

## **18. IRREVERSIBLE AND IRRETRIEVABLE COMMITMENT OF RESOURCES**

To facilitate comparison of project alternatives, the National Environmental Policy Act (NEPA) requires a consolidated discussion of environmental consequences to focus on any irreversible and irretrievable commitments of resources. This chapter describes the effects of the proposed rail line in relation to irreversible and irretrievable commitments of resources. An irreversible commitment of resources represents a loss of future options, and applies primarily to the use of nonrenewable resources, such as cultural resources or fossil fuels, and to resources renewable only over a long period of time. An irretrievable commitment of resources represents opportunities foregone for the period of the proposed action and relates to the use of renewable resources, such as timber or human effort, and to other utilization opportunities foregone in favor of the proposed action.

### **18.1 Applicable Regulations**

NEPA section 102 (42 United States Code [U.S.C.] § 4332) and Council on Environmental Quality regulations (40 Code of Federal Regulations [C.F.R.] § 1502.16) require that all agencies of the Federal government—

(C) include in every recommendation or report on proposals for legislation and other major Federal actions significantly affecting the quality of the human environment, a detailed statement by the responsible official on –

(v) any irreversible and irretrievable commitments of resources which would be involved in the proposed action should it be implemented.

### **18.2 Resource Commitments**

Implementation of the proposed action would result in the commitment of natural and man-made resources for proposed rail line construction and operation. The primary commitment of resources would be from rail line construction, but there would be some commitment of resources during rail line operation. Sections 18.2.1 through 18.2.8 describe the potential commitment of physical and human resources and commitment of resources for specific resource areas. The commitment of resources would be generally similar for all alternatives. This chapter does not address the No-Action Alternative because there would be no project-related irreversible and irretrievable commitment of resources under that alternative.

#### **18.2.1 Construction Materials and Labor**

If Alaska Railroad Corporation (ARRC) implemented the proposed action, large amounts of construction materials would be committed to the project. ARRC would need construction materials to build the track structure (using ballast, subballast fill material, rail ties, and steel rail), track sidings, power lines and communications cables, embankments, access roads, grade-separated crossings, rail bridges and culverts, a terminal reserve area (consisting of yard sidings, storage areas, and a terminal building to support train maintenance), and communications towers.

Human effort would be irretrievably committed during the project planning, construction, and operation phases. The commitment of time and available labor to construct the proposed rail line would represent an irretrievable commitment of resources.

### **18.2.2 Physical Setting**

Construction of the proposed rail line would lead to permanent alterations in topography of the relatively flat terrain in the Susitna Lowland, but grading and filling could be reversed in the unlikely event that the rail line was abandoned. Because outcroppings of bedrock are rare or absent throughout the study area and ARRC does not anticipate encountering bedrock in cuts required for the construction of railroad embankment or access road, there should be no irreversible changes to bedrock. All rock used as ballast and subballast during rail line construction would be obtained from the quarry in Curry, Alaska or from existing commercial quarries. Construction activities would irretrievably affect soils classified as unsuitable for construction and that need to be removed and replaced with imported, well-draining soils not susceptible to frost. Large cut slopes for construction would have a high potential for erosion, but a long-term impact would be preventable so long as the erodible soils were revegetated and stabilized following construction.

### **18.2.3 Groundwater**

Rail line construction and operation activities could affect groundwater movement through irreversible changes in infiltration and recharge rates due to compaction of the overlying soil; permanent rail line maintenance structures would negligibly affect groundwater infiltration. These effects would be limited to the footprint of the proposed rail line – which includes the rail bed, access road, and associated facilities – and to staging areas. Proposed rail line operation also could affect groundwater quality if project components and operation activities provided additional pollutant sources or pollutant pathways to groundwater. During construction and operation of borrow areas, there could be dewatering of aquifers or reservoirs of local, shallow, thawed, water-bearing zones, resulting in an irreversible change in aquifer and reservoir water levels. Excavation of borrow areas also could affect the local hydrogeologic regime (and water balance) through the removal of saturated materials, but excavated borrow areas would likely fill with groundwater over time.

### **18.2.4 Biological Resources**

The proposed rail line footprint, which includes the rail bed, access road, and permanent rail line associated facilities, would be irreversibly removed from natural habitat for the life of the proposed project. In addition, disturbance of areas for temporary construction activities could result in changes that would be irreversible over the long term. The permanent conversion of vegetation resources and wildlife habitat along the rail line and at associated facilities could represent an irreversible commitment of biological resources for the life of the proposed project and beyond if areas were not restored, if rail line abandonment occurred, or if former vegetation cover and composition did not recover. Losses of wildlife during rail line construction and operation would represent an irretrievable commitment of biological resources. Potential impacts to wetlands and riparian habitats from rail line construction would represent an

irreversible rather than irretrievable commitment of resources if these resources were not restored following abandonment.

Potential indirect impacts to the endangered Cook Inlet beluga whale from increased noise and disturbance from an increase in ship traffic could represent an irretrievable impact. However, the Office of Environmental Analysis (OEA) anticipates that the project would not result in material changes to anadromous fish runs that support beluga whales. With implementation of impact avoidance and minimization measures, OEA has determined that the proposed rail line *may affect, but is not likely to adversely affect* the Cook Inlet beluga whales (see Appendix H). The National Marine Fisheries Service (NMFS) and NMFS concurred with the OEA's finding on March 9, 2010 (see Appendix A).

## 18.2.5 Cultural Resources

Cultural resources (archaeological sites, historic trails, structures and sites, cultural landscapes, and traditional cultural properties) are nonrenewable resources, and any loss of such resources would be irreversible.

If the Board authorized construction and operation of the proposed rail line and cultural resources in the area of potential effects were found to meet *National Register of Historic Places* inclusion criteria, compliance with section 106 regulations also would include an application of the criteria of adverse effect (36 C.F.R. § 800.5). OEA consulted with 10 Federally Recognized Tribes, tribal groups, and Alaska Native Regional Corporations in the vicinity of the proposed rail line to assist with evaluation of potential cultural resources to determine their eligibility for inclusion on the *National Register of Historic Places*, to assess potential effects to eligible cultural resources from the proposed rail line and to minimize impacts to cultural resources in the area of potential effects. The rail line alternatives could intersect and affect historic trails, known cultural resources within the right-of-way (ROW), and additional cultural resources that could be identified during implementation of the Programmatic Agreement (Appendix J). Depending on the alternative selected by the Board, the proposed rail line would potentially directly impact from 5 to 28 known cultural resources within the rail line ROW and potentially impact an additional 9 to 23 outside the 200-foot ROW, but within 1 mile of the rail line centerline.

## 18.2.6 Land Use and Ownership

Proposed rail line construction and operation would require commitment of land for the rail line, access road, and associated facilities. Depending on the alternative, the proposed project would impact an estimated minimum of about 973 acres and an estimated maximum of about 1,322 acres of public and private land within the 200-foot ROW. These lands would be utilized for the 200-foot rail line ROW, access road, associated facilities, and staging areas. Land owners in the study area include the Federal and state governments, the Matanuska-Susitna Borough, the Alaska Mental Health Trust, the University of Alaska, private citizens, Alaska Native Corporations, Native Alaskan-run corporations (Cook Inlet Regional Incorporated and Knikatu Inc.) established under the Alaska Native Claims Settlement Act of 1971, 43 U.S.C. § 1601, and land given to an authorized individual Indian, Aleut, or Eskimo in Alaska under the Native Allotment Act of 1906, 43 U.S.C. § 270. Table 18-1 identifies, by land owner, the maximum amount of acreage within the 200-foot ROW the proposed rail line could affect.

**Table 18-1  
Maximum Acreage of Affected Land within the 200-Foot Right-of-Way by  
Ownership**

Land Owner	Acreage
Matanuska-Susitna Borough	563
Private	405
State	277
Other Public <sup>a</sup>	228
Mental Health Trust Authority	238
Native Regional Corporation	158
University of Alaska	44

<sup>a</sup> Includes public roads, city land, and land for which there are no data but assumed to be public.

If, at a future date, ARRC were to abandon the rail line, much of the construction material could be removed; however, it is not likely that all of the natural landscape would be restored and some of the changes would remain irreversible. If abandonment occurred, any land for which ARRC obtained a lease would presumably revert back to management by the lessor listed in Table 18-1. If purchased, land would likely remain in ARRC’s possession. If ARRC operated any land by easement, OEA assumes that these easements would be extinguished upon rail line abandonment.

Loss of recreational land uses would be irretrievable, including loss of connectivity of trails for which grade-separated crossings would not be provided. Mining land use within the ROW would be lost to use as a rail corridor; however, the potential impact to resource extraction would depend on the resource extraction technique and the vertical location of the resource. The Mac East Variant, Connector 3, and Big Lake segments would cross residential or nonresidential areas with structures and would result in impacts to those areas and structures.

### 18.2.7 Energy Resources

All rail line construction activities would consume fuel, mostly in the form of diesel. This would be an irreversible use of nonrenewable fossil fuels. Train operation on the proposed rail line would also require an irreversible commitment of fuel resources. To the extent that any bio-fuels would be used, that would be an irretrievable use of resources. OEA estimated fuel usage for train operation for the longest alternative assuming one round-trip (2 one-way trips) freight rail train per day with 3 locomotives and 80 rail cars, with a loaded weight of 125 tons per car and unloaded weight of 30 tons per car. Using these conservative assumptions, the projected annual fuel consumption for round-trip operation of a train on the proposed rail line would be less than 215,000 gallons (see Chapter 10).

### 18.2.8 Financial Resources

The commitment of financial resources would differ slightly depending on the alternative selected if the Surface Transportation Board authorizes construction and operation. The Applicant’s estimated cost to construct the proposed rail line ranges from \$199.1 million to \$286.6 million.