

## 19. 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 discusses the effects of the proposed Northern Rail Extension (NRE) with regard to irreversible and irretrievable resources.

Irreversible resource commitments represent a loss of future options. It applies primarily to the use of nonrenewable resources, such as cultural resources or fossil fuels, and to factors that are renewable only over long time spans. An irretrievable commitment of resources represents opportunities that are foregone for the period of the proposed action. It relates to the use of renewable resources, such as timber or human effort, as well as other utilization opportunities that are foregone in favor of the proposed action.

### 19.1 Applicable Regulations

NEPA Section 102 (42 United States Code 4332) and Council on Environmental Quality (CEQ) regulations (40 Code of Federal Regulations 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.

### 19.2 Resource Commitments

Implementation of the proposed action would result in the commitment of natural and man-made resources to the construction and operation of the NRE. The primary commitment of resources would come from the construction phase, but there would be some commitment of resources for operation of the rail line. The discussion below presents a combined discussion of resource commitments for the construction and operation phases, beginning with the physical materials and then discussing specific resource types as appropriate. In general, the commitment of resources would be common for all alternatives. The No-Action Alternative is not discussed, because it would not commit any resources.

#### 19.2.1 Construction Materials and Labor

If the proposed action is implemented, large amounts of construction materials would be committed to the project. The track structure would require approximately 600,000 cubic yards of subballast, 491,000 cubic yards of ballast, and large quantities of tie plates, spikes, and anchors. The rail line would be constructed with steel rails upon ties, using enough materials for approximately 490,000 track feet. The roadbed for the access road would require approximately 380,000 cubic yards of fill material. Construction of the rail line and associated structures would also require approximately 215,000 tons of riprap and 8,000,000 cubic yards of fill to create embankments.

Access road bridges would require approximately 7,100 linear feet of semi-fabricated spans, made of concrete, steel, or a combination of the two, on pile piers and abutments. Construction of culverts would require approximately 5,000 linear feet of culvert pipe.

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

### **19.2.2 Physical Setting**

Construction of the proposed rail line would lead to permanent alterations in topography through the largely undeveloped areas of the Tanana River Valley. Grading and filling could be reversed if the rail line was abandoned, but blasting of bedrock deposits would be an irreversible process. Salcha Alternative Segment 2 and Donnelly Alternative Segment 2 are the segments that are believed to require removal of bedrock but this would be unknown until construction began.

### **19.2.3 Groundwater**

It is anticipated that water will be pumped from wells for both construction and operation of the rail line (see Chapter 4). This water would be replenished through the natural water cycle following the rail construction process. The use of groundwater could be considered an irretrievable commitment of resources during the construction phase, but no estimates of water uses (rates and volumes) have been generated.

### **19.2.4 Biological Resources**

The areas that would be occupied by the rail line, rail construction and operation support facilities, and access roads would be irreversibly removed from natural habitat for the life of the proposed project.

In addition, the disturbances of areas for temporary construction activity 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 construction and operation support facilities could represent an irreversible commitment of biological resources for the life of the proposed project and beyond if areas were not restored following abandonment, or if former vegetation cover and composition did not recover. Losses of wildlife during railroad construction and operations would represent an irretrievable commitment of biological resources. Impacts to wetlands and riparian habitats from construction of the project could represent an irreversible rather than irretrievable commitment of resources if these resources were not restored following abandonment.

Much of the proposed right-of-way is currently covered with timber. As a renewable resource, clearing of this vegetation would constitute an irretrievable commitment of resources.

### **19.2.5 Cultural Resources**

Cultural resources (archeological, historical, and ethnographic) are nonrenewable resources and any loss would be irreversible. Most identified cultural resources associated with the proposed NRE are buried archeological sites, so the extent of potential effects cannot be fully characterized at this time. If the Surface Transportation Board (STB or the Board) authorizes the construction and operation of the proposed rail line, the Programmatic Agreement would be

followed to minimize the impact of the proposed NRE on the cultural resources found within the project area.

### 19.2.6 Land Use and Ownership

Construction and operation of the approximately 80-mile NRE would require the commitment of land for the rail line, construction and operational support facilities, and access roads. It is estimated that the project would require a minimum of 3,020 acres and a maximum of 3,140 acres of land. These lands would be utilized for the 200-foot rail right-of-way (ROW), ancillary facilities, extra work spaces and staging areas, and borrow areas. Land owners within the project area include the military; Alaska Department of Natural Resources; private parties; Fairbanks North Star Borough; Alaska Mental Health Trust; U.S. Army Corps of Engineers, Chena River Lakes Flood Control Project; and the University of Alaska. Table 19-1 identifies by land owner the maximum amount of acreage within the 200-foot ROW that could be affected by implementation of the project.

If at a future date Alaska Railroad Corporation (ARRC) were to abandon the railroad, although much of the construction material could be removed, it is not likely that all of the natural landscape would be restored, and some of the land commitment would remain irreversible. Following abandonment of the rail line, any lands for which ARRC obtained lease would presumably revert back to management by the lessor listed in Table 19-1. Private lands, if purchased, would probably stay in the possession of ARRC. If ARRC operated on any land by easement, it is presumed that these easements would be extinguished upon rail line abandonment.

**Table 19-1**  
**Maximum Acreage of Land Within the 200-foot ROW by Ownership Affected by Project Implementation**

Land Owner	Acreage
Alaska Department of Natural Resources	1,224
Military	425
Private	147
U.S. Army Corps of Engineers, Chena River Lakes Flood Control Project	64
University of Alaska	44
Alaska Mental Health Trust	40
Fairbanks North Star Borough	12
<b>Total</b>	<b>1,956</b>

Loss of recreational land uses would be irretrievable. Eielson Alternative Segment 1 would cross through some property in the Eielson Farm Community, thereby decreasing farming surface area. The agricultural use value of land reflects the discounted present value of the stream of all future expected net cash flows arising from farming the land.

### 19.2.7 Visual Resources

The visual impacts of constructing and operating trains along the NRE would range from no visual contrast to strong visual contrast, and the long-term visual impacts from the cleared vegetation, cuts, fills, and access roads would range from weak to strong (Chapter 14). Where land commitments are irreversible, the visual impacts would generally remain irreversible.

## **19.2.8 Energy Resources**

All construction activities supporting the implementation of the proposed action would consume fuel, mostly in the form of diesel. This would be an irreversible use of nonrenewable fossil fuels. Operation of trains on the proposed rail line would also require an irreversible commitment of fuel resources. To the extent that any bio-fuels were used, it would be an irretrievable use of resources. Fuel usage estimates were based on the assumption that one round trip freight train and eight one-way passenger trains per day would operate on the rail line. Using these conservative assumptions, total diesel fuel usage per week would be approximately 7,400 gallons for freight trains and 2,800 gallons for passenger trains. The conservative projected annual fuel consumption for round-trip operation of a train on the proposed approximately 80-mile rail line is approximately 387,000 gallons (see Chapter 10).

## **19.2.9 Financial Resources**

The commitment of financial resources differs slightly depending on which series of alternative segments may be authorized by the STB for construction and operation, if any, but it is estimated that the cost per rail mile is \$6.43 million. Therefore, the approximately 80-mile long proposed NRE and a passenger depot facility yield a cost estimate of \$518.8 million.