



# APPENDIX A: DOT&PF PEL QUESTIONNAIRE



Alaska Department of Transportation & Public Facilities  
PLANNING AND ENVIRONMENTAL LINKAGES QUESTIONNAIRE

**1. BACKGROUND**

**A. What is the name of the PEL document and other identifying project information?**

- Triangle Community Road Planning & Environmental Linkage (PEL) Study
- Federal Program/Project Nos.: NFHWY00769/0002(521)

**B. Provide a brief chronology of the planning activities (PEL study) including the year(s) studies were conducted.**

<b>PLANNING ACTIVITIES</b>	<b>DATE</b>
Definition of project area	Winter – Spring 2024
Collection and summary of maps, studies, and other data	Winter 2024 – 2025
Purpose and Need	Summer 2025
Recommended alternative selection criteria	Summer 2025
Basic description of environmental setting	Summer 2025
Alternatives development	Spring 2025
Alternatives screening	Fall 2025
Recommended alternatives	Winter 2025
PEL Study Report	Winter 2025 – Spring 2026

**C. Provide a description of the existing transportation corridor, including project limits, modes, number of lanes, muster, access control and surrounding environment (urban vs. rural, residential vs. commercial, etc.)**

Currently, there are no all-season roads between the communities of Utqiagvik, Atqasuk, and Wainwright.

This PEL study will identify and evaluate potential routes connecting these communities. The project aims to:

- Improve cultural and community connectivity
- Lower the cost of goods and services
- Increase health and safety benefits
- Improve access to education
- Advance workforce development opportunities

Alaska Department of Transportation & Public Facilities  
PLANNING AND ENVIRONMENTAL LINKAGES QUESTIONNAIRE

The study area is shown in Figure 1.



**Figure 1 – Proposed Study Area**

The PEL study team collaborated with local communities to identify strategies that enhance subsistence opportunities while minimizing potential impacts through thoughtful project design.

The study was coordinated under the Arctic Strategic Transportation and Resource (ASTAR) program, building on its previous work and ongoing stakeholder engagement. ASTAR is a collaborative initiative led by the Alaska Department of Natural Resources (DNR) in partnership with the North Slope Borough (NSB) and the Alaska Department of Transportation and Public Facilities (DOT&PF). The planning area encompasses the entire North Slope region, including State lands, the National Petroleum Reserve-Alaska (NPR-A), and the Arctic National Wildlife Refuge (ANWR).

**D. Who is the sponsor of the PEL study? (Could be FHWA, DOT&PF or a local agency?)**

- Alaska Department of Natural Resources (DNR)
- Alaska Department of Transportation & Public Facilities (DOT&PF)
- North Slope Borough (NSB)

Alaska Department of Transportation & Public Facilities  
PLANNING AND ENVIRONMENTAL LINKAGES QUESTIONNAIRE

**E. Who is included on the study team (Name and title of agency representatives, consultants, etc.)?**

NAME	ROLE	AGENCY
Jeff Bruno	Program Manager	DNR
Judy Chapman	Deputy Director – Division of Planning and Program Development	DOT&PF
Brett Nelson	Planning Chief, Fairbanks Field Office	DOT&PF
Doug Kolwaite	PEL Process Review	DOT&PF-SEO
Scott Evans	Director – Administration	NSB
Hina Kilioni	Port Authority Director	NSB Port Authority
David Hines	Program Manager	NSB Port Authority
Renee Whitesell	Project Manager/PEL Study Lead	DOWL
Theresa Dutchuk	Environmental Lead	DOWL
Emily Creely	Environmental Support	DOWL
Jon Wendel	Environmental Support	DOWL
Morgan McCammon	Public Involvement Support	DOWL
Jovie Garcia	Public Involvement Support	DOWL
Gary Jenkins	Engineering Lead	DOWL
Inuuteq Stotts	Public Involvement Lead	Arctic Slope Energy Services
Paul Ramert	Engineering/Geotech Support	Arctic Slope Energy Services
Joe Christopher	Environmental Support	Arctic Slope Energy Services
Samantha Smith	Environmental Support	Arctic Slope Energy Services
Kody Worley	Engineering Support – Cost Estimates	Arctic Slope Energy Services

Alaska Department of Transportation & Public Facilities  
PLANNING AND ENVIRONMENTAL LINKAGES QUESTIONNAIRE

**F. Are there recent, current, or near-future planning studies or projects in the vicinity? What is the relationship of this project to those studies/projects?**

Yes. Several previous planning, environmental, and public involvement efforts have been initiated for the study area, including:

- **National Petroleum Reserve in Alaska Integrated Activity Plan Environmental Impact Statement Record of Decision (April 5, 2022)**

Formerly known as Naval Petroleum Reserve No. 4, the NPR-A is a vast, approximately 23-million-acre area on Alaska's North Slope. In 1923, mindful of the land's conceivable petroleum value, President Hardin set aside this area as an emergency oil supply for the U.S. Navy. In 1976, in accordance with the Naval Petroleum Reserves Production Act, administration of the reserve was transferred to the Department of the Interior's Bureau of Land Management (BLM), and renamed NPR-A.

The 2022 Record of Decision (ROD) was signed to guide management of the NPR-A, to ensure it will be consistent with the 2013 Integrated Activity Plan, while including certain more protective lease stipulations and operating procedures for threatened and endangered species from the 2020 Integrated Activity Plan/Environmental Impact Statement.

This decision makes approximately 11.8 million acres (52 percent) of NPR-A's subsurface estate available for oil and gas leasing. The remaining approximately 11 million acres (48 percent), including the majority of lands within Special Areas and much of the coastal area of the NPR-A along the Beaufort Sea, are closed to oil and gas leasing under the plan in order to protect and conserve important surface resources and uses in these areas. The ROD and location of the study area within NPR-A mean BLM will be a key agency throughout this PEL process. The implications of special areas will be a key consideration through the PEL process.

- **Arctic Strategic Transportation and Resources Project, Economics/Socioeconomics Digital Library, North Slope, Alaska, June 2018 (ASRC Energy Services, Inc., and Northern Economics)**

This report was produced as part of the ASTAR program focused on economic and socioeconomic studies related to demonstrating the cumulative benefits of infrastructure projects identified through the ASTAR planning process. The scope of work included:

- Develop, maintain, and update the economic/socioeconomics digital library including documentation of why materials were selected, illustrating connections to or information from North Slope Borough planning and transportation projects, and application to the project cumulative benefits analysis and associated tool.
- Identify potential funding sources.
- Plan to coordinate with eventual development of methodology for a cumulative benefit analysis tool to drive socioeconomic benefit and potential development cost metrics
- Coordinate with North Slope Borough borough-wide and local planning processes.

Alaska Department of Transportation & Public Facilities  
PLANNING AND ENVIRONMENTAL LINKAGES QUESTIONNAIRE

The effort included an overview of the North Slope Borough economy, transportation and resource economic analyses, socioeconomic and sociocultural impact assessments, and NSB village and areawide comprehensive plan updates. The information and analysis was collected and summarized to create a digital library. The information summarized includes various programs that potentially provide funding and other types of assistance for the construction of infrastructure projects; links to and brief descriptions of major online sources of economic and socioeconomic data that can be used to support descriptions of the need for infrastructure projects, provide profiles of target populations, and demonstrate qualifications for funding; and a sample of methodological and applied studies that can assist in the planning and development of infrastructure projects.

- **Assessment of Potential Tools for Cumulative Benefits Analysis, Arctic Strategic Transportation and Resources Project, North Slope, Alaska, July 2018 (Executive Summary Added February 2019) (ASRC Energy Services Alaska, Inc)**

This report documents the results of a study to identify and assess potential tools or processes that can be used to evaluate the cumulative benefits of infrastructure projects proposed for the North Slope. The ASTAR key messages include:

- ASTAR is operating under a formal partnership agreement that established a working relationship and open dialogue between ADNDR and the NSB. This partnership helps to ensure the needs of the people and communities within the borough are reflected in ASTAR’s outcomes.
- Desired outcomes for the ASTAR project include increased cultural connectivity, reduced cost of living in area communities, decreased rehabilitation costs of the National Petroleum Reserve – Alaska (NPR-A) legacy wells, greater opportunities for development of natural resources, and increased economic activity providing job opportunities for the region.
- Unlike previous infrastructure projects, ASTAR’s review will encompass the entire North Slope region, including NPR-A, Arctic National Wildlife Refuge, and other federal lands and waters. Potential community infrastructure and regional connectivity projects may include port and other marine facilities.
- ASTAR uses a cumulative benefits analysis – advancing projects that seek to provide the greatest benefits to North Slope people and communities – rather than using the standard federal approach of assessing projects for their potential impacts (cumulative impacts analysis), which often focus on negative rather than positive outcomes.
- By identifying tangible cumulative benefits for specific infrastructure projects, ASTAR will significantly inform state and local discussions with federal agencies regarding their land management activities in the region.
- Projects that may provide the greatest cumulative benefits and receive local support will be covered in the greatest detail. This includes identifying potential funding sources, project sponsors, obstacles and challenges, and analyzing permitting and data gaps.
- Deliverables include a strategic plan with identified and detailed infrastructure projects, a cumulative benefits analysis tool, the identification of information gaps, gap-filling studies such as the construction materials survey within a subset of the NPR-A, and the health baseline summary report.

Alaska Department of Transportation & Public Facilities  
PLANNING AND ENVIRONMENTAL LINKAGES QUESTIONNAIRE

The analysis made several recommendations, including processes for project identification, project screening and prioritization, project definition and analysis, and project advancement.

- **Transportation Study Arctic Strategic Transportation and Resources Project, North Slope, Alaska July 2019 (ASRC Energy Services Alaska, Inc)**

The transportation study focuses on how freight and passengers are transported to and from the remote communities of the NSB, summarizes the economic value of the existing transportation network, identifies issues with the current network, and offers potential solutions and recommendations for improvements. The communities of Utqiagvik, Atkasuk, Wainwright, Point Lay, Point Hope, Nuiqsut, Kaktovik, and Anaktuvik Pass have unique transportation requirements due to their isolation from a contiguous road network and lack of significant marine infrastructure. Transportation to these communities includes a combination of marine, air, and overland methods. Air transportation is the only year-round method, which is costly and weather dependent. Deadhorse, the oil and gas industry hub, is connected to the Alaska highway system via the Dalton Highway, which is accessible year-round, but no roads connect any of the other communities. In the northern region of Utqiagvik, Atkasuk, and Wainwright, the need for improved marine infrastructure combined with a connecting road network was identified as a regional opportunity likely bringing the most benefit to the greatest number of residents. The Study includes community profiles for the three communities served by the Triangle Community Road, including current transportation facilities and modes, and key industries. This information will form the basis of the existing conditions and be updated for changes since 2018.

Of note, the report details the vast network of winter trails that connect many of the communities which can be traveled by snowmachine or tracked vehicles. The NSB implemented a program to construct ice roads and provide pilot car service to caravans of residents. In 2018, the CWAT project involved construction of about 300 miles of seasonal roads that connected Atkasuk to Utqiagvik and beyond to Alaska's main road system near Deadhorse. Residents claimed the ice roads saved them money in marine freight costs, as several used the road to bring new cars to their village from Anchorage or Fairbanks. Ice roads were also cost-effective infrastructure for the NSB to build, with costs of about \$5,000 per mile compared to an estimate of \$2 million per mile for a gravel road. The program continued in 2019. Before CWAT, residents would drive across the tundra alone, sometimes getting stuck or breaking down. Now the NSB conducts the expedition on maintained roads, which are usable from March until the end of April or early May.

The Study presents a summary of multimodal transportation opportunities, and how these can create a range of benefits including supporting cultural connectivity, lower the cost of goods and services, preserve or enhance subsistence traditions, improve health and safety conditions, improve access to education opportunities, enhance workforce development, and promote natural resource development. It concludes that a network of roads and the addition of at least one major port would bring the most benefit to the NSB.

Alaska Department of Transportation & Public Facilities  
PLANNING AND ENVIRONMENTAL LINKAGES QUESTIONNAIRE

A road connecting Atqasuk, Utqiagvik, and Wainwright, combined with a deep-water port in the area was seen as providing the greatest cumulative benefits to the largest number of residents of NSB, and an approximately 100-mile road connecting Wainwright to Utqiagvik with an approximately 30-mile connection to Atqasuk was identified as likely bringing the most benefit to the most communities of all the projects considered in the transportation study. Table 6.1.1 of the Study, replicated below, provided a summary of the perceived benefits of a road network connecting Atqasuk, Utqiagvik, and Wainwright.

BENEFIT CATEGORY	REPRESENTATIVE EXAMPLES OF SPECIFIC BENEFITS OF AN ALL-SEASON ROAD
Supports cultural connectivity	<p>Allows more frequent travel between communities, enabling additional cross-community connections, increasing the quality of links or bonds among community members, and creating or enhancing the capability to join together in various cultural activities, events, and celebrations. Examples include Inupiaq language workshops, whaling seasons, Kivgiq Festival, Nalukataq, and art workshops (dance, music, and art).</p>
Lowers costs of goods and services	<p>Allows transport of bulk goods shipped by barge or larger aircraft to Utqiagvik to be distributed to smaller communities via road network.</p> <p>Facilitates trucking of gravel for expansion or improvements to airports or community roads.</p> <p>Allows routine transport of bulk fuel from Utqiagvik.</p> <p>Facilitates potential installation of gas line from Barrow Gas Fields to Atqasuk and Wainwright, lowering the cost of power generation and home heating.</p> <p>Alternatively, road facilitates installation of power lines.</p> <p>Facilitates potential installation of fiber-optic line, allowing high-speed internet connection to schools, facilities, and residences.</p> <p>Lowers the capital cost of infrastructure development such as construction of homes, schools, public buildings, commercial buildings, utilities, etc.</p> <p>Improves accessibility to a greater range of recreational, leisure, entertainment, and consumer opportunities such as restaurants, bowling alley, roller rink, hotels, grocery stores, etc.</p> <p>Allows residents access to NSB government offices.</p> <p>Improves access and lowers cost for basic services provided by maintenance technicians, repairmen, skilled labor, etc.</p> <p>Allows NSB to lower costs of providing and maintaining public services in Atqasuk and Wainwright.</p>

Alaska Department of Transportation & Public Facilities  
PLANNING AND ENVIRONMENTAL LINKAGES QUESTIONNAIRE

BENEFIT CATEGORY	REPRESENTATIVE EXAMPLES OF SPECIFIC BENEFITS OF AN ALL-SEASON ROAD
Preserves or enhances subsistence traditions	<p>Allows access to a wider range of subsistence areas for fishing, hunting, and gathering.</p> <p>Allows residents of Atqasuk to more readily participate in whaling or other marine mammal harvest.</p> <p>Allows more access and options for small engine repair, boat repair, snowmachine sales and service, gunsmithing, etc.</p> <p>Allows more access and options to enhance subsistence economy (e.g., bartering).</p>
Improves health and safety conditions	<p>Provides an evacuation route from each community in case of natural disaster or emergency.</p> <p>Allows Atqasuk and Wainwright residents to access Samuel Simmonds Memorial Hospital, other healthcare and social service providers, and veterinary services.</p> <p>Provides airport options for air ambulance medevac when inclement weather closes airport.</p> <p>Allows consolidation of waste streams for recycling or disposal.</p> <p>Helps facilitate cleanup of NPR-A legacy wells.</p>
Improves access to education opportunities	<p>Allows residents to attend educational events or presentations at other schools.</p> <p>Provides Atqasuk and Wainwright residents access to Ilisagvik College.</p> <p>Allows greater access to cultural centers/activities, Simon Paneak Memorial Museum, the Inupiat Heritage Center, and the Residential Learning Center.</p> <p>Allows residents to exchange indigenous knowledges (elders/youth; subsistence areas).</p>
Enhances workforce development	<p>Improves access to more job opportunities for all communities.</p> <p>Improves access to more skills training and apprenticeship opportunities for both communities.</p> <p>Provides direct jobs for road construction and maintenance.</p> <p>Could provide the catalyst for new business opportunities.</p> <p>Allows opportunities for workers to fill needed local service gaps.</p>
Promotes natural resource development	<p>Improves logistical supply chain to base of operations.</p> <p>Improves accessibility of granular material sources.</p> <p>Provides ROW for natural gas pipelines.</p>

Alaska Department of Transportation & Public Facilities  
PLANNING AND ENVIRONMENTAL LINKAGES QUESTIONNAIRE

The study noted the triangle community road could be augmented by the creation of a regional port and docking facility to provide for the shipment of goods and provide the infrastructure necessary to promote traditional pursuits and industries such as tourism, research, oil exploration, and development.

The study recommends next steps, including seeking community and stakeholder input, addressing data gaps, and securing funding for project implementation.

- **Atqasuk to Utqiagvik All Season Access Road, Arctic Strategic Transportation and Resources Project, North Slope, Alaska, July 2019 (ASRC Energy Services Alaska, Inc)**

The report is a desktop analysis of a proposed all-season gravel access road extending from Atqasuk to Utqiagvik. A year-round road is an infrastructure priority desired by local residents to broaden and diversify the region's transportation network and create economic opportunities for the community of Atqasuk. The project was evaluated using a cumulative benefits analysis process developed specifically for ASTAR, which found the proposed project provides numerous regional benefits, enhances community connectivity, and receives broad local support.

For the purposes of the study, the proposed road was envisioned as a two-lane gravel road connecting to the existing road networks between Atqasuk and Utqiagvik. It would have a length of between 64-74 miles, with termini near the north end of Landfill Access Road in Atqasuk, and at Emaiksoun Road or the Barrow Gas Field road system in Utqiagvik. The road is expected to be roughly 24.5 feet wide with 2 horizontal to 1 vertical (2H:1V) side slopes and an assumed embankment thickness of five feet to protect the underlying permafrost from thermal degradation. The proposed road will cross several significant rivers and streams depending on the route selected (e.g., Nigisaktuvik River, Inaru River, and Niklavik Creek). These larger crossings would likely require bridges, whereas culverts would be needed for minor drainages along the route. Additional culverts would be required in low-lying areas to facilitate cross drainage during runoff events.

- **Workforce Development Plan Arctic Strategic Transportation and Resources Project North Slope, Alaska, December 2019 (Northern Economics)**

The primary purpose of this plan is to offer suggestions, goals, and strategies that help public and private entities provide resources and services that meet the needs of community residents. The strategies provided in this plan rely on community perspectives and comments, as well as identifying and evaluating future projects of interest that may have an impact on residents. It compares the existing workforce with projections of future demand to determine which industries could experience shortages in labor, and which occupations should be a priority for focus in the future.

The ASTAR regional workforce needs assessment evaluates project labor needs, including for road construction projects recommended through the ASTAR project. The plan notes that one major constraint to new roads in the NSB is a lack of developed aggregate resources, and the ASTAR project includes projects to identify and develop gravel resources. The only alternative to locally sourced gravel for coastal communities is to haul it by barge in the summer, which is costly and inefficient since barges are often lightered in multiple trips to allow for unloading on the shallow Bering Sea coast. Developing gravel resources would require heavy equipment operators to excavate and load the materials to trucks. Commercial truck drivers would be needed to transport the material to stockpiles or the jobsite, and supervisors would be needed to oversee both aggregate production and road construction. Aggregate quarries and gravel pits are considered mines and are therefore subject to regulation through the Mine Safety and Health Administration (MSHA). This means that workers will

Alaska Department of Transportation & Public Facilities  
PLANNING AND ENVIRONMENTAL LINKAGES QUESTIONNAIRE

need to meet the safety certifications of MSHA rather than what would typically be required from the Occupational Safety and Health Administration. At the time of the plan there were no MSHA training courses offered in NSB, so major development of gravel quarries would require employers to coordinate training opportunities with training providers and state administration.

Long term workforce development strategies for the region are:

- Promote local hiring practices when construction projects move forward.
  - Provide information to the public on jobs, potential earnings, required training, and references to educational programs. Outreach could include job fairs, a dedicated website, Facebook page, radio advertisements, or other media.
  - Monitor funding and appropriation of NPR-A funds to anticipate needs in the labor market.
  - Monitor the status of major infrastructure projects such as additional telecommunications networks or the Alaska LNG pipeline.
  - Forge relationships with labor unions and potential employers to provide technical career pathways (apprenticeships) and networking opportunities for NSB residents.
  - Use existing resources to assist rural communities with workforce development; including the Alaska Works Partnership and the Alaska Apprenticeship Training Coordinators Association.
  - Cooperate with the healthcare industry and other stakeholders to combine efforts for bringing improved internet connectivity to rural communities.
  - Construction projects were identified as the largest source of new employment in the NSB. The plan set out priority occupations to meet construction project workforce demand, including educational and other requirements, and recommended strategies to hire workers.
- **Road Network for Utqiagvik, Atkasuk, and Wainwright Arctic Strategic Transportation and Resources Project North Slope, Alaska, April 2020 (ASRC Energy Services Alaska, Inc)**

This report presents results of desktop analysis for an all-season gravel access road network connecting Utqiagvik, Atkasuk, and Wainwright. This desktop analysis leveraged results of a previous study titled Atkasuk to Utqiagvik All Season Access Road, Arctic Strategic Transportation and Resources Project, North Slope, Alaska. The previous study concluded that Corridor A – Coastal Route appeared to be the most favorable alignment, offering greater benefits than other options, and setting the stage for a road extension to Wainwright. The study also pointed out that linking together the three communities could open opportunities for development of a regional port for freight and fuel deliveries.

Alaska Department of Transportation & Public Facilities  
PLANNING AND ENVIRONMENTAL LINKAGES QUESTIONNAIRE

The proposed project comprised a network of two-lane gravel roads that provide a year-round overland transportation link between the existing community road systems of Utqiagvik, Atkasuk, and Wainwright. Given that the 2019 study already evaluated options for connecting Utqiagvik and Atkasuk, this report focused on route alternatives that extend the road system to Wainwright. The all-season gravel road extending to Wainwright would traverse roughly 63 to 69 miles from Corridor A (depending on the connection point) to the Olgoonik Corporation (OC) Road in Wainwright. The proposed two-lane road is expected to be roughly 24.5 feet wide with 2 horizontal to 1 vertical (2H:1V) side slopes and an assumed embankment thickness of five feet to protect the underlying permafrost from thermal degradation.

The proposed road extension to Wainwright would cross several significant streams and rivers (e.g. Kunarak Creek, Papigak Creek, Walik Creek, Kugrua River, Augman Creek, Sinaruruk Creek, Kucheak Creek, and Nigisaktuvik River), depending on the route selected. These larger crossings will likely require bridges, whereas culverts will be needed for minor drainages along the route. Additional culverts will be required in low-lying areas to facilitate cross drainage during runoff events.

The cumulative benefit analysis process was used again in the 2020 report to evaluate benefits of the project, identify feasible alternatives, and describe constraints, data gaps, or other key factors affecting project success. To assist in identifying feasible routes for connecting to Wainwright, a group of subject matter experts was convened to research, gather, and analyze available information characterizing the project area and describing features and benefits of the project. Both spatial and non-spatial data and background information were gathered. Spatial data was captured in GIS. The data and information were summarized in technical memoranda presented in Appendix A of the 2020 report. The memoranda addressed the following key topics that affect the project:

- GIS Raster Analysis
- Land Status
- River Hydrology
- Geology/Geotechnical
- Existing and Proposed Infrastructure
- Roadway Engineering
- Vehicle Bridges
- Cultural Resources
- Paleontological Resources
- Subsistence Patterns
- Wetlands
- Threatened and Endangered Species
- Fish and Fish Habitat
- Avian Resources and Habitat
- Environmental Compliance and Permitting
- Construction Cost

Alaska Department of Transportation & Public Facilities  
PLANNING AND ENVIRONMENTAL LINKAGES QUESTIONNAIRE

Spatial data were incorporated into a GIS cost-weighted raster analysis. The analysis was used to identify potential route alternatives that align with likely river crossings and account for features and constraints identified in the other technical memoranda. The following corridors were identified as preliminary route alternatives for the road extending to Wainwright (Figure 1):

- Corridor D – Coastal Route Extension
- Corridor E – Middle Route
- Corridor F – Southern Route

A Coastal Route Modification was incorporated and represents an alternative connector for joining Corridor D to Corridor A (Figure 1). This alignment does not cross any apparent drainage features and reduces the travel distance from Wainwright to Atqasuk by approximately 3.5 miles. It also increases travel distance from Atqasuk to Utqiagvik by approximately 2.5 miles.

Using information in the technical memoranda, the features and benefits of each route alternative were summarized, and the corridors were compared in a matrix with scoring based on degree of favorability. The scoring matrix was weighted by considering eight different stakeholder viewpoints: Federal Government, State Government, Local Government (NSB), community residents, village corporations (Ukpeagvik Iñupiat Corporation [UIC]; Atqasuk Corporation; Olgoonik Corporation [OC]), regional corporation (Arctic Slope Regional Corporation [ASRC]), environmental non-governmental organizations (NGOs), and pro-development NGOs. The weighted scores were then summed to identify favorable route alternatives.

Based on available data and the outcome of the route evaluation and comparison, Corridor D – Coastal Route Extension was the most favorable alternative for connecting to Wainwright, followed by Corridors E – Middle Route and F-Southern Route, in descending order. As indicated by the name – Coastal Route Extension – Corridor D is an extension of Corridor A analyzed in the ASTAR report titled *Atqasuk to Utqiagvik All Season Access Road*.

Together, Corridors A and D have a total length of 101.9 miles between Utqiagvik and Wainwright, with the spur to Atqasuk being another 23 miles (assuming use of the Coastal Route Modification). The Coastal Route Modification reduces the travel distance from Wainwright to Atqasuk by approximately 3.5 miles, but increases travel distance from Atqasuk to Utqiagvik by approximately 2.5 miles.

The road corridors and analysis presented in the 2020 report and the 2019 Atqasuk to Utqiagvik report were developed without the benefit of stakeholder engagement, thus the reports acknowledged that outcomes could change. The desktop review concluded that a stakeholder engagement plan should be developed and implemented to solicit specific input to the project, and use the input for refining the project description and evaluation. Several follow-on studies and activities were recommended to assist with making more refined route recommendations.

Alaska Department of Transportation & Public Facilities  
PLANNING AND ENVIRONMENTAL LINKAGES QUESTIONNAIRE

- **Strategic Plan, Arctic Strategic Transportation and Resources Project, North Slope, Alaska, June 2020 (ASRC Energy Services, Alaska, Inc)**

The Strategic Plan is intended to be a guide to the tools developed during the course of ASTAR and their potential use for future projects. By identifying tangible cumulative benefits for specific infrastructure projects, ASTAR is intended to inform current and future discussions among local, state, and federal agencies regarding land management activities in the region. The ASTAR team assessed a range of potential community infrastructure and regional connectivity projects including roads, sanitation, ports and marine facilities. Cumulative benefits analysis was used to advance projects that provide the greatest benefits to North Slope people and communities rather than the standard federal approach of assessing projects for potential impacts (cumulative impacts analysis), which often focus on negative rather than positive outcomes. Initial identification of potential funding sources, project sponsors, obstacles, challenges, and analyzing permitting and data gaps were also completed by the ASTAR team. The Strategic Plan provides summaries and excerpts of many of the documents and deliverables created for ASTAR. It is ASTAR's objective that the Strategic Plan, its appendices, and the digital tools and databases created during the course of the ASTAR project be used as sources for future studies, planning, and project development for the North Slope and potentially across Alaska. Deliverables addressed by the Strategic Plan include:

- Project Execution Plan
- Assessment of Tools for Cumulative Benefits Analysis
- RDI ASTAR Methodology
- RDI Data Management Plan
- ASTAR Story Map and Website
- Permitting and field support for DGGs Field Investigations
- DGGs Field Investigation Reports (excluding reports on field investigations conducted by DGGs during the 2019 summer field season)
- Stakeholder Engagement Plan
- Stakeholder Engagement Database
- ASTAR Digital Project Library and Project Fact Sheets
- Workforce Development Plan
- Terrain Unit Mapping and Analysis Report
- Cataloguing of historic shothole samples held at the State of Alaska Geologic Materials Center
- Development of a comprehensive shothole database
- Passenger and Freight Transportation Study
- Studies of various transportation routes to connect communities from the Colville River to Wainwright
- Economics and Socioeconomics Digital Library

Alaska Department of Transportation & Public Facilities  
PLANNING AND ENVIRONMENTAL LINKAGES QUESTIONNAIRE

This information will be carried forward and leveraged as part of the baseline conditions for the PEL Study.

- **ASTAR Terrian Unit and Geohazards Mapping, June 2020 (AES Alaska)**

This report and mapping efforts were led by AES Alaska and subcontractor Third Rock Consulting, LLC. The team also collaborated with several DNR Divisions. Terrain units and geohazards are identified, mapped, and described in detailed analyses, methodology, data, and mapping resources.

The ASTAR project's research region covers a sizable amount of land in Alaska, therefore NSB communities are mapped in this report according to their area numbers. Seven specific areas were designated by proximity to NSB communities. The following communities in the Terrain Unit Map report are listed below by area number:

- Area 1 Nuiqsut
- Area 2 Utqiagvik, Wainwright, Atkasuk
- Area 3 Deadhorse
- Area 4 Point Lay, Point Hope
- Area 5 connecting community land area, no community present
- Area 6 Kaktovik
- Area 7 Anaktuvuk Pass

The methodology used digital software mapping, legacy public geologic maps, unpublished data provided by ASTAR project (DNR) and the use of authorized Shell Exploration & Production Co. (Shell) terrain unit data. ArcGIS software was used to analyze digital terrain units, based on the previous described geologic interpretation of existing mapping, authorized unpublished data, digital elevation models (DEMS), and SPOT 5 satellite imagery that result in a 1:30,000-mile scale terrain unit mapping of all land within NPR-A study boundary on the North Slope.

Consideration of specific interpretative factors are detailed in this report that explain limitations to specific inferred depositional units based on available information, and recognition of supporting standard arctic landscape knowledge and characteristics (i.e. depth of deposits and subsurface information with permafrost, cryogenic effects, thermal degradation, etc.). In addition, the mapping of colluvial deposits did not permit differentiation and could not be delineated due to mapping scale. Therefore, terrain unit features in this group were not mapped if greater than 500 feet in width or diameter.

Terrain units are defined in this report to represent a series of individual geologic units combined to express a basic soil profile of estimated 20 to 30 feet below ground surface level, forming a general vertical series within an anticipated area. Geologic units in this report are defined by method of material deposition and boundaries derived from imagery and DEMS. The geologic units feature descriptions including information of predicted soil characteristics, engineering properties, and granular construction material that provide anticipated soil conditions and physical properties descriptions for terrain unit designation. The report uses nomenclature for different deposits and overlying deposits. For example, thaw lake deposits are referred to as (Qt) to represent Quaternary thaw lake deposits. For combined terrain unit interpretation, if an underlying deposit is projected to be present, such a Quaternary marine silt (Qm), then the terrain unit designation is represented as Qt/Qm.

Geologic hazards identified in this report include slope instabilities, thaw slumps, and pingos. Slope instabilities are defined landslides or slope failures, thaw slumps are ice-rich soils exhibiting thermal

Alaska Department of Transportation & Public Facilities  
PLANNING AND ENVIRONMENTAL LINKAGES QUESTIONNAIRE

degradation, and pingos which are steep sided conical mounds with an ice-rich appearance. Given the number of geologic hazards found in the region, the features are represented as points on the terrain unit maps scale of 1:30,000. Using a more discernable scale, the identification of trends in the distribution of geologic hazards necessitated further mapping efforts at a 1:10,000 scale. Imagery and DEMS were used to identify geologic hazards mapped in the Terrain Unit Map efforts.

This report contains the digital Terrain Unit Map described and lists all mapping resources used in the analyses. In addition, high-level detailed analyses on the terrain unit mapping methodology, detailed descriptions of each unit (geologic and construction data), full list of geologic and terrain unit acronyms, figures, and mapping resources are all made available in the report.

- **DOT&PF Geotechnical Report Capacitively-Coupled Resistivity Survey Road Network, June 2022 (DOT&PF)**

At the request of DNR, the DOT&PF Northern Region Materials Section completed a Capacitively-Coupled Resistivity (CCR) survey along the first ten-miles of the proposed corridor from Utqiagvik, which follows the route used for the NSB CWAT. The goal of the CCR survey was to collect resistivity measurements of the subsurface soils to aid in the selection of drill targets for potential construction material sites along the proposed road network.

Subsurface data from test holes combined with CCR data in areas of prospective geologic terrain units suggest that areas with resistivity values ranging from 790 to 2,970 ohm-meters can be interpreted as having an increased probability of containing suitable construction material. Resistivity values in this range may represent coarse grain granular material such as gravel or frozen material with higher ice content than surrounding ground (DOT&PF 2022a).

Current Resistivity Inversion Modeling of various sites along the Triangle Road route suggest variable amounts of gravel mixed with other sediments throughout the geologic profile, though factors such as permafrost, frozen surface water, and silty sediments may have an impact on these results.

- **DOT&PF Geotechnical Report Road Network, December 2022 (DOT&PF)**

The Northern Region Materials Section conducted a helicopter-supported material site investigation from approximately milepost 32 to milepost 64 of the Triangle Road Coastal Route. Four potential material sites were investigated for gradation and quantity of construction materials. The work resulted in 16 recommendations to support accomplishing the goal of providing year-round ground transportation between Utqiagvik, Atqasuk, and Wainwright.

The recommendations aligned with those of the 2021 field season: test at designated material sites, construct test embankments with experimental designs made for the unique Arctic environment, install culverts, and use lessons learned from other North Slope roads to avoid regional complications. In addition to the recommendations, two road construction options were discussed depending on the quality of the soils found in the area. Both options follow a similar style and timeline; the greatest difference being the type of material used for road construction and where that material would be sourced from.

Alaska Department of Transportation & Public Facilities  
PLANNING AND ENVIRONMENTAL LINKAGES QUESTIONNAIRE

In addition to the above studies and documents, other previously developed transportation and land use plans will be evaluated as part of the PEL Study effort. There are also several studies completed by the Alaska Division of Geological and Geophysical Sciences (DGGs), including imaging and LiDAR studies, stream hydrology and lake bathymetry studies, geological and geotechnical studies, and the Geologic Photos of Alaska database that can be requested to support analyses conducted during the PEL Study effort.

## **2. METHODOLOGY USED**

### **A. What is/was the scope of the PEL Study and the reason for completing it?**

The scope of this PEL Study includes development of Purpose and Need statement, stakeholder outreach, alternatives development and screening, limited environmental resource mapping and issues identification, garnering consensus on the alternatives and screening approach, and compilation of documentation.

The PEL Study is intended to comply with and support transition to future National Environmental Policy Act (NEPA) and environmental review processes, including Section 404 permitting, Section 106 consultation under the National Historic Preservation Act, and Section 4(f) evaluation and documentation under the U.S. Department of Transportation Act.

The purpose of this PEL Study is to provide North Slope decision-makers with the information needed to determine if a triangle community road should move forward, and if that decision is yes, to expedite moving the project through a future NEPA process. The PEL study engaged in community input through tribal, public, agency, and advisory group meetings.

### **B. Did you use NEPA-like language? Why or why not?**

Yes. Many NEPA terms were used for consistency between project development phases and to avoid issues in anticipated upcoming tasks. These are detailed below.

### **C. What were the actual terms used and how did you define them? (Provide examples or list)**

NEPA-like terms used in the study include:

- **Purpose and Need:** Describes the transportation needs that exist, the problems to be addressed, and the overall goals and objectives of the project. Serves as a basis for identifying reasonable alternatives and guiding the project.
- **Recommended Alternative:** Used instead of “Preferred Alternative” to differentiate between the PEL Study and a future NEPA process. This allows for re-evaluation of certain “not recommended” alternatives, or elements of those alternatives, if conditions change or more analysis is needed in a NEPA or other environmental review processes.
- **Reasonable/Unreasonable Alternative:** One of the goals of the PEL is to determine a reasonable range of alternatives that can be adopted or incorporated into the NEPA process. The updated NEPA regulations (July 2020, 40 CFR parts 1500-1508) define “*reasonable alternatives*” means a reasonable range of alternatives that are technically and economically feasible, meet the purpose and need for the proposed action, and where applicable, meet the goals of the applicant.”
- **No Build Alternative:** Includes both existing and reasonably foreseeable projects near and within the study area, as well as ongoing maintenance projects. Represents the transportation system as it currently exists and serves as a baseline against which other alternatives are compared.

Alaska Department of Transportation & Public Facilities  
PLANNING AND ENVIRONMENTAL LINKAGES QUESTIONNAIRE

- **Public and Agency Involvement:** Provides opportunities for interested parties to participate and provide feedback to the PEL Study. NEPA regulations allow pre-scoping activities prior to the publication of the Notice of Intent; therefore, information gathered during the PEL process may be incorporated into the NEPA, streamlining scoping efforts.
- **Potential Effects:** Describes social and environmental resources in the project area and provides a high-level overview of potential effects resulting from implementation of recommended projects. Includes resource categories typically addressed in NEPA documents, such as social resources (e.g., environmental justice populations, cultural resources, Section 4(f)/6(f) properties) and biological/environmental resources (e.g., coastal resources, wetlands, fish and birds, streams and waterbodies).
- **Mitigation:** Measures to avoid, minimize, and mitigate adverse environmental effects. Used in both PEL and NEPA phases.

**D. How do you see these terms being used in NEPA documents?**

Except for “Recommended Alternative”, these terms are expected to be used in a future NEPA process for the triangle community road. The Purpose and Need statement and alternatives screening analysis could be adopted into NEPA documents, although they may need to be tailored or refined for smaller projects identified in the PEL Study.

**E. What were the key steps and coordination points in the PEL decision-making process? Who were the decision-makers and who else participated in those key steps?**

The project team includes DNR staff from the environmental discipline, DOT&PF staff from the planning and environmental disciplines, NSB staff from the planning disciplines, and a consultant team. The PEL Study has taken approximately 2 years.

Bi-weekly project coordination meetings were held during the first year, and monthly progress meetings continued throughout the study. The project team provided oversight for various aspects of the project, including review and concurrence on milestones and deliverables listed below. In addition to open house public meetings, a Stakeholder Advisory Committee (AC) was formed and met regularly to participate in key steps of the PEL process:

- Determining the Purpose and Need (November 2024 – February 2025)
- Development of alternatives (November 2024 – April 2025)
- Screening of alternatives and identification of environmental impacts and potential mitigation (November 2024 – September 2025)
- Finalization of PEL Study (September 2025 – December 2025)

**F. How must the PEL information below be presented in NEPA?**

It is expected that the PEL Study will form the early planning stages for a future NEPA process. Purpose and Need, planning analyses, alternatives developed and evaluated, and environmental resource data collected during the PEL study will likely be referenced and incorporated into NEPA documents where appropriate. Information from the tribal, public, and agency involvement will also be used.

The NEPA scoping process should adhere to the requirements of 23 United States Code (USC) 168 and ensure that planning documents from the PEL Study are made available for public review, provide notice of DOT&PF’s intent to adopt or incorporate by reference the planning products listed above, and consider

Alaska Department of Transportation & Public Facilities  
PLANNING AND ENVIRONMENTAL LINKAGES QUESTIONNAIRE

any comments received.

**3. AGENCY COORDINATION**

**A. Provide a synopsis of coordination with federal, tribal, state, and local environmental, regulatory and resource agencies. Describe their level of participation and how you coordinated with them.**

To ensure project stakeholders are represented, one advisory committee is proposed. The advisory committee included community residents and leadership (native villages, native corporations, cities, and regional organizations).

One-on-one meetings occurred periodically with state and federal agencies, including a coordination meeting with the Bureau of Land Management and a multiagency meeting to discuss mitigation strategies and promote early input in advance of a potential future NEPA process. As part of the process, the project team complied with relevant regulations (including 23 CFR 450) and guidance, which indicate that environmental, regulatory, and resource agencies, and tribes should be included in the PEL Study. Guidance also indicates that the process should be conducted in coordination with federal, state, local, and tribal land management and regulatory agencies.

The project team focused stakeholder outreach activities on four sets of planning products and decisions. Information was shared with the advisory committee and the public, and they were given opportunities to comment throughout the project, with specific encouragement to provide comments during 30-day comment periods following open house meetings.

The anticipated schedule for public and agency meetings is shown in the below table:

FOCUS	PUBLIC MEETING	ADVISORY COMMITTEE MEETING	DATES
Purpose of PEL Study, connection with previous ASTAR project and alternatives, themes for purpose and need	Public Open House No. 1		Spring 2024
Purpose and Need statement, range of alternatives, alternatives screening process and screening criteria		Technical and Stakeholder Advisory Committee Meeting No. 1	Winter 2025
Range of alternatives, alternatives screening process and screening criteria	Public Open House No. 2		Winter 2024
Alternatives screening workshop		Technical and Stakeholder Advisory Committee Meeting No. 2	Spring 2025
Alternative screening results and recommended alternative(s)		Technical and Stakeholder Advisory Committee Meeting No. 3	Winter 2026

Alaska Department of Transportation & Public Facilities  
PLANNING AND ENVIRONMENTAL LINKAGES QUESTIONNAIRE

FOCUS	PUBLIC MEETING	ADVISORY COMMITTEE MEETING	DATES
Draft PEL study report	Public Open House No. 3		Winter 2026

**B. What transportation agencies (e.g. for adjacent jurisdictions) did you coordinate with or were involved in the PEL study?**

The PEL team included the North Slope Borough (NSB).

**C. What steps will need to be taken with each agency during NEPA scoping?**

Agency coordination undertaken during the subsequent NEPA process will be determined during the PEL Study.

**4. PUBLIC COORDINATION**

**A. Provide a synopsis of your coordination efforts with the public and stakeholders.**

Coordination efforts with the public and stakeholders are outlined in the Public and Agency Involvement Plan and are summarized in the PEL study report.

**B. Provide the corridor vision, objectives, or purpose and need statement.**

**Purpose**

The ASTAR team partnered with DOT&PF to conduct a PEL Study to identify ways to improve transportation connections between Atqasuk, Utqiagvik, and Wainwright through responsible infrastructure. The purpose of the PEL Study is to evaluate an all-season roadway connection between the three communities. The study team will also work with stakeholders and the community to determine whether an all-season road connection is desired and should advance to NEPA and design phases.

An all-season gravel road connection between the three communities would meet the following objectives:

- Lower the cost of energy, basic goods, utilities, and other services
- Improve health and wellness through better access to health services
- Create opportunities to strengthen cultural exchange, share traditional knowledge, enhance community and family connectivity, and improve emotional well-being
- Provide an evacuation route to higher elevation areas, allowing efficient transportation away from the coast in case of severe storm surges and/or coastal flooding
- Reduce fossil fuel use by decreasing reliance on air travel and advancing opportunities for energy alternatives to diesel fuel

**Need**

The communities of Utqiagvik, Atqasuk, and Wainwright are only accessible by air year-round or snowmachines/rolligons during winter, as no permanent road exists between these communities or to the Alaska road system. The lack of an all-season surface transportation connection between the communities results in the following undesirable conditions:

Alaska Department of Transportation & Public Facilities  
PLANNING AND ENVIRONMENTAL LINKAGES QUESTIONNAIRE

- Lack of year-round, reliable, and cost-efficient transport of goods and services
- Unrealized economic growth potential
- Uneconomical and unreliable access to family and friends between communities
- Difficult and costly access to subsistence resources
- Prolonged response times for medical emergencies
- No evacuation route for residents of coastal communities threatened by increasingly severe storm surges and flooding.
- Limited and uneconomical access by Wainwright and Atkasuk residents to educational opportunities, training, and workforce development available in Utqiagvik

**5. RANGE OF ALTERNATIVES CONSIDERED, SCREENING CRITERIA, and SCREENING PROCESS**

**A. What types of alternatives were looked at? (Provide a one or two sentence summary and reference document.)**

Prior studies and analysis focused on four individual corridors (A, D, E, F) and compared their impacts.

The April 2020 Road Network analysis envisioned the proposed road network as two-lane gravel roads connecting to the existing community road systems of Utqiagvik, Atkasuk, and Wainwright. Because a 2019 study already evaluated options for connecting Utqiagvik and Atkasuk, the 2020 report focused on route alternatives that extend to Wainwright. However, full networks based on corridors were not created or evaluated.

Because corridors are not comparable as stand-alone road network alternatives, six Road Network alternatives were developed, as described in the Alternatives Screening Memo.

**B. How did you select the screening criteria and screening process?**

Screening criteria were developed and defined using collaborative input from the public and agencies.

**C. For alternative(s) that were screened out, briefly summarize the reasons for eliminating the alternative(s). (During the initial screenings, this generally will focus on fatal flaws.)**

Alternative screening will occur as part of the PEL Study and in collaboration with agencies and the advisory committee.

**D. Which alternatives must be brought forward into NEPA and why?**

Three alternatives are recommended to advance to a future NEPA process. This was determined through the screening process, which confirmed the alternatives met the study's P&N, had the potential to generate the fewest environmental impacts and could be constructed at the lowest cost.

**E. Did the public, stakeholders, and agencies have an opportunity to comment during this process?**

Yes. The public, tribes, stakeholders, and agencies all had an opportunities to comment during the PEL Study. See above for planned opportunities.

**F. Were there unresolved issues with the public, stakeholders and/or agencies?**

The key unresolved issue is the community desire to manage who will be able to access and use the

Alaska Department of Transportation & Public Facilities  
PLANNING AND ENVIRONMENTAL LINKAGES QUESTIONNAIRE

community road. This issue can be resolved as part of a future NEPA process and may depend on the source of funds used to construct the future road.

**6. PLANNING ASSUMPTIONS AND ANALYTICAL METHODS**

**A. What is the forecast year used in the PEL study?**

The planning horizon for this study begins in 2024 and extends to 2054, a period of 30 years.

**B. What method was used for forecasting traffic volumes?**

A traffic forecast is not needed for this PEL study. No road currently exists between these communities, and the small community sizes (Utqiagvik – 4,927; Atqasuk – 276; Wainwright – 628<sup>1</sup>) and flat population numbers over the preceding 30 years means a two lane, gravel road is assumed to be sufficient for anticipated traffic volumes for the planning horizon of this study.

**C. Are the planning assumptions and the corridor vision/purpose and need statement consistent with the long-range transportation plan?**

The corridor vision and purpose is consistent with the Alaska Statewide Long-Range Transportation Plan 2036, as discussed in the PEL study report.

**D. What were the future year policy and/or data assumptions used in the transportation planning process related to land use, economic development, transportation costs and network expansion?**

The transportation planning process assumed a relatively flat population for the planning horizon, with the road potentially providing opportunities to enhance connection, trade, freight movement, and economic development. Given the population numbers, community needs and feedback received from stakeholders and the community, the proposed two-lane, gravel road was assumed to be sufficient to support these opportunities for the planning horizon of the study. Future network expansion was alluded to through other ASTAR project analyses but was not specifically considered as part of this PEL study process.

**7. RESOURCES (WETLANDS, CULTURAL, ETC.) REVIEWED.**

For each resource or group of resources reviewed, provide the following:

**A. In the PEL study, at what level of detail was the resource reviewed and what was the method of review?**

Existing evaluations from prior efforts were reviewed, and all analysis relied on desktop and publicly available resources. No fieldwork was conducted to determine extent or type of resource.

**B. Is this resource present in the area and what is the existing environmental condition for this resource?**

Refer to the Environmental Setting Memorandum.

**C. What are the issues that need to be considered during NEPA, including potential resource impacts and potential mitigation requirements (if known)?**

The high-level review of environmental impacts addressed the following issues:

- Land Use Impacts
- Social Impacts

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<sup>1</sup> [www.data.census.gov](http://www.data.census.gov)

Alaska Department of Transportation & Public Facilities  
PLANNING AND ENVIRONMENTAL LINKAGES QUESTIONNAIRE

- Water Quality Impacts
- Subsistence
- Wetland Impacts
- Fish and Wildlife Impacts
- Floodplain Impacts
- Threatened and Endangered Species
- Historic and Archaeological Preservation
- Hazardous Waste Sites
- Visual Impacts
- Geologic and Geotechnical
- Construction Impacts
- Section 4(f)/6(f)

**D. How will the data provided need to be supplemented during NEPA?**

Refer to the Environmental Setting Memorandum for a high level overview of environmental resources. Further and more detailed analyses, including field evaluations will be required as part of a future NEPA process.

**8. LIST RESOURCES NOT REVIEWED IN THE PEL STUDY and WHY?**

Indicate whether or not they will need to be reviewed in NEPA and explain why.

All applicable resources that are present were reviewed. The following resources are not present within the study area and are not anticipated to be further reviewed during NEPA analysis:

- Coastal barriers and coastal zone management
- Farmlands
- Wild and scenic rivers

**9. WERE CUMULATIVE IMPACTS CONSIDERED IN THE PEL STUDY?**

No; cumulative impacts are only evaluated once impacts are quantified for an identified preferred alternative. As the PEL Study makes recommendations for alternatives to be considered through a future NEPA analysis, it is premature to consider cumulative impacts.

**10. DESCRIBE ANY MITIGATION STRATEGIES DISCUSSED AT THE PLANNING LEVEL THAT MUST BE ANALYZED DURING NEPA.**

A high-level discussion of potential mitigation requirements occurred at an interagency meeting as part of the PEL process. Further and more detailed evaluation of alternatives and potential environmental impacts and associated mitigation strategies will be required as part of a future NEPA process.

Alaska Department of Transportation & Public Facilities  
PLANNING AND ENVIRONMENTAL LINKAGES QUESTIONNAIRE

**11. WHAT NEEDS TO BE DONE DURING NEPA TO MAKE INFORMATION FROM THE PEL STUDY AVAILABLE TO AGENCIES AND THE PUBLIC? ARE THERE PEL STUDY PRODUCTS WHICH CAN BE USED OR PROVIDED TO AGENCIES OR PUBLIC DURING NEPA SCOPING PROCESS?**

Information from this PEL Study has been made available to agencies and the general public and will further be made available during the scoping phase of a future NEPA process. A link to the online location of the PEL Study could be included in the scoping letters to agencies and the public notice of intent to begin preliminary engineering and the NEPA process. All comments received relative to this issue will be responded to.

The planning products anticipated to be used in a future NEPA process include:

- Purpose and Need Statement
- Alternatives considered
- Alternatives eliminated and the reasons why
- Alternatives recommended
- Summary of social and environmental resources in the project area and potential effects on those resources
- Potential mitigation ideas to offset impacts