

## **4.0 CUMULATIVE EFFECTS, IRREVERSIBLE AND IRRETRIEVABLE COMMITMENT OF RESOURCES**

### **4.1 CUMULATIVE EFFECTS**

A cumulative effects analysis within an EA should consider the potential environmental consequences resulting from "the incremental impacts of the action when added to other past, present, and reasonably foreseeable future actions regardless of what agency or person undertakes such other actions" (40 CFR 1508.7). Assessing cumulative effects involves defining the scope of the other actions and their interrelationship with the proposed action if they overlap in space and time. Cumulative effects can result from individually minor, but collectively significant actions taking place over a period of time. Cumulative effects are most likely to arise when a proposed action is related to other actions that could occur in the same location or at a similar time. Actions geographically overlapping or close to the proposed action would likely have more potential for a relationship than those farther away. Similarly, actions coinciding in time with the proposed action would have a greater potential for cumulative effects.

To identify cumulative effects, the analysis needs to address three questions:

1. Could resources affected by the proposed action interact with resources affected by past, present, or reasonably foreseeable actions?
2. If one or more of the affected resources of the proposed action and another action could interact, would the proposed action affect or be affected by impacts of the other action?
3. If such a relationship exists, are there any potentially significant impacts not identified when the proposed action is considered alone?

### **4.2 SCOPE OF CUMULATIVE EFFECTS ANALYSIS**

The scope of the cumulative effects analysis involves both the geographic extent of the effects and the time in which the effects could occur. This cumulative effects analysis includes the boundaries of the POA, adjacent properties such as the ARRC and Elmendorf AFB, and Cook Inlet. Actions not occurring within or near these areas are not considered in the analysis since they would be unlikely to interact with the proposed action in a cumulative manner. The time frame for cumulative effects starts in 2005, when the first construction phase of the Marine Terminal Redevelopment project would begin. Based on the multiple-year construction, the duration of potential cumulative effects would extend to 2011 for construction and to 2025 for operations. Public documents and information prepared or transmitted by federal, state, and local government agencies formed the source of data on potentially related past, present, and future actions. Actions not readily available through these public sources were not included or analyzed. In addition, some information and actions remain undeveloped or marginally developed, and, as such, speculative. CEQ regulations admonish agencies to avoid speculation in EAs and to evaluate the degree of development of an action to determine if it warrants cumulative analysis.

**4.3 EVALUATION OF ACTIONS POTENTIALLY GENERATING CUMULATIVE EFFECTS**

Review of plans, studies, and other documents from city, state, and federal agencies revealed both ongoing and future proposed actions that warranted evaluation for their potential interactions with the Marine Terminal Redevelopment project at the POA (FTA 2003, FTA/ARRC 2003). No specific past actions exhibited identifiable interactions with the proposed Marine Terminal Redevelopment project, thereby precluding the potential for cumulative effects. Table 4-1 presents ongoing and proposed actions addressed in this analysis, Figure 4-1 shows the locations of these proposed actions.

<b>Table 4-1 Ongoing and Proposed Actions Used for Cumulative Effects Analysis</b>				
<i>Action</i>	<i>Agency</i>	<i>Timing</i>	<i>Description</i>	<i>Interaction with Marine Terminal Redevelopment Project</i>
Knik Arm Ferry	FTA <sup>1</sup>	Proposed for near-term future	Develop and operate a ferry linking Anchorage and Port MacKenzie	Negligible to minimal – no geographic overlap, but vehicle operations of both proposals involve similar roads (FTA 2003)
Knik Arm Bridge	KABATA <sup>2</sup>	Distant future, nearly speculative	Construct a vehicle bridge across Knik Arm with its eastern terminus just north of the POA and potential for a roadway along the tidelands	Location of roadway could be adjacent to the POA (existing and redeveloped); however, bridge concept and roadway access considered very conceptual (FTA 2003)
Intermodal Transit Center (ITC)	ARRC	Proposed for near-term future	Construct and operate an ITC south of Ship Creek and ARRC's freight intermodal yard	Although near one another, the ITC and ARRC's freight intermodal yard do not overlap; vehicle operations both involve similar roads (FTA/ARRC 2003)
Various Road Improvements	AMATS <sup>4</sup>	Construction through 2009	Improvements to Whitney Road, Ocean Dock Road (outside POA), and others in area	Improvements should reduce effects of long term growth regardless of expansion (AMATS 2001)
POA Road and Rail Extension	POA/MARAD	Construction in 2004 and spring 2005	Extension of Terminal Road and construction of an intermodal rail yard	Will reduce truck trips to the ARRC intermodal yard by 6,760, reduce CO emissions, increase noise slightly to 45 dBA from construction and 50 dBA from operations at 1,000 feet (Cherry Hill Housing)
U.S. Army Transformation	U.S. Army	Construction 2004-2006	Transformation of the 172 <sup>nd</sup> Infantry Brigade into a STRYKER Brigade combat team	Staging facility at the POA. Deployment would involve 80 rail cars per day during training exercises or deployment (USARAK 2004)

<i>Action</i>	<i>Agency</i>	<i>Timing</i>	<i>Description</i>	<i>Interaction with Marine Terminal Redevelopment Project</i>
North Star Terminal Expansion	North Star Terminal & Stevedore Co. & Swan Bay Holdings, Inc.	Construction to be completed by 2006	Construction of expanded docking facilities into tidelands north of Ship Creek inlet and south of the POA expansion area	North Star dock expansion may change hydrodynamics and result in increased sedimentation between POA and North Star Terminal
Port MacKenzie Improvements	Matanuska-Susitna Borough	Proposed for near-term future	Develop deep water dock facilities at Port MacKenzie	No geographic overlap but expanded facilities may be used for shipping gravel fill for the POA expansion and would be used for Knik Arm Ferry terminus

<sup>1</sup> Federal Transit Authority

<sup>2</sup> Knik Arm Bridge and Toll Authority (KABATA 2004)

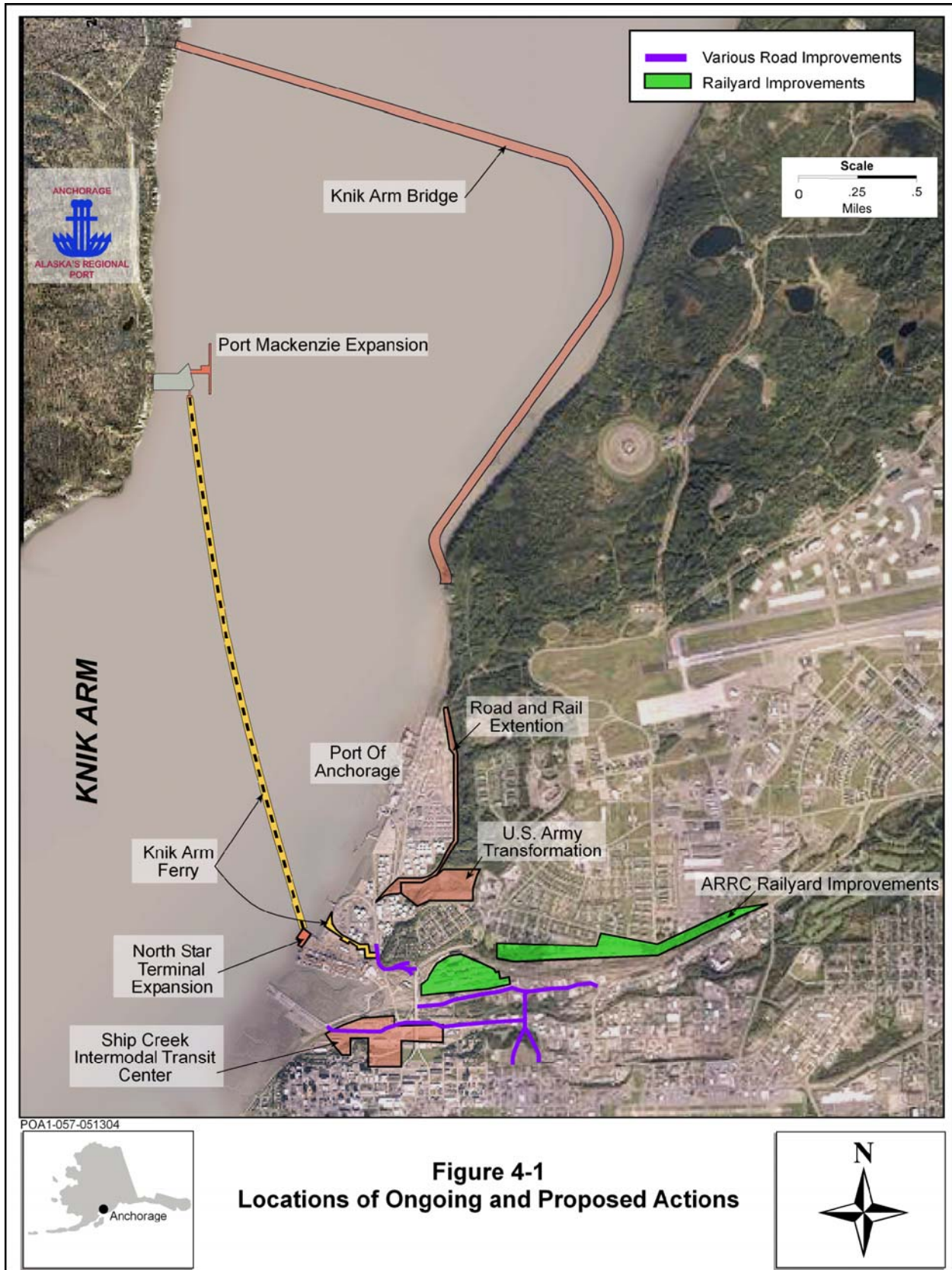
<sup>3</sup> Improvements consisting of several projects grouped together as one (FTA 2003)

<sup>4</sup> Anchorage Metropolitan Area Transportation Study

Of these past, ongoing, and proposed actions, projects at the POA itself have the most potential for direct interaction with the Marine Terminal Redevelopment proposed activities. The Road and Rail Extension project FONSI was signed in February, 2004. The lease agreements are likely to be signed in July, 2004 with some fencing and tree clearing occurring in June and July and construction to take place in summer 2004 and spring 2005. Environmental analyses for the Road and Rail Extension indicated that there would be minimal to negligible effects on noise levels, terrestrial and wetlands resources, geology and soils, land use, and hazardous materials and waste. Positive effects included reduced air emissions in a nonattainment area, reduced traffic, and increased temporary employment and revenue (POA 2004a). Noise generated from the Road and Rail project were included as part of the baseline calculations for the Marine Terminal Redevelopment analysis.

The Army Transformation EIS proposed the use of a staging area and deployment using up to 80 rail cars per day during training exercises and deployment (USARAK 2003). USARAK use of the Marine Terminal Redevelopment area would be sporadic, but design for the Marine Terminal Redevelopment would accommodate this use and the potential effects analyzed in this EA.

The Knik Arm Bridge project currently proposes a 7,000 foot, two-lane highway bridge and causeway although the concept is still in early stages. The preferred corridor is identified in Figure 4-1 and extends from north of Port MacKenzie to Cairn Point, then south along a new road at the base of the bluffs between EAFB and the POA expansion. The approach to the Anchorage end of the crossing will be along existing roads to the Port of Anchorage, connecting to the new road at the base of the bluffs. The USACE in Vicksburg, created a working tabletop model of the Knik Arm of Cook Inlet to test the affects of the



current, tides, and ice flow on the proposed expansion of the Port of Anchorage and the Knik Arm Bridge. They conducted very preliminary hydrodynamic research and the studies indicated that this project would effect sedimentation, currents, tides and ice flow (KABATA 2004). The specific impacts would depend on the final project location and would need to be based on more extensive hydrodynamic analysis. Other studies being conducted for the bridge project include effects on traffic, beluga whales, fish, and other resources. Ultimately effects are difficult to assess in the area around the POA until locations are determined.

The Port MacKenzie Improvements project was not included in the hydrological model studies performed by the USACE, but a cursory analysis was made by super-imposing the expansion over the existing conditions modeling for the Marine Terminal Expansion project. The Port MacKenzie Improvements project could have an impact on the sedimentation and tidal currents in that area. The specific impacts of the proposed project would need to be analyzed in greater detail following more extensive hydrodynamic modeling. The proposed North Star Terminal Expansion could also influence hydrodynamics once built. These projects would indirectly affect expanded POA operations. NMFS and the USFWS have expressed concern that multiple projects in Knik Arm Channel could cumulatively affect fish habitat.

Other indirect interactions with the Marine Terminal Redevelopment project could occur with the ARRC ITC and railyard improvements, the Knik Arm Ferry, the bridge crossing, as well as various road improvements. All of these actions would affect vehicle traffic along the road network south of the POA. However, the Marine Terminal Redevelopment project would eliminate 6,760 truck trips on this network per year, thereby reducing traffic and accompanying exhaust emissions. As a consequence, the potential for cumulative impacts would be negligible.

#### **4.4 ASSESSMENT OF CUMULATIVE EFFECTS**

Considered together, the Marine Terminal Redevelopment project and North Star Expansion would cumulatively affect air quality, noise, and traffic. However, these cumulative effects would be minimal, and in some instances, beneficial. While the POA redevelopment project could generate more train traffic, the expected increase of one or more additional trains per week would not substantially contribute to minimal exhaust emissions. Indeed, improved train access at the POA intermodal yard would reduce truck traffic outside the POA and also reduce CO emissions in Anchorage's nonattainment area.

The analysis for the Marine Terminal Redevelopment project demonstrated that construction noise, including underwater noise and vibration when combined with the other proposals would not be significant and not result in adverse impacts both within the POA and at nearby residential and park areas such as Cherry Hill housing and Government Hill. Noise from projected operations in 2025 would also have negligible impacts.

Again, interactions among the Marine Terminal Redevelopment project, ARRC actions, the Knik Arm Ferry, bridge crossing, and AMATs road improvements would, in the end, reduce vehicle traffic outside the POA and within the nonattainment area.

NMFS and USFWS have expressed concerns that hydrodynamic changes due to construction of the Marine Terminal project, expansion at Port Mackenzie, and the Knik Arm Bridge could cumulatively affect fish habitat in Knik Arm. Discussions are ongoing with these agencies to determine whether impacts would result from cumulative changes to currents and sedimentation. Interaction with the proposed action and other actions would not negatively impact land use, recreation, or visual resources.

#### **4.5 IRREVERSIBLE AND IRRETRIEVABLE COMMITMENT OF RESOURCES**

NEPA requires that environmental analysis include identification of "...any irreversible and irretrievable commitments of resources which would be involved in the proposed action should it be implemented." Irreversible and irretrievable resource commitments are related to the use of nonrenewable resources and the effects this use could have on future generations. Irreversible effects primarily result from the use or destruction of a specific resource (e.g., energy and minerals) that cannot be replaced within a reasonable timeframe. Irretrievable resource commitments involve the loss in value of an affected resource that cannot be restored as a result of the action (e.g., extinction of a threatened or endangered species or the disturbance of a cultural resource).

For the proposed Marine Terminal Redevelopment project, most resource commitments are neither irreversible nor irretrievable. Most impacts are short-term and temporary, or longer lasting, but negligible. Those limited resources that may involve a possible irreversible or irretrievable commitment are discussed below:

- Commitment of tidelands for the Marine Terminal Redevelopment dock expansion.
- Use of various nonrenewable materials such as minerals, metals, and petroleum products during seven seasons of construction.
- Use of nonrenewable petroleum products for trucks, vehicles, loading/unloading equipment, trains, and building equipment.

The increase in the use of these materials would be minimal during construction compared to their availability.