because the FHWA advisory gave the cost of a fatality rather than the cost of a fatal crash, we increased the cost to account for the fact that some fatal crashes have multiple fatalities.

When crash costs are used to assess post-project crash reduction, the same crash costs should be used for both the before and after periods.

Alaska DOT&PF
Highway Safety Improvement Program

Project Life and M&O Costs
for Various Improvements

Imprv. No.	*Type of Improvement*	*Project Life* (From 1996 HSIP Annual Report)	*M&O Cost* (From ADOT&PF Sources)	
			Amount	***per Unit***
INTERSECTION AND TRAFFIC CONTROL				
101	New Turning Lanes	10	$6,000.00	lane-mile/Year
102	Increase Turn Lane Length	10	$6,000.00	lane-mile/Year
103	Two-Way Left Turn Lane	10	$6,000.00	lane-mile/Year
104	Acceleration lane for right turning traffic from side street	10	$6,000.00	lane-mile/Year
105	Improve Sight Distance at Intersection	10	$0.00	
107	Change Two Way Stop to All-Way Stop Control	6	$80.00	sign/year
108	Intersection Illumination	15	$270.00	lum/year
109	New Traffic Signal	10	$10,000.00	each/year
110	Enlarge 8 inch Traffic Signal Head to 12 inches	10	$0.00	
111.1	Conversion of Side-Mounted Signals to Overhead Signals	10	$0.00	
111.2	Increase number of signal heads	10	$50.00	each/year
112	Left-Turn Phase Traffic Signal Modifications	10	$0.00	
113	Install Curb Bulb Across Intersection From Multi-Lane Approach with Mandatory Turning Lane	20	$1.00	linear ft/year
114	Install Overhead Lane Use Control Signs	6	$80.00	sign/year
115	Rumble strips on approaches to intersections	10	$0.00	
116	Active Advance Warning Flashers	10	$2,500.00	each/year
117	Install Intersection Flashing Beacon	10	$2,500.00	each/year
118	Replace a Signal or STOP controlled intersection with a Single-Lane Roundabout	20	$0.00	
	Channelization	10	$100.00	short median/yr
	Improve Sight Distance	10	$0.00	
	SmallTraffic Signs	6	$80.00	sign/year
	LargeTraffic Signs (over 50 sf)	6	$830.00	sign/year
	Replacement of existing large and small traffic signs.	6	$0.00	
	Pavement Markings	2	$0.00	
	Flexible Delineators	2	$10.00	delin./yar
STRUCTURES				
201	Replace Narrow Bridge	20	$0.00	
201	Widen Narrow Bridge	20	$0.25	square ft/year
202	Construct Interchange	30	$1,000.00	each/year
	Construct New Bridge (where there was none)	30	$0.25	square ft/year
	Replace or Improve Minor Structure	20	$0.00	
	Upgrade Bridge Rail	10	$0.00	
ROADWAY AND ROADSIDE				
301	Widen Shoulder	20	$500.00	per foot-mile/year
302	Widen Travel Lanes to PreConstruction Manual Standard	20	$500.00	per foot-mile/year
303	Install Median Barrier	20	$1.00	linear ft/year
304	Install Raised Median	20	$1.00	linear ft/year
305	Close Median Opening	10	$0.00	
306	Install Rumble Strips on shoulders	10	$0.00	
307	Flatten Horizontal Curves	20	$0.00	
308	Flatten Crest Vertical Curves	20	$0.00	
309	Relocate Non-Crashworthy Utility Poles from within to beyond clear zone.	20	$0.00	
310	Flatten or Regrade Side Slopes	20	$0.00	

Alaska DOT&PF
Highway Safety Improvement Program

Project Life and M&O Costs
for Various Improvements

Imprv. No.	*Type of Improvement*	*Project Life* (From 1996 HSIP Annual Report)	*M&O Cost* (From ADOT&PF Sources)	
			Amount	***per Unit***
311	Install Shoulder Guardrail	10	$1.00	linear ft/year
312	Remove Obstacles	20	$0.00	
313	Install Impact Attenuators on rigid objects	10	$200.00	each/year
314	New Curve Warning Signs and Delineators	6	$80.00	sign/year
315	Signs, markings, delineators at narrow bridges	6	$80.00	sign/year
316	Install New Continuous Illumination	15	$270.00	lum/year
317	Install Centerline Rumble Strips (45 MPH and above)	10	$0.00	
	Add Lanes	20	$6,000.00	lane-mile/year
	Install Breakaway Sign Supports	10	$0.00	
	Install Breakaway Utility Poles	10	$0.00	
	Install Guardrail End Treatment	10	$100.00	each/year
	Upgrade Guardrail	10	$0.00	
	Upgrade Median Barrier	15	$0.00	
	Install Bridge Approach Guardrail Transition	10	$0.00	
PEDESTRIAN AND BICYCLE SAFETY				
401	Construct Sidewalk	20	$0.20	linear ft/year
402	Construct Pedestrian and Bicycle Overpass/Underpass	30	$0.25	square ft/year
403	Install Countdown Timer Pedestrian Signals	10	$0.00	
404	Install Mid-block Signal Controlled Pedestrian Crossings	10	$2,500.00	each/year
405	Install Raised Pedestrian Crossings (Speed Tables)	20	$0.00	
406	Install Pedestrian Refuge Islands	20	$1.00	linear ft/year
407	Install Dedicated Bicycle Lanes	20	$500.00	per foot-mile/year
	Install Fencing and Pedestrian Barrier	10	$0.20	linear ft/year
	Other Non-construction Bikeway Improvements	20	$0.00	
408	Install Pedestrian Hybrid Beacon	10	$2,000.00	each/year
RAILROAD-HIGHWAY CROSSINGS				
501	Upgrade from RR signs to flashers	10	$3,000.00	each/year
502	Upgrade from RR signs to gates & flashers	10	$6,000.00	each/year
503	Upgrade from RR flashers to gates	10	$3,000.00	each/year
504	Construct RR Grade Separation	30	$1,000.00	each/year
505	Install RR Crossing Illumination	10	$270.00	lum/year
506	Improve RR Crossing Sight Distance	10	$0.00	
	Install RR Signs and Markings Assbly where there was none	10	$200.00	each/year
	Install RR Crossbucks	10	$50.00	each/year
	Install New RR Track Circuitry	10	$0.00	
	Improve RR Crossing Surface	10	$0.00	
	Improve RR Crossing Alignment	10	$0.00	
	Relocate or Consolidate RR Crossings	30	$0.00	
	Relocate Highway to Eliminate RR Crossing	30	$0.00	

Highway Safety Improvement Program/Safety Management System Description and Activities List

Alaska DOT&PF and Alaska Division Office, FHWA agreed on eligible activities, April 29, 2013. It was revised on July 25, 2023.

Purpose: This document describes eligible safety activities carried out by Regional Traffic & Safety Engineers (RTSE), regional staff, and State Traffic & Safety Engineers (STSE).

Objective: To outline the eligible safety activities conducted by traffic and safety staff.

Eligible safety activities fall under either the Highway Safety Improvement Program (HSIP) or the Safety Management System (SMS). HSIP activities develop and support specific projects which consider the safety needs of all public roads, including non-State-owned public roads and roads on tribal land; guidance for the HSIP is contained in the DOT&PF *HSIP Handbook*. SMS is for non-project-related activities performed on state-owned roads and not all lead to operational changes or improvements in the system. Activities not included on the following lists should be discussed with the Division Office Safety Engineer.

HSIP is an annual program focused on developing projects to reduce the number and severity of crashes on public roads. HSIP activities consider facility performance and condition in order to nominate and construct safety improvement projects. MAP-21 amended 23 USC 148 Highway Safety Improvement Program, and provided a listing of eligible projects, strategies, and activities. The program was also amended under the IIJA/BIL of 2021.

Eligible Activities: Identifying high crash locations and other highway safety needs and proposing safety improvements to address those needs. Typical activities include proposing and constructing projects; managing the HSIP program including reporting; funding, training, and supporting regional HSIP activities. Planning documents are not eligible HSIP projects. A list of activities includes:

- Review crash data, analyze locations for safety needs
- Identify, scope and nominate safety projects
- Initiate approved regional safety projects
- Monitor and coordinate with departmental, agency, or consulting personnel during project development and construction to maintain project scope and schedule
- Evaluate project effectiveness
- Prepare regional annual HSIP report
- Conduct Road Safety Audits and operational reviews at locations considered for HSIP projects
- Coordinate with regional planning and local governments
- Assist STSEs in assessing and improving program methodology
- Support development and implementation of the Strategic Highway Safety Plan
- Conduct training on safety improvements, countermeasures, and methods used on HSIP projects strategies, and activities
- Develop crash reduction factors or computational methods for predictive crash analysis using “Before-After” studies or other means to evaluate and assess countermeasure effectiveness

- Manage the HSIP and perform activities necessary to respond to federal and state guidance and provide direction to regions about the program
- Maintain and update the *HSIP Handbook*
- Prepare and distribute crash data, crash rates, and other safety-related information
- Review, approve, and recommend qualifying projects for funding
- Manage the program to promote completing safety projects and obligating all HSIP funds
- Complete the HSIP Annual Report
- Secure federal funding for the HSIP program and prepare an annual funding plan
- Other activities that directly contributes to the identification and development of an eligible HSIP project

SMS is a highway safety system that includes managing traffic control devices and systems to maintain safety performance and decrease the potential for fatal and major injury crashes. SMS activities inventory, monitor, and assess condition and performance of devices and systems to identify appropriate responses to changes in safety performance. Inventory, monitoring, planning, evaluation, or response to operational issues that do not address safety performance are not eligible uses of HSIP/SMS funding.

Important systems include, but are not limited to: safety corridors, school zones, traffic signals, railroad crossings, all way stops, pedestrian and non-motorized crossings, flashing beacons, avalanche gates, emergency service traffic devices (for support of fire, hospital, callbox systems), evacuation route signing, and speed zones.

Eligible Activities: Working with planners and designers to consider safety countermeasures and improvements on non-HSIP projects, evaluating safety issues impacted by capacity/volume constraints and business growth activities, responding to public queries, and interpreting the *Alaska Traffic Manual* and other standards, policies, and practices. Such safety-related activities include:

- Records, Tracking - inventory and mapping of major devices, tracking performance using crash data
- School Zones - interpret policy, establish sites, inventory, map, coordinate with local governments
- Traffic Signal, All Way Stops, Roundabouts, Intersection Control Engineering
    - Inventory, assessment, application of engineering standards, inspections (QA/QC), lane evaluation, signal timing improvements, system monitoring to ensure safety and efficiency
- Speed Limits – establish, review per state policy
- Safety Corridor audit, Road Safety Audits, and operational review of regional safety concerns not associated with a project
- Access Management, planning, and other activities in the context of Long Range Transportation Plans considering safety and capacity, ROW permitting, data review
- Annual inventory and reporting of open public RR-Grade crossings
- Drafting sign layouts, concept sketches
- Gather and review crash data in support of other SMS functions or requests for information

- Provide guidance to planning/design/WZTC personnel regarding roadside design elements, signing, pavement marking, operational standards, policies and procedures, Chief Engineers directives
- Work Zone Traffic Control and Special Events (not associated with projects)
    - WZTC and temporary speed limits, field striping and signing
    - Non-project related review, approve, coordinate, write specifications
    - Permitting and traffic control plan review for special events
    - Annual work zone traffic control reviews
    - Annual work zone crash report preparation
- Support Emergency Response Services is limited to
    - Coordination and planning for incident response
    - Coordination with communities regarding Tsunami evacuation routes
    - Communication with partners such as police and M&O regarding operations of avalanche gates, road closures, Changeable Message Signs, and callbox systems
- Safety-related communication with the public, municipal agencies, and legislative bodies
- Special/Ad hoc analyses to identify specific crash problems, respond to safety concerns, support safety initiatives
- Address public requests for signing, marked crosswalks, or other traffic control devices
- Involvement with communities and agencies planning Safe Routes to Schools projects
- Departmental Traffic & Safety engineering coordination and meetings, crash data improvement, research of technical advisories, support uniform application of optional devices and treatments
- Safety and traffic engineering related training focused on national standards, best practices, tools and guidance materials used on traffic and safety improvements
- Contribute to national dialog regarding traffic control devices and safety processes such as the Strategic Highway Safety Plan, MUTCD, etc.
- Contribute to new or revised safety-related policy and procedures, guidance, and standards, such as the *Alaska Traffic Manual*, Alaska Sign Design Specifications, Standard Drawings, Specifications, etc.
- Acquire software, manuals, guidance materials and training for safety and traffic engineering activities
- Assist Department of Law staff with preparing legal defense for lawsuits related to traffic and safety lodged against the State and provide expert testimony in court, as required
- Crash data improvement and analysis
- Resolve safety-related policy questions
- Investigate highway safety problems, recommend and promote cost-effective solutions
- Provide technical assistance on traffic and safety issues
- Identify traffic and safety-related training needs
- Organize and lead an annual statewide Traffic and Safety Engineering meeting
- Promote high priority research projects and peer-to-peer interaction on safety issues involving other states; and other traffic and safety-related activities

HSIP - SUGGESTED CHECKLIST

This checklist is to help prepare for site visits about future HSIP Nominations. These factors, while not all-inclusive, should help instill confidence about why the Nomination is defensible.

TABLETOP REVIEW CONSIDERATIONS

- ☐ Identify recent and proposed projects that may affect the area. Note any opportunities for combining HSIP work with broader projects.
- ☐ Identify traffic generators for different user groups; compile data related to volumes, including any relevant seasonal or cyclical information. Note whether volumes are expected to increase or decrease within any user groups. Note especially the presence of facilities for vulnerable road users: schools, support services for individuals with disabilities, specialized housing (e.g., care facilities, age-restricted facilities), hospitals, etc.
- ☐ Note whether online resources show evidence of non-motorized use, including "goat paths", photos of people crossing the roadway either at or between legal access points, etc.
- ☐ Review relevant community planning documents.
- ☐ Review crash reports and any additional data related to near-misses or other conflicts between or among user groups.
- ☐ Identify basic demographic information and trends: e.g., predicted population increase or decrease, population age/ability, socioeconomic indicators of access to vehicles, etc.
- ☐ Note facilities for transit use, commercial vehicles, or other indications of vehicle mix.
- ☐ Review traffic and volume data.

CRASH SUMMARY

- ☐ Spot-Specific Projects: Summarize crashes seen at the location in the Nomination. Relate how the chosen countermeasure will mitigate the crashes.
- ☐ Systemic Projects: Summarize typical crashes seen at the locations in the Nomination. Relate how the chosen countermeasure will mitigate the typical crashes. While visiting the example site, detail which "typical crashes" have occurred at the location.

MAP COMPONENTS

- ☐ Note relevant special features (e.g., light poles, utilities, etc.) are located.
- ☐ Note where fatal and serious injuries have occurred in such a way that readers understand location, direction, type, and severity of the crash.
- ☐ Note any relevant observations made from previous site visits. Include the time and date the observations were made.
- ☐ Include any relevant signs (e.g., speed limit signs, warning signs, school zone signs, etc.).
- ☐ Include typical map components such as north arrow, street names at a legible scale, etc.

CHOSEN COUNTERMEASURE

- ☐ Describe the countermeasure within the context of the area.
- ☐ Describe why this countermeasure was chosen.
- ☐ Describe if there is any local support for this countermeasure.
- ☐ Describe if there is any local opposition for this countermeasure.
- ☐ Describe any potential conflicts that might arise.

ALTERNATIVE COUNTERMEASURES

- ☐ Describe the alternative countermeasures that were considered for the location(s).
- ☐ Describe the differences between the alternative and chosen countermeasures.
- ☐ Describe if there is any local support for an alternative countermeasure.
- ☐ Describe if there is any local opposition for an alternative countermeasure.
- ☐ Describe why the alterative countermeasure(s) was not the chosen countermeasure.

Projects are funded in order of decreasing Statewide Rank until funds are exhausted.
Regions may optionally advance unfunded projects in accordance with Section 2.11.

All projects, whether obligations are planned for funding year or not, use the following Prioritization Criteria Matrix:

Criteria 1: HSIP Tunnel Vision - "Lives saved and major injuries eliminated..."
Criteria 2: HSIP Tunnel Vision - "... per dollar spent."
Criteria 3A: Prioritize starting projects with fewer elements acknowledged to delay HSIP project implementation, according to regional traffic sections. Score distribution designed to provide greater differentiation.
Criteria 3B: Prioritize projects for rapid delivery of safety improvements, but recognize quality results can take time.
Criteria 4: Scores greater than 0 added only with notes from State Traffic & Safety Engineer explaining use of the bonus score.

SCORE	Criteria 1 (70%) Crashes	Criteria 2 (70%) B/C Ratio	Criteria 3A (30%) Project Deliverability (Only **New** or **Unfunded Old** Projects)	Criteria 3B (30%) Project Duration (Only **Funded Old** Projects)	Criteria 4 (Bonus! 5%) Program Manager's Discretion
5	Ranked Projects, 3 or more serious crashes	B/C > 2.0:1	Nominations with the least risk of schedule / scope creep: no ROW, Environmental = CatX, expected public input / resistance is negligible, and low probability of unforeseen outcomes.	Phase 4 obligations planned in the funding FFY and estimated construction completion by the end of the following FFY.	Scores greater than 0 added only with notes from State Traffic & Safety Engineer explaining use of the bonus score. Scoring is subjective. Scoring for this criteria is anticipated only for the following situations, but other situations may develop requiring the use of this category: 1) Cost fitting: Raising priority just above available funding cutline. The funding cutline is established by the State Traffic & Safety Engineer in consult with Statewide Program Development. - All projects initially falling below the funding cut line are scored 0. - Project by Project, in order of ranking, the value under Criteria 4 is increased from 0 until the project rises above the cutline when sorted. - Process is repeated until no projects below the cutline fit the remaining funding gap. 2) Restrictive funding utilization: Identifying projects capable of using the program's most restrictive funding sources.
4	Ranked Projects, at least 2 serious crashes	1.0:1 < B/C ≤ 2.0:1		Phase 4 obligations planned in the next FFY.	
3	Ranked Projects with 1 serious crash **OR** Non-ranked Systemic Projects to meet nominal ATM Compliance Dates	0.5:1 < B/C ≤ 1.0:1 **OR** Non-ranked Systemic Projects that: 1) address risks for prominent crash types from the SHSP **AND** 2) have total project costs estimated less than or equal to 50% of available HSIP funding in the current year	Nominations with an expectation of schedule creep due to ROW, Environmental, public input / resistance, or other issues, but risks are foreseen and accepted.	Phase 4 obligation expected in 2 years.	
2	Ranked Projects with no serious crashes **OR** Non-ranked Projects with no serious crashes that: 1) address risks for prominent crash types from the SHSP **AND** 2) have total projects costs estimated less than or equal to 50% of available HSIP funding in the current year	0.2:1 < B/C ≤ 0.5:1		Phase 4 obligation expected in 3 years.	
1	Non-ranked Projects with 1 or less serious crashes but either a predicted crash prevention solution approved though the State Traffic & Safety Engineer or an emphasis on injury patterns	B/C not predicted - Spot Improvements	Nominations with an undesired, unexpected schedule creep, could be ROW and Environmental additions.	Phase 4 obligation expected in 4 years or more.	

SHSP Prominent Crash Types:

Safe Road Users
Pedestrians, Bicyclists Young Drivers, Older Drivers Motorcycles, All-Purpose Vehicles (Off-Road Vehicles), Snowmachines Impaired Driving, Occupant Protection

Safe Roads and Speeds
Intersections, Lane Departures, Roadway Departures Speeding

Keep Alaska Moving

State of Alaska
Department of Transportation and Public Facilities
Statewide Traffic & Safety Office
Version 1.0 (New) | May 7, 2025
For more information, please contact
Pamela.Golden@alaska.gov or
(907) 451-2283 or
visit dot.alaska.gov/stwddes/dcstraffic/hsip.shtml