Solutions Development & Evaluation: Screening Process Overview

1. Introduction

One of the overarching goals and outcomes of the McCarthy Road Planning & Environmental Linkages (PEL) study is to identify a list of recommended projects for consideration to be implemented in the future. The PEL study will develop information for a select number of recommended projects, such as calculating planning level costs, identifying potential funding sources, evaluating environmental impacts to inform and streamline future environmental review processes, and conducting some preliminary conceptual design. The goal is to prepare additional information that can help future project sponsors advance those recommended projects after the PEL study has been completed.

As discussed below, potential projects that are not included as recommended projects in the PEL study does not imply they are not important or not needed. This PEL study does not provide a comprehensive look at every particular project need or opportunity along the study corridor. Prioritization will be a part of recommending solutions to move forward.

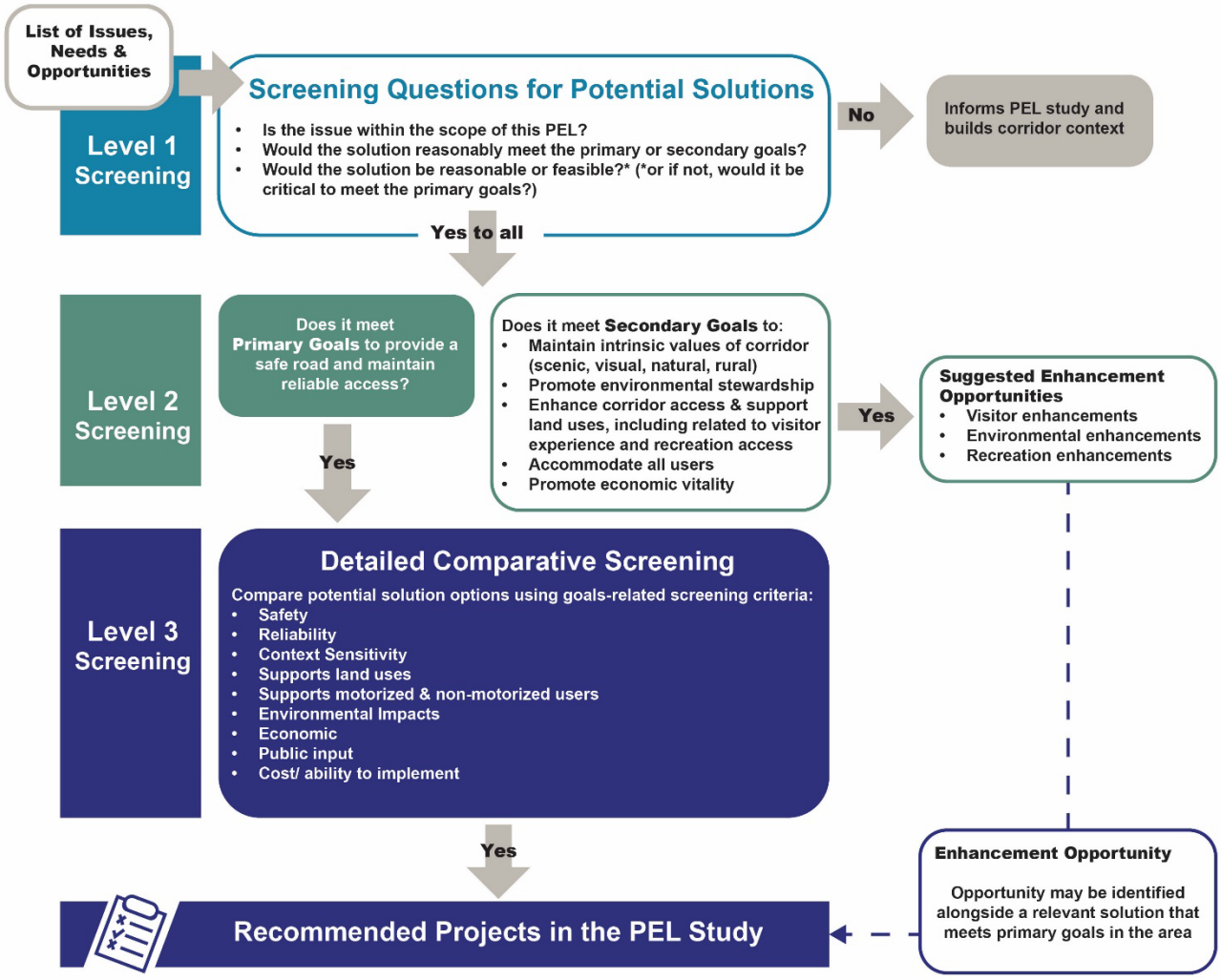
1.1 Screening Process Overview

This section describes the process for identifying and evaluating potential solutions through a screening process.

Determining what potential solution options to consider came on the heels of the Needs and Opportunities Assessment phase of this PEL study, which ran from summer of 2023 into early 2024. Drawing from that work, the PEL study team developed a screening evaluation process. The purpose of screening is to evaluate whether a potential solution option should be moved forward for more detailed evaluation and inclusion in the PEL as a recommended improvement to be implemented in the future. While the McCarthy Road corridor has numerous needs and opportunities to address, the PEL study itself will evaluate in detail only a select number of potential projects (as prioritized based on the PEL study project sponsors, public and stakeholder input).

The screening process for this PEL study consists of three levels, as shown in the following flow chart graphic (Figure 1). This process began with the baseline understanding of existing conditions, issues, needs and opportunities, previous studies and plans, and input from the public, stakeholders, and agencies (as represented as the starting point in the flowchart, identified as “Full list of Issues, Needs and Opportunities”).

Figure 1. Screening Process Flowchart



The following is an overview of the three screening levels.

- **Level 1 screening** started by sorting through the list of issues, needs, and opportunities and entailed three pass-or-fail questions. The purpose was to screen out issues and ideas that are not reasonable, not feasible, or do not meet the identified PEL study goals. Level 1 also screened out generic comments received during the first phase of the PEL study that did not fall within the scope of this PEL, though it may provide corridor context or inform the PEL study and process. A "yes" to all three questions moved a solution option forward to Level 2 screening. The following are the three questions:
  - **Question 1**: Is the identified issue or problem within the scope of this PEL?

    If an issue or problem is not within the scope of this PEL, this could mean it does not fall within the geographic boundary of the study corridor. The study corridor begins at the eastern edge of Chitina right before the road goes through the single-lane rock cut and extends nearly 64 miles to where it ends at the southern end of the Kennicott subdivision. Other examples of not falling within the

scope of this PEL include modifying agency processes that occur outside of this planning study (e.g., suggestion to fast-track permits and approvals), addressing services beyond the project sponsor's purview (e.g., trooper patrols or emergency response services), or addressing private property issues within the study corridor.

- **Question 2**: Would the solution reasonably meet the identified primary or secondary goals?

  Refer to Table 1 for a list of the primary and secondary goals and Attachment A for more details about what informed the goals and related objectives that were developed during Phase 1 of the PEL study.

  Goals guide the development and screening of potential solutions, that in turn address the identified needs and opportunities. Goals highlight the need for transportation improvements and opportunities for access enhancements. Goals can be used to develop further purpose and need statements for individual improvement projects moving forward. Table 1 shows the corridor vision, goals, and purpose and need prepared during Phase 1 of the PEL study.

Table 1. PEL Study Corridor Vision, Goals, and Needs

Important PEL Study Drivers	Description
Corridor Vision	To provide a safe road corridor and reliable access for residents and travelers on the McCarthy Road that embraces the scenic and cultural values of the surrounding environment and communities
Primary Goals	Primary goals are related to resolving a transportation need—in particular, the fundamental needs. ▪ Provide a safe road corridor ▪ Maintain reliable access
Secondary Goals	Secondary goals are related to resolving another need that supports the transportation facility or access to public lands. These reflect desirable outcomes but are not considered core. ▪ Maintain intrinsic values of corridor (scenic, visual, natural, rural) ▪ Promote environmental stewardship ▪ Enhance access and support land uses in the corridor, including related to visitor experience and recreation access ▪ Accommodate motorized and non-motorized users ▪ Promote economic vitality
Purpose and Need	**Purpose**: To provide a safe road corridor and reliable access for residents and travelers on the McCarthy Road. **Primary Transportation Needs**: ▪ To improve safety of the road corridor ▪ To improve deteriorated conditions of the road corridor and allow the road to function efficiently ▪ To improve the resiliency of the road corridor to maintain access

- **Question 3**: Would the solution be reasonable or feasible?

  Often during a transportation planning or environmental review process, if a solution is not reasonable or feasible, it is screened out. For this PEL study, the study team added a qualifier that even if an initial potential solution is not reasonable or feasible within this planning context at this time, if it would be critical to meet the primary goals (related to providing a safe road corridor and maintaining reliable access), it may still move forward in the screening process for further consideration. This scenario is primarily related to potential solutions related to addressing the two major landslide locations at both ends of the study corridor: Kotsina Bluffs between approximate milepost (MP) 1.5 to MP 3 and also at MP 58. In those locations, a potential solution might not be reasonable or feasible, but it should be retained for consideration because it may be critical or necessary for providing a safe road corridor and maintaining reliable access.

- **Level 2 screening** involved a qualitative assessment of whether the solution options that had passed Level 1 screening would have the strong potential to achieve the primary or secondary PEL study goals.
  - **Primary goals** are related to resolving a transportation need—in particular, the fundamental needs. If the option substantially helps to meet the primary goal, it is advanced into Level 3 screening for additional evaluation.
  - **Secondary goals** are related to resolving another need that supports the transportation facility or access to public lands. These reflect desirable outcomes but are not the considered core. Options largely meeting secondary goals were categorized as potential suggested "enhancement opportunities" and further delineated into one of three categories:
    - Visitor enhancements
    - Environmental enhancements
    - Recreation access enhancements
- **Level 3 screening** involved an additional screening that analyzed a series of related solutions (and sub-options) using mostly goals-related evaluation screening criteria to identify the best option within that set of solutions to move forward for recommendation to be included in the PEL study.

  These screening criteria are as follows and detailed in Table 5:

  - Safety
  - Reliability
  - Context Sensitivity
  - Environmental Impacts
  - Support Land Uses, including Visitor Experience and Recreation Enhancements
  - Motorized and Non-motorized User Accommodation
  - Economic
  - Public and Stakeholder Input and Priorities
  - Cost/Financial Feasibility and Implementation

2. Level 1 and 2 Preliminary Screening Results

2.1 Level 1 Screening Results

Several hundred distinct comments were included in the comprehensive list of issues, needs, and opportunities identified during Phase 1 of the PEL study (refer to Appendix A of the Needs and Opportunities Assessment Report [Jacobs 2024] for the comprehensive list). Many comments do not lend themselves to evaluating specific solutions nor were they relevant within the scope of the PEL study. Many other comments helped to build an understanding of the corridor and existing conditions. Table 2 includes comments, issues, and topics that did not move beyond Level 1 screening.

Table 2. Level 1 Screening Items Not Carried Forward

Level 1 Comments and Ideas	Rationale for Not Moving Forward in the PEL Study
The Chitina tunnel may need to be widened with continued increases in traffic. (MP 0.1)	Existing conditions do not indicate an immediate need to address the narrow rock cut within the scope of this PEL. Additionally, many public comments indicated the narrow rock cut reflects the historic and scenic intrinsic values of the corridor and would like to see it remain as-is.
Keep the one lane road cut, the remains of the old railroad tunnel. It adds character and history to the road. (MP 0.1)	Comment noted for understanding corridor context.
Keep the Kuskalana Bridge as a one lane bridge. The history of the railroad corridor is important. The bridge is beautiful and amazing. People can wait a few minutes for their turn to cross. (MP 17)	Comment noted for understanding corridor context.
Historic railroad trestle near Gilahina bridge is a dilapidated safety hazard and will eventually fall. Bridge replacement solutions could involve historic preservation as some portions of the trestle might still have some integrity.. (MP 29)	Comment noted for understanding corridor context and understanding existing conditions and constraints.
The drinking water spring should be protected. There are not many places from the road to access spring water. (MP 36.4)	Comment noted for understanding corridor context and understanding existing conditions and constraints.
Mark the boundary of river and uplands with signs so that people do not infringe on the upland owners in this area. (MP 44.2)	Comment noted for understanding corridor context, though addressing private property issues is beyond the scope of the PEL study.

Level 1 Comments and Ideas	Rationale for Not Moving Forward in the PEL Study
Owners have built right out to the edge of the road with vehicles parked everywhere. I've had them throw rocks at my trailer because there was dust and I was only doing 15MPH. There should be a [right-of-way] ROW enforced there. (MP 45.2)	Comment noted for understanding corridor context, though addressing private property issues is beyond the scope of the PEL study. Speed and dust are common issues mentioned by the public that will be a consideration in the PEL study.
Several comments addressed access within and to the Sage Subdivision, including the desire to develop an access road from the McCarthy Road to properties (via Wisdom Way and Wise Woman Way), and a suggestion to construct a parking area to prevent parking along McCarthy Road. (MP 55)	Road improvements beyond the McCarthy Road are outside of the scope of the PEL study. Constructing parking areas along the McCarthy Road for private residences is beyond the scope of the PEL study.
Make it easier for elderly to get where they are going. They shouldn't have to drag luggage through gravel and over a bridge. Offer this as a service. (MP 59.3)	Offering luggage shuttle service is outside of the NPS and DOT&PF jurisdictions and missions.
Fast track the process between National Park Service (NPS) and Alaska Department of Transportation (DOT&PF) to provide DOT&PF the authority to work on the road next to the swimming hole. This is one of several locations where the road is located outside of the road ROW. (MP 59.5)	Comment noted for understanding corridor context. This is one of the focus areas being looked at in greater detail.
Protect the public water source for McCarthy residents. It is utilized by local community and visitors. (MP 59.6)	Comment noted for understanding corridor context and understanding existing conditions and constraints.
The roads in McCarthy are owned by the public. Public access shall be maintained. This road is a public thoroughfare and meant for public use in McCarthy. No one can claim rights to it as private. McCarthy Lodge LLC purports to own a portion of a public road.	Comment noted for understanding corridor context. Road issues beyond the McCarthy Road are outside of the scope of the PEL study.
At the vehicle turnaround there are two possible ROWs. The State's 100-foot ROW or the landowner's 40-foot ROW. There are large rocks that force vehicles onto NPS land and we are asked to pay user fees for our shuttles. Rocks should be removed.	Comment noted; however, the vehicle turnaround section near Kennicott is outside of the PEL study area.
Build a school in McCarthy-Kennicott area. There are over 16 children, school aged.	Comment noted for understanding corridor context; however, this is an issue outside of the scope of the PEL study, which is focused on transportation-related improvements.
McCarthy gets Community Grant monies from the State and a portion of that could be used in a joint effort with DOT&PF to do roadwork repairs. The grant monies are allowed for public road maintenance per the grant.	Comment noted for understanding corridor context and potential joint funding opportunities.

Level 1 Comments and Ideas	Rationale for Not Moving Forward in the PEL Study
NPS' mission to invite tourists should not infringe on residents' right to drive their own vehicles. NPS should build a parking lot for visitors. (MP 64)	Visitor parking considerations at Kennicott is outside of the scope of the PEL study; it is addressed in other management plans related to the NPS National Historic Landmark.
The road should be *completely redesigned* with the goal of maintaining a two-way, year-round road where vehicles can safely travel an average of 65 MPH from Chitina to McCarthy and cyclists can safely travel alongside vehicles. DOT&PF should prioritize completing the design and pre-construction planning and dedicate full-time staff to secure federal funding for improvements.	Reconstructing the road to a 65-mile per hour-design speed standard is considered not reasonable at this time nor does it align with one of the developed goals to maintain the intrinsic values of the corridor, given other potential solutions to improve the road.
Eliminate access to the McCarthy Road and make it a biking, hiking trail only. Allow fly-in only to McCarthy Road for all of the pilots and their private airstrips. This will also benefit people seeking to eliminate motorized vehicles on McCarthy Road.	Removing the road and converting it to a trail only is considered not reasonable, and it does not align with the primary goals.
Alaska Railroad should build a railroad with flagstop services along the McCarthy Road.	Constructing railroad infrastructure and operating rail service is considered not reasonable, and it does not align with the primary goals.
Several submitted comments were related to the need for providing services, such as patrolling and emergency responses. ▪ There needs to be support for local emergency response, first responders for traffic accidents and search and rescue efforts for this remote area experiencing traffic increases. The plan must address emergency response times because current capacity is not adequate to manage local needs. ▪ We need the troopers to enforce speed limits occasionally to get the word out that the road is patrolled.	Comment noted for understanding corridor context and existing conditions; however, these kinds of services are beyond the scope of improvements to be evaluated within the scope of the PEL study.
Numerous comments described the beauty, meaning, and experience driving the road.	Comment noted for understanding corridor context and existing conditions.
There is lots of evidence along the corridor that could be highlighted to tell the story of the historic railway route.	Comment noted for understanding corridor context and general consideration of potential visitor enhancement opportunities such as waysides and interpretive panels.
We should pave the road to McCarthy. We have the largest national park in the country and almost no way to access it. McCarthy/Kennicott stands out as a great tourist attraction which will enrich and revitalize all communities in the area that have been struggling since the oil boom days have waned. Pave it.	Comment noted; however, paving the roadway is not considered reasonable at this time, given other potential solutions to improve the road.

Level 1 Comments and Ideas	Rationale for Not Moving Forward in the PEL Study
Increase road improvements and regular road maintenance to the extent that drivers can expect to travel at the posted speed limit for the entirety of the 60-mile road, year-round.	Comment noted; however, regular maintenance of the road year-round to include regular winter maintenance is not considered reasonable at this time, given the challenges with meeting the maintenance needs of regularly maintaining it during the summer season only.
The Edgerton Highway is in poor quality and in need of resurfacing from Kotsina River and Chitina. As we increase usability of the McCarthy Road, this will increase use of the Edgerton Highway and other highways leading to it. We need to make sure regular maintenance occurs of the Edgerton Highway.	Even though the usage of McCarthy Road is tied to the Edgerton Highway, the Edgerton Highway is outside of the direct geographic scope of the PEL study. The project sponsors (Western Federal Lands, DOT&PF, and NPS) selected the boundary of the PEL study corridor because extending it beyond the approximate 64 miles makes it too long for this study. For context consideration, the two roadways will be noted they are linked together. Additionally, the DOT&PF will be repaving part of the Edgerton Highway during the summer of 2024.

2.2 Level 2 Screening Results

For potential solution options passing Level 1 screening, the options were vetted by asking whether the option substantially met primary or secondary goals. Solution options largely addressing primary goals related to safety and maintaining reliable access moved forward into Level 3 screening for additional evaluation. Solution options largely meeting secondary goals were categorized as potential suggested enhancement opportunities related to enhancements for visitor experience, the environment, or recreation. These are improvements that do not fall under DOT&PF purview as typical transportation construction projects.

Table 3 lists the suggested visitor or recreation enhancement opportunities or issues that passed Level 1 screening, though they are not being evaluated in-depth in the PEL study because they are not solutions to resolving fundamental transportation needs. The lack of additional analysis of these potential enhancements does not diminish the importance of them to users of the roadway. They are listed here for future consideration, beyond the PEL study or possibly in conjunction with a potential transportation-centric improvement. For the most part, suggestions for additional parking, pullouts, or waysides were considered enhancements unless data and public input described otherwise that they were related to safety.

Table 3. Level 2 Screening: Suggested Visitor or Recreation Enhancements

Approx. Location (MP)	Enhancement Type	Comment or Suggestion Provided by the Public and Stakeholders
1	Visitor: parking	Widen road to increase roadside parking, especially for dipnetting season.
1.1	Visitor: services	This area is full of dip netters in summer. Install outhouses and trash cans to prevent human waste and trash from polluting the river.
1.2	Visitor: services	Will DOT&PF be providing trash dumpster services again? In the summer? A pay system run by a local business like at Long Rifle?
1.2	Visitor: signage	Opportunity to create an entrance statement (e.g., install "Welcome to McCarthy Road" sign).
5.0	Visitor: wayside, pullout	Expand and create a proper turnout for views above the Chitina River. Include picnic tables and possibly outhouses.
10.3	Recreation: lake access	Access to Strelna Lake [The specific type of access improvement was not specified in the public comment.]
11	Recreation: lake access	Access to Silver and Van Lakes. Consider constructing a public boat ramp at Silver Lake, there is public access to the lake, but it ends with an abrupt edge that does not allow any boat launch.
12.3	Recreation: lake access	Access to Sculpin Lake [The specific type of access or improvement not specified in submitted public comment.]
14.5	Visitor: services, parking; Recreation: trail	Improve and create a better parking area for those accessing the Nugget Creek Trail. Include outhouses and trash bins.
17	Recreation: trail	New potential trail: The ridge line on the west side of the Kuskulana River has potential for a good hiking trail. There is parking and an outhouse at the Kuskulana River bridge.
17	Visitor: pullout	Expand and improve the turnout so that multiple cars can stop to take pictures.
28.5	Recreation: trail	New potential trail: Many years ago, a commenter discovered an abandoned campground on the west bank of the Gilahina River 0.5 mile or so to the south of the bridge and wayside where the road crosses the Gilahina. There is a 4-wheel drive road blocked by bollards between the wayside and the campground. Beyond that is a well-travelled game trail that leads south along the ridge to the convergence of the Gilahina and Chokosna rivers. At that point, both rivers are in deep, steep sided canyons, and the point of land at the fork of the Y between the two canyons affords a spectacular view of both. After seeing deteriorating flags marking potential improvements, the commenter called the NPS, and was told a trail had been planned, but that there was no funding to build it. The commenter says that NPS should consider unblocking the campground for visitor use.
34.8	Recreation: trail	Crystalline Hills Trailhead (between MP 34 and 35) is popular with the public and is one location that could use trailhead enhancements.

Approx. Location (MP)	Enhancement Type	Comment or Suggestion Provided by the Public and Stakeholders
46.5	Recreation: trail	If the road along Long Lake is re-routed, after realignment convert two miles of the McCarthy Road (Miles 46.5 - 48.5) to a public trail.
47.4	Recreation: lake access	Create a dedicated visitor access to Long Lake, not just the local parking along the road edge. This could be a great spot for other people to access Long Lake.
50.5	Visitor: wayside, pullout	The best view of Mt Blackburn and Castle Peak from the McCarthy Road. (Weather permitting) SPECTACULAR! I agree that a turnout for photos of Mt Blackburn and The Castle would be a nice addition to the road trip. The view of Mt Blackburn is first class, and if possible, a turnout for photos would be a very nice upgrade.
58.5	Visitor: parking	Facilitate parking and transition to the pedestrian bridge.
58.5	Recreation: signage	Consider making a more prominent sign for the West Kennicott Glacier Trail. I've talked to multiple people who don't see the trailhead because it's hidden by parked vehicles and go on private property to access the trail, which is not ideal.
59.4	Recreation: trail	Provide a separate bike/walking trail along the corridor from the river to road junction for McCarthy. Separate the walkers/bikes/dogs from the vehicle traffic.
59.5	Visitor: parking	Parking is needed in the vicinity of the swimming hole.
59.6	Recreation: access, trailhead	There is an NPS interpretive plan for this area in the vicinity of the existing outhouse; it has been approved conceptually but not funded. A trailhead is anticipated and the area could be considered in the future as a community "recreation hub." There is a conceptual trailhead that would be located north of the outhouse/wayside.
59.6	Visitor: parking	Create a one-vehicle pullout near the water source of clear creek for access to the local water supply, so vehicles don't block the roadway.
60 to 64	Visitor: parking	Parking is needed in McCarthy, Kennicott, and in between. At the end of the public road ROW, consider the historic avalanche path in light of a potential parking location and/or shuttle bus turnaround.
60	Visitor: interpretation opportunity	This location is the old dike put in to protect the old railbed from glacier runoff. There is opportunity to provide interpretation of this road history as a railbed. This is a part of the McCarthy Road story.
63	Visitor: signage	Request DOT&PF to place a sign at the end of the McCarthy Road at the south end of the Kennicott subdivision and National Historic Landmark [NHL] stating the "State Road Ends Here". Request NPS place a sign at the end of the McCarthy Road at the south end of the Kennecott subdivision and NHL stating "No Visitor Parking within the Kennicott subdivision and National Historic Landmark"
Entire corridor	Visitor: signage	Replace missing and damaged mile markers.

Approx. Location (MP)	Enhancement Type	Comment or Suggestion Provided by the Public and Stakeholders
Entire corridor	Recreation: trail	The McCarthy Road Scenic Corridor Plan (NPS, DNR, and DOT&PF 1997) recommended a multi-use trail that paralleled the roadway between Chitina and McCarthy. There is interest in conducting an alternative analysis to evaluate pedestrian access improvements along the entire study corridor to improve the experience and safety for road users.

Table 4 lists the suggested environmental enhancements to improve fish passage, mostly related to culverts. These enhancements could be incorporated as part of the proposed drainage or roadway improvements. The Alaska Department of Fish and Game (ADF&G) and the non-profit Copper River Watershed Project (CRWP) both have assigned prioritization rankings based on the condition and need to improve fish passage in a particular location, as reflected in Table 4. Refer to the fish passage discussion in the *Needs and Opportunities Assessment Report,* Section 6.2.5 (Jacobs 2024).

Table 4. Level 2 Screening: Suggested Environmental Enhancements (Fish Passage Improvements)

Approx. Location (MP)	Crossing Name	Culvert Identifier Number (and Rating or Priority Designation) [a,b]
14.8	Strelna Creek	ADF&G: 20101840 (gray); CRWP: Mc17 (Priority II)
24.6	Chokosna Lake outlet	ADF&G: 20101839 (red); CRWP: Mc16 (No priority)
25.8	Chokosna River Tributary	ADF&G: 20101838 (green); CRWP: Mc15 (Priority: II)
27.2	Chokosna River Tributary	ADF&G: 20101836 (green); CRWP: Mc13 (Priority IV)
27.2	Chokosna River Tributary	ADF&G: 20101835 (red); CRWP: Mc12 (Priority IV)
27.4	Chokosna River Tributary	ADF&G: 20101834 (red); CRWP: Mc11 (Priority III)
40.2	Ruth Lake Creek	ADF&G: 20101833 (red); CRWP: Mc10 (Priority III)
41.2	Crystal Creek	ADF&G: 20101832 (red); CRWP: Mc09 (Priority II)
45.3	Long Lake Creek/Outlet	ADF&G: 20101831 (red); CRWP: Mc08 (Priority II)
45.5 to 47.5	Long Lake (not a culvert)	McCarthy Road travels along Long Lake, which provides very important salmon spawning habitat.
47.9	Long Lake Creek/Tributary	ADF&G: 20101830 (gray); CRWP: Mc07 (Priority II) (ADF&G identifies this culvert as a high priority for replacement).
49.6	Long Lake Creek/Tributary	ADF&G: 20101829 (red); CRWP: Mc06 (Priority IV)
50.4	Unnamed	ADF&G: 20101828 (red); CRWP: Mc05 (Priority IV)
51.9	Unnamed	ADF&G: 20101827 (red); CRWP: Mc04 (Priority III)
53.5	Tractor Creek	ADF&G: 20101826 (red); CRWP: Mc03 (Priority IV)
56.2	Swift Creek	ADF&G: 20101825 (red); CRWP: Mc02 (Priority III)

Approx. Location (MP)	Crossing Name	Culvert Identifier Number (and Rating or Priority Designation) [a,b]
57.2	Unnamed (Tributary to Swift Creek)	ADF&G: 20101824 (red); CRWP: Mc01 (Priority III)
59.5	Swimming Hole	ADF&G: 20103766 (red); CRWP: Ken02 (Priority IV)
59.8	Clear Creek	ADF&G: 20103765 (red); CRWP: Ken01 (Priority II)

Source: Jacobs 2024, Table 6-2, Existing or Potential Fish Passage Crossing Locations in the Study Corridor

[a] ADF&G assigns the culvert a fish passage site number and rating as either green, gray, red, or black. Ratings are based on several features, including culvert measurements (e.g., type, slope, outfall height, constriction, and other physical parameters) and stream channel and juvenile salmonid passage.

- A *green* rating means the culvert is assumed to be adequate for juvenile fish passage.
- A *gray* rating means the culvert may be inadequate for juvenile fish passage.
- A *red* rating means the culvert is assumed to be inadequate for juvenile fish passage.
- A *black* rating means the culvert is unable to be rated because of lack of information or safety concerns, or the culvert has been replaced and not reassessed.

[b] The non-profit CRWP assigns priorities to culverts based on culvert conditions (e.g., construction, perch, and velocity) and ecological conditions (e.g., quantity and quality of fish habitat, and fish presence).

- A priority of *I* indicates a higher ecological condition and worse culvert condition.
- A priority of *II* indicates a higher ecological condition and better culvert condition.
- A priority of *III* indicates a lower ecological condition and worse culvert condition.
- A priority of *IV* indicates a lower ecological condition and better culvert condition.

2.3 Level 3 Screening

Most of the Level 3 screening involves a comparative analysis of solutions using goals-related evaluation criteria to identify the best option within a set of solutions to move forward for recommendation in the PEL study. Potential solutions have been preliminarily identified and are the key focus of the second public meeting series set for July 2024. After the public meeting series and as concept design gets underway,, the study team will complete the Level 3 screening; results will be included in a memo.

Solutions are largely grouped into focus areas—in most instances, geographic focus areas; these include the following:

- Roadway cross-section/drainage improvements (corridor-wide)
- Slide location improvements
    - Near MP 0.5
    - Kotsina Bluffs (MP 1.5 to 3)
    - MP 35
    - MP 58
    - Slide area south of the Kennicott Subdivision
- Gilahina Bridge (MP 29)
- Long Lake (MP 44 to 48.5)
- Kennicott River bridge crossing (MP 59.3)
- Swimming hole vicinity (MP 59.5)

Several exceptions exist for a few select items that moved into Level 3 from Level 2 screening but did not advance. These are denoted as follows, including the rationale for not moving forward in the PEL study:

- Copper River bridge (MP 1.2): DOT&PF bridge design engineers indicated seismic concerns that are planned to already be addressed within the next few years. Other issues to be addressed include the need for slope stability, possible future bridge abutment work, and erosion control on the downside slope of the road. Pedestrian travel occurs on the bridge. Existing riprap armoring has been observed to be in fair condition with minor repairs needed. These items are likely to be addressed within an existing program or funding and were not analyzed in detail in the PEL study.
- Kuskulana bridge (MP 17): This bridge is not pedestrian friendly, with its narrow width. The bridge is fracture critical (e.g., not redundant). This item was not advanced for additional consideration based on other key focus areas.
- All public vehicle bridges in the corridor: None of the road bridges along the study corridor have a dedicated space for pedestrians. Several of the bridges do not meet pedestrian barrier safety requirements. This comment was made by the study team during the June 2023 site visit. The public did not provide comment regarding pedestrian issues for every public vehicle bridge in the road corridor. This PEL study will not be identifying pedestrian barrier safety requirements.

Table 5 lists the PEL study's goals, objectives, Level 3 evaluation criteria and associated screening metrics, and an explanation of the scoring and ratings to be used for each evaluation criteria.

In Table 5, the first two rows of the evaluation criteria and their associated objectives and screening metrics focus on evaluating the potential solutions against the primary goals (main purpose and need) for improvements. These measures will help address the primary transportation need to improve the safety of the road corridor, improve deteriorated conditions of the road corridor to allow the road to function more efficiently, and to improve the resiliency of the road corridor to maintain access. The measures address roadway elements that are inadequate and do not meet design standards, focus on improving the deteriorated roadway conditions, and improve the protection of the road and bridge infrastructure from natural hazards.

For the most part, the remaining categories of evaluation criteria in the table examine the types of impacts the potential solutions have on secondary goals related to community and environmental impacts as well as constructability and cost. Evaluation criteria related to the primary goals are more heavily weighted and important than criteria related to secondary goals.

3. References

Jacobs. 2024. *Needs and Opportunities Assessment Report*. March. https://mccarthyroadpel.com/wp-content/uploads/2024/04/McCarthyRdPEL_NeedsOppReport.pdf.

National Park Service, Alaska Department of Natural Resources, and Alaska Department of Transportation & Public Facilities (NPS, DNR, and DOT&PF). 1997. *McCarthy Road Scenic Corridor Plan*. November.

Table 5. Level 3 Evaluation Screening Criteria and Metrics (Related to Goals and Objectives)

Goals	Objectives	Evaluation Screening Criteria	Screening Metrics	Scoring and Ratings Explanation
What do we want to achieve in the road corridor? What are we trying to address?	**How are we going to reach these achievements?**	**How well does a potential solution achieve the desired goal and objective(s)?**	**Quantitative and qualitative measures for determining how well a potential solution achieves the desired goal and objective(s).**	**A score is assigned to each sub-option within a set of potential solutions to determine which sub-option best achieves or meets the criteria.**
Primary Goal: Provide a safe road corridor	▪ Address roadway elements that are inadequate and do not meet current design standards - Narrow road width - Limited sight distance - Substandard road geometry (e.g., steep grade, road curves) ▪ Improve protection of the road and bridge infrastructure from natural hazards (e.g., land and rockslide areas, avalanches, high cutbanks, steep banks/drop-offs) ▪ Reduce safety-related conflicts between user groups (e.g., pedestrians/ATVs)	**Evaluation Criteria 1: Safety** ▪ Degree to which the safety issues are addressed and minimized ▪ Degree to which the solution helps to prevent roadway closure; this is related to resiliency and the ability to proactively manage risks, minimize disruptions, and adapt to changing conditions—in particular, the natural hazards. Considers the degree to which longer-term or shorter-term closures would be minimized.	▪ Number of miles of inadequate cross sections addressed ▪ Number of locations or miles where sight distance is improved ▪ Number of substandard vertical or horizontal curves improved ▪ Number of steep grades reduced ▪ Number of known conflict location points improved or removed *(This metric also falls within the Motorized/Non-motorized User Accommodation criterion.)* ▪ Number of locations improved where a previous geo-event (e.g., landslide/embankment failure, rockfall, flooding) has been recorded (per DOT&PF's Geotechnical Asset Management [GAM] database) *(This metric also falls within the Reliability criterion.)* ▪ Is the proposed solution located in an area where a future geo-event or hazard (e.g., slope failure) would be more likely to occur but may be mitigated or avoided by improvement? (e.g., a known unknown) (low, medium, high)	5: Substantially addresses safety issues and/or hazards. 3: Minimally to moderately addresses safety issues and/or reduces risks from hazards. 1: Does not address safety issues nor reduces risks from hazards.
Primary Goal: Maintain reliable access	▪ Improve infrastructure that is in poor condition (e.g., road, bridges, culverts) ▪ Address deteriorated physical conditions of the road resulting from: - Dust, overgrown brush - Poor road surface (e.g., high float surface versus gravel) - Drainage, erosion, poor soils - Glaciation over roadway during winter ▪ Improve protection of the road and bridge infrastructure from natural hazards	**Evaluation Criteria 2: Reliability** ▪ Degree to which infrastructure is improved and is in a state of good repair - Degree of improvement to poor, deteriorated roadway - Degree of improvement to roadway drainage ▪ Degree to which the solution helps to prevent roadway closure. Considers the degree to which longer-term or shorter-term closures would be minimized.	▪ Number of miles of improved roadway surface conditions and drainage ▪ Number of culverts or bridges improved ▪ Number of locations or miles where issues such as dust or overgrown brush area addressed *(This metric also falls within the Safety criterion.)* ▪ Number of locations improved where a previous geo-event has been recorded (per DOT&PF's GAM database) *(This metric also falls within the Safety criterion.)* ▪ Is the proposed solution located in an area where a future geo-event or hazard (e.g., slope failure) would be more likely to occur but may be mitigated or avoided due to the improvement? (e.g., a known unknown) (low, medium, high)	5: Substantially improves conditions and/or reduces risks from hazards. 3: Minimally to moderately improves existing conditions and/or reduces risks from hazards. 1: Does not improve existing conditions nor reduces risks from hazards.
Secondary Goal: Maintain intrinsic values of corridor (scenic, visual, natural, rural)	▪ Provide road/infrastructure improvements that are context sensitive (e.g., support the intrinsic values of the corridor)	**Evaluation Criteria 3: Context Sensitivity** ▪ Ability to maintain community context (such as historic road character or natural setting) ▪ Solution is consistent with the vision for the road corridor	▪ Qualitative assessment of overall impacts to the scenic, visual, natural, and rural setting	5: Positively contributes to overall corridor setting and vision. 3: Minimal to no overall change to corridor setting and vision. 1: Negatively impacts the corridor setting and vision. 0: not applicable.

Goals	Objectives	Evaluation Screening Criteria	Screening Metrics	Scoring and Ratings Explanation
What do we want to achieve in the road corridor? What are we trying to address?	**How are we going to reach these achievements?**	**How well does a potential solution achieve the desired goal and objective(s)?**	**Quantitative and qualitative measures for determining how well a potential solution achieves the desired goal and objective(s).**	**A score is assigned to each sub-option within a set of potential solutions to determine which sub-option best achieves or meets the criteria.**
Secondary Goal: Promote environmental stewardship	▪ Avoid or minimize adverse environmental impacts ▪ Enhance the natural, cultural, historical, and built environment (e.g., improve fish passage and therefore salmon habitat)	**Evaluation Criteria 4: Environmental Impacts** ▪ Ability to avoid and minimize biological impacts (e.g., wetlands) ▪ Ability to avoid and minimize cultural resources impacts ▪ Ability to avoid and minimize community impacts ▪ Considers whether the project stays within the DOT&PF ROW or requires additional ROW to be acquired	▪ Potential wetland impacts (acres) ▪ Recorded historical sites (e.g., Alaska Heritage Resources Survey sites) potentially directly or indirectly impacted ▪ Number of fish passage culverts (anadromous streams) improved ▪ Ability to get through environmental permitting and clearances ▪ Community and cumulative impacts ▪ Acreage of ROW needed (outside of the existing 100-foot ROW)	5: Has lower environmental impacts. 3: Has moderate environmental impacts. 1: Has higher environmental impacts.
Secondary Goal: Enhance access & support land uses in the corridor, including related to visitor experience & recreation access	▪ Enhance access to destinations within the corridor (e.g., recreation, businesses, communities) - Provide adequate and visible signage - Provide adequate pullouts (for both safety and visitor experience) - Provide restroom facility/ trash bins - Expand recreational opportunities (e.g., trails, access to lakes)	**Evaluation Criteria 5: Support Land Uses, including Visitor Experience and Recreation Enhancements** ▪ Ability to incorporate visitor and/or recreation enhancements to support existing land uses ▪ Provides improvements that are consistent with previous land use and transportation plans and studies	▪ Does the solution provide an opportunity to incorporate enhancements, including those related to visitor experience and recreation access? ▪ Are improvements consistent with previous land use and transportation plans and studies?	5: Solution aligns with related plans and studies, enhances access and supports land uses, and incorporates visitor or recreation enhancements. 3: To a lesser degree, the solution aligns with related plans and studies, enhances access and supports land uses, and incorporates visitor or recreation enhancements. 1: Solution might not align with related plans and studies, nor enhance access and support land uses, nor incorporate enhancements. 0: not applicable.
Secondary Goal: Accommodate motorized and non-motorized users	▪ Consider both motorized and non-motorized users	**Evaluation Criteria 6: Motorized and Non-motorized User Accommodation** ▪ Degree to which the solution accommodates all users ▪ Degree to which conflict location points among users are improved	▪ Are known conflict location points improved or removed? *(This metric also falls within the safety goal metrics.)*	5: Substantially improves conflict points or removes them. 3: Minimally to moderately addresses conflict points. 1: Does not address known conflict points. 0: not applicable.
Secondary Goal: Promote economic vitality	▪ Maintain or improve traveler movement, including for residential, commerce, tourism, and recreation access ▪ Consider solutions with positive economic benefits for local communities	**Evaluation Criteria 7: Economic** ▪ Degree to which the solution supports economic vitality	▪ Does the solution enhance recreational or visitor experience-related opportunities in the corridor? ▪ Degree to which the solution helps to prevent roadway closure so residents and travelers have reliable residential, commerce tourism, and recreation access	5: Substantially incorporates enhancements and reduces risk of road closure. 3: Minimally to moderately incorporates enhancements and reduces risk of road closure. 1: Does not incorporate enhancements nor reduce risk of road closure. 0: not applicable.

Goals	Objectives	Evaluation Screening Criteria	Screening Metrics	Scoring and Ratings Explanation
What do we want to achieve in the road corridor? What are we trying to address?	**How are we going to reach these achievements?**	**How well does a potential solution achieve the desired goal and objective(s)?**	**Quantitative and qualitative measures for determining how well a potential solution achieves the desired goal and objective(s).**	**A score is assigned to each sub-option within a set of potential solutions to determine which sub-option best achieves or meets the criteria.**
Not applicable	Not applicable	**Evaluation Criteria 8: Public and Stakeholder Input** ▪ Degree to which public and/or stakeholders commented on the issue/location and gives general support for the solution	▪ Degree to which the solution is compatible with community and stakeholder goals and public comment	5: Perception solution is publicly supported or strongly supported. 3: Solution has limited public input, so it is neither strongly supported nor unsupported by the public. 1: Solution is contentious.
Not applicable	Not applicable	**Evaluation Criteria 9: Cost/Financial Feasibility and Implementation** ▪ Degree to which the cost of improvement is consistent with the benefits it provides (e.g., meets primary goals) ▪ Does the solution reduce maintenance and operations (M&O) costs? (shifting existing M&O funds elsewhere) ▪ Ability to leverage partnerships and access multiple and/or unique funding sources ▪ Is project cost (capital investment) within the realm of possibility for current funding, or will special dedicated funding be required?	▪ Is the scale of the project consistent with the benefits it provides? ▪ What is the planning level project construction cost? ▪ Is the solution reasonable or feasible (or critical to meet the primary goals)? ▪ Are M&O costs lower, moderately the same, or higher? ▪ What is the potential to combine (bundle) an improvement option with a similar, nearby improvement?	5: Solution has a lower cost comparatively and potential to be more easily implemented. 3: Solution has a moderate cost and/or moderate level of difficulty to implement. 1: Solution has a high cost and/or may be difficult to implement.

Attachment A: Corridor Vision Statement and Goals

This section includes the corridor vision statement and goals that were prepared during Phase 1 of the Planning & Environmental Linkages (PEL) study, based on public and stakeholder input. This information showcases the background leading toward the development of the goals, objectives, and evaluation screening criteria and metrics.

A1. Corridor Vision Statement

A1.1 PEL Study Corridor Vision Statement

Public and stakeholder input, previous studies and plans, and project partner mission statements influenced the development of the McCarthy Road PEL study corridor vision statement.

The corridor vision statement developed for the McCarthy Road PEL study is as follows:

> To provide a safe road corridor and reliable access for residents and travelers on the McCarthy Road that embraces the scenic and cultural values of the surrounding environment and communities.

Based on feedback from the project advisory committee (PAC) meeting held on November 16, 2023, the text "and communities" was added to this statement. That addition was included in the statement that was made available to the public for comment during the first public meeting for the PEL study, which was held from November 29, 2023, to January 10, 2024. Subsequent to the public meeting the text "on the McCarthy Road" was added for specificity.

A1.2 Previous McCarthy Road Purpose or Corridor Vision Statements

Early in the PEL study process, the public and stakeholders voiced the importance of building on previous studies and plans. Initial input from the public, particularly during the meet-and-greet the study team held with the public during the June 2023 site visit, indicated the importance of balancing roadway improvements for safe travel without impairing the surrounding human and natural environment. This was a recurring theme in previous studies and plans prepared for the road corridor. The public and project partners specifically requested the consideration of three previous planning efforts within the PEL study planning effort, as listed in Table A1.

Table A1. Prior Studies and Plans for the McCarthy Road

Prior Studies/Plans	Purpose/Vision Statements
McCarthy Road/Chitina Valley Roundtable Project Phase I-III (1999 to 2002) (LDN 2000a, 2000b, 2002)	The need for **safety** and access improvements in the corridor and the potential benefits of road improvements, including healthy growth and **economic development**.
McCarthy Road Scenic Corridor Plan (NPS, DNR, and DOT&PF 1997)	To improve public **safety** and plan for a safe park-like road that offers **visitor services and commercial opportunities** that are compatible with the cultural, scenic, and natural qualities of the area.

Prior Studies/Plans	Purpose/Vision Statements
McCarthy Road Reconnaissance Study (DOT&PF 1989)	The need to upgrade the existing road and to recommend a standard of improvement that will provide adequate **safety** and convenience for the traveling public.

Safety is a common theme across all three of these purpose/vision statements. Economic development and commercial opportunities were mentioned in two of these, whereas the other statement focused on the compatibility of the road with the surrounding scenic and cultural environment.

A1.3 Project Partner Mission Statements

The PEL study corridor vision statement reflects the three project partners' mission statements, which include the following:

- **DOT&PF's mission:** "keep Alaska Moving through service and infrastructure."
- **WFL's mission:** "improve transportation to and within Federal and Tribal Lands by providing technical services to the highway/transportation community, as well as building accessible and scenic roads that ensure the many national treasures within our Federal Lands can be enjoyed by all."
- **NPS's mission**: "The National Park Service preserves unimpaired the natural and cultural resources and values of the National Park System for the enjoyment, education, and inspiration of this and future generations. The Park Service cooperates with partners to extend the benefits of natural and cultural resource conservation and outdoor recreation throughout this country and the world."

The NPS brings a unique perspective to the transportation corridor planning process because in addition to focusing on improving transportation infrastructure, the NPS closely looks at the visitor experience and how improvements might promote, preserve, or enhance the visitor experience while minimizing impacts to the natural world.

Additionally, the **NPS' specific purpose of Wrangell-St. Elias National Park and Preserve** is:

> To maintain the natural scenic beauty of the diverse geologic, glacial, and riparian-dominated landscapes, and to protect the attendant wildlife populations and their habitats; to ensure continued access for a wide range of wilderness-based recreational opportunities; and to provide continued opportunities for subsistence use. (NPS 2016)

A2. Corridor Goals

A2.1 PEL Study Primary and Secondary Goals Overview

Goals provide a roadmap to achieving a corridor vision. Goals are broad statements that reflect a desired end state (e.g., *what do we want to achieve?*). Objectives align with goals and reflect how goals are meant to be achieved.

Goals and objectives help to guide the identification and development of potential solution options to address the identified needs and opportunities for the road corridor. The goals highlight the need for transportation and access improvements. The PEL study process defined primary and secondary goals.

- **Primary goals** are related to resolving a transportation need—in particular, the fundamental needs.

- **Secondary goals** are related to resolving another need that supports the transportation facility or access to public lands. These reflect desirable outcomes but are not the considered core.

Goals are important components of the planning and screening process. As corridor plans are developed, there is the chance that some suggested improvement options are inconsistent with the corridor vision or may create other undesirable issues. As such, goals and objectives can be drafted to guide the identification and development of possible improvement options. Goals and objectives can act as filters and screen-out options that are inconsistent with the long-term needs of the corridor. Goals and objectives will be linked to screening criteria, for which potential solution options will be screened and evaluated. These goals can be used to inform and develop future purpose and need statements for specific improvements moving forward, after the PEL study.

A2.2 PAC and Public Input on Initial List of Emerging Themes and Goals

Early in the PEL study process, the study team identified an initial list of emerging themes related to goals. These were drafted based on a review of previous studies and plans as well as initial input from the public. Table A2 shows how the PAC and public ranked these during PAC meeting 1 and public meeting 1 in the fall and winter of 2023. The public and PAC agreed on high rankings for safety and improving the road condition. Maintaining the intrinsic values of the corridor and improving road reliability were shared favorites as well.

Table A2. Public and Project Advisory Committee Ranking of Draft Goals

Emerging Themes or Draft Goals	Public Ranking	PAC Ranking
Improve safety	1	1
Improve road/infrastructure condition	2	2 (tie)
Maintain intrinsic values of corridor (scenic, visual, natural, rural)	3	2 (tie)
Improve road reliability (resiliency)	4	2 (tie)
Promote environmental stewardship	5	5
Enhance access and supporting land uses in corridor	6	7
Accommodate multiple modes of travel	7	8
Promote economic vitality	8	6

A2.3 Goals

Corridor goals were developed to more specifically outline the needs and issues of the corridor that the PEL process has identified to be addressed. These goals are based on a data-driven analysis of the existing conditions, needs, and opportunities as well as stakeholder and public input. Refer to Table 5 of the main report text for the identified goals.

A2.4 Objectives

While goals highlight "*what do we want to achieve in the road corridor?*", objectives highlight "*how are we going to reach these achievements*?" Refer to Table 5 of the main document text for the identified objectives that support the goals.

A3. References

Alaska Department of Transportation and Public Facilities (DOT&PF). 1989. *McCarthy Road Reconnaissance Study*. Project 60550. December.

Land Design North (LDN). 2000a. *McCarthy Road/Chitina Valley Roundtable Project. Phase I Report* – April 2000. Prepared for the Alaska Land Managers Forum, in conjunction with DOT&PF.

Land Design North (LDN). 2000b. *McCarthy Road/Chitina Valley Roundtable Project. Phase II Report – September 2000.* Prepared by Land Design North for the Alaska Land Managers Forum, in conjunction with DOT&PF.

Land Design North (LDN) with Chris Beck and Associates and The Andrews Group. 2002. *McCarthy Road/Chitina Valley Roundtable Project Phase III Report Final Recommendations*. Prepared for Alaska Land Managers Forum and DOT&PF. August.

National Park Service (NPS). 2016. *State of the Park Report for Wrangell-St. Elias National Park and Preserve*. State of the Park Series No. 37. National Park Service, Washington, DC. http://npshistory.com/publications/state-of-the-park/wrst-2016.pdf.

National Park Service, Alaska Department of Natural Resources, and Alaska Department of Transportation & Public Facilities (NPS, DNR, and DOT&PF). 1997. *McCarthy Road Scenic Corridor Plan*. November.