

## **5.20 Irreversible and Irretrievable Commitment of Resources**

*This section discusses likely irreversible and irretrievable commitments of resources for the project. The impact of the project alternatives on resources that will be forever lost or altered also is discussed.*

### **5.20.1 What is an irreversible and irretrievable commitment of resources and why is it important to this project?**

The phrase “irreversible commitment of resources” describes resources that are used in project implementation and will never return. Examples of irreversibly committed resources include the use of fuel, mineral resources, labor, and expense. Irretrievable commitments of resources are those that will not be returned to their original state or are unavailable for a time. An example of an irretrievably committed resource is land used during construction.

Federal law requires examination of irreversible and irretrievable commitments of resources. Also, if the loss caused by these resource commitments outweighs the potential benefit of a project alternative, the merits of project implementation should be questioned.

### **5.20.2 Have there been any changes to the irreversible and irretrievable commitment of resources since the release of the 2008 Draft EIS?**

The 2008 Draft EIS did not include an analysis of the irreversible and irretrievable commitment of resources. Currently, NEPA (Section 102, Title 42 USC §4332), the CEQ implementing regulations (40 CFR 1502.16), the FHWA implementing regulations (40 CFR 771 and 777), and the FHWA Technical Advisory T6640.8A require federally related actions with the potential to affect the quality of the human environment to provide a statement on irreversible and irretrievable commitment of resources.

### **5.20.3 What study area and evaluation process were used to analyze the irreversible and irretrievable commitment of resources?**

The irreversible and irretrievable commitment of resources is determined for all project-related actions regardless of geography. Analysis is not limited to the study area because project-related actions may require an irreversible or irretrievable commitment of resources from areas far removed from the study area boundaries, such as extracting, refining, and

delivering construction materials; deriving, refining, and transporting required fuels; and obtaining, transporting, processing, and converting resources (primarily coal) into energy.

The process used to determine the irreversible and irretrievable commitment of resources examines all environmental resources documented in Chapter 5, Affected Environment, Environmental Consequences, and Mitigation. For each affected environment and environmental consequence reported, potential irreversible and irretrievable commitments are researched and documented.

#### **5.20.4 How do the project alternatives potentially affect irreversible and irretrievable resources?**

All alternatives, including the No-Action Alternative, require a substantial commitment of resources that are irreversible and irretrievable. For example, construction requires vast commitments of construction materials, fuel, energy, land, funding, and labor that are irreversible and irretrievable.

Construction materials used to build any of the alternatives—such as aggregate, steel, and petroleum—will be irretrievably committed to the project. These materials cannot be retrieved until they are removed, recycled, and used elsewhere. In addition, water used directly in concrete mixtures or through dust abatement will effectively be an irreversible expenditure. Although concrete can be retrieved through recycling and reuse, the water used to make it is irreversibly locked in solid form.

Fossil fuels consumed during construction activities, such as through electricity and vehicle use, will be irreversibly expended since their use cannot be reversed or resources replenished.

An irretrievable commitment of land will result from construction of any alternative because this land will be occupied by the alternative for as long as it is present. For example, acquisition of portions of the Swansea Elementary School playground will be an irretrievable loss with the northern design options of the alternatives, including the No-Action Alternative. However, mitigation strategies with the Build Alternatives will compensate for and minimize the use of the playground.

Historic resources adversely affected by alternatives construction will result in an irretrievable loss. When these resources are demolished, or are impacted such that their historic integrity is compromised, the historic value cannot be restored.

Visual and aesthetic qualities “used” for construction of the alternatives will be an irretrievable commitment of these resources because viewsheds and aesthetic qualities will be changed as long as the project is present. Similarly, the alternatives will create additional noise, resulting in quiet lost through the duration of the project life. Quiet, or noise at an acceptable level, could conceivably be restored if the project is removed.

Irretrievable losses of vegetation and habitat will result from constructing the roadway and associated infrastructure over or on top of these resources. The lost vegetation and habitat could only be retrieved and restored if the project is removed. Wetlands also will be irretrievably lost through placement of fill to construct the project. While these impacts will be mitigated to ensure no net loss, the function and value of impacted wetlands may be irretrievably lost.

Water quality also may be degraded through increased impervious surface, which can result in increased runoff into adjacent water bodies. This degradation will constitute an irretrievable commitment of water resources because water quality improvements could conceivably be retrieved if the alternative is removed and restoration strategies implemented.

Lastly, manpower and funding used to construct any alternative will result in irreversible fiscal resource commitments. When time and money are dedicated to the project and used, these expenditures cannot be restored or dedicated to another project if an alternative is removed one day.

Despite these common effects among alternatives, there are some differences in the irreversible and irretrievable commitment of resources between the Build Alternatives and the No-Action Alternative. These differences are discussed in the following sections.

### **No-Action Alternative**

Due to its smaller footprint and overall scope compared to the Build Alternatives, the No-Action Alternative commits fewer irreversible and irretrievable resources—such as land and fiscal resources—than the Build Alternatives. Nevertheless, more fuel and time will be irreversibly lost from greater levels of congestion and delay associated with the No-Action Alternative over a long-term timeframe.

## **Build Alternatives**

Because both Build Alternatives have a larger footprint compared to the No-Action Alternative, they require a greater irreversible and irretrievable commitment of land, construction material, fuel, energy, funding, and labor than the No-Action Alternative. There are no substantial differences, however, between the Build Alternatives in their irreversible and irretrievable commitment of resources.

Nevertheless, the Build Alternatives provide substantial long-term benefits that are not offered by the No-Action Alternative. These long-term benefits—such as improved neighborhood cohesion—outweigh the up-front irreversible and irretrievable commitment of resources associated with the Build Alternatives. The most substantial benefit of the Build Alternatives is greater mobility, which means less congestion and, in turn, less fuel is irreversibly lost to engine idling. Less congestion also benefits the drivers who irretrievably lose their time sitting in congested traffic. The time savings with the Build Alternatives compared to the No-Action Alternative is approximately 13,000 daily hours (Dunham, 2013).

### **5.20.5 How are the negative effects from the project alternatives mitigated for these resources?**

No mitigation specific to the irreversible and irretrievable commitment of resources is required for the project alternatives. However, the irreversible and irretrievable commitment of resources is minimized through the mitigation provided for other affected environments and environmental consequences, as identified in Chapter 5, Affected Environment, Environmental Consequences, and Mitigation.