

provide the policy and procedures for how the NPS will comply with NEPA. The process must provide reasonable alternatives that minimize adverse impacts. The impact analysis must utilize the best scientific information available, be scrutinized by other agencies and the public, and include direct, indirect, and cumulative impacts (NPS 2001a). Overall guidance on defining and evaluating impacts and assessing the potential for impairment to NPS resources is provided in the sections below.

Two of the alternatives, the Partial-Build Alternative to Bushnell and the Northern Shore Corridor, are presented throughout the document as baseline routes with segment options and two road type options, as detailed in Section 2.5. The baseline routes for these alternatives share the same northern alignment for 8.0 miles related the Primitive Park Road and 5.8 miles related the Principal Park Road. The baseline route and all options were afforded the same level of detail during the analysis. Baseline routes for each road type have been compared to existing conditions (i.e., the No-Action Alternative). Southern crossings of embayments and the terminus location provide options that may be used in any combination to form alternate routes for the Northern Shore Corridor and the Partial-Build Alternative to Bushnell, as shown on Figure 2-8. Impact analyses for the options are shown as a difference from the associated baseline route. Refer to the previous page for a comprehensive list of route and road type combinations.

This EIS documents the analysis of impacts without detailed mitigation, based on information known to date. Detailed mitigation plans would be developed before implementation of an alternative. Development of a Memorandum of Understanding (MOU) between the NPS and FHWA is currently underway to document the commitment of the two agencies to jointly produce detailed mitigation plans if a partial-build or build alternative is implemented. Final design and detailed mitigation may reveal site specific impacts that are not currently known. Additional NEPA analysis would be required if impacts were found to be greater than identified in this EIS for any of the partial-build or build alternatives.

4.1.1 Impact Methods/Thresholds

DO-12 requires that an EIS must discuss the impacts of each reasonable alternative under consideration and must quantify the impacts in terms of their type, context, duration, and intensity. This section defines the type, context, duration, and intensity for impacts based upon NPS technical guidance and internal documents.

Methodologies, detailed guidance and regulations, and tailored definitions of impact intensity are provided for each resource, or group of resources, in the corresponding section in this chapter. Definitions for the impact to each resource topic are specific in an individual EIS.

Type

Impacts are identified as beneficial or adverse. In rare circumstances, impacts are found to be indeterminate for impacts that were not clearly adverse or beneficial or which might result in effects of both types.

Clarification of the term "baseline" for this project:

The Partial-Build Alternative to Bushnell and the Northern Shore Corridor include a baseline route, as well as options to that route. Baseline routes and options are detailed in Section 2.5 and shown on Figure 2-8. Baseline routes have been compared to existing conditions. Impact analyses for the options are shown as a difference from the associated baseline route.

Context

Effects to a resource are based on a relevant context for that resource, which may be based on geographic areas, relevant population of the resource, or, in the case of many socioeconomic effects, the perceptions of affected individuals or groups.

Duration

Effects are short-term, long-term, or permanent. Defining short-term and long-term effects of the alternatives is complicated in that the construction alternatives require a range of years to complete. For the purpose of analysis, construction periods were assumed to be 2 years for the Laurel Branch Picnic Area, 5 years for the Partial-Build Alternative to Bushnell, and 15 years for the Northern Shore Corridor. The definition of permanent is incorporated, in particular, with natural resource impacts, since long-term effects may occur well before the time-period of construction is complete.

Intensity

As noted, the intensity of the impacts varies for each resource, but is categorized by NPS guidance as no/negligible, minor, moderate, or major. The intensity of direct and indirect impacts to the same resource may vary. Direct impacts are not necessarily more intense than indirect impacts.

4.1.2 Cumulative Impacts

The CEQ regulations to implement the NEPA require assessment of cumulative impacts in the decision-making process. Cumulative impacts are defined as "impacts on the environment which result from the incremental impact of the action when added to other past, present, and reasonably foreseeable future actions regardless of what agency (federal or nonfederal) or person undertakes such other actions" (40 CFR 1508.7).

Cumulative effects were determined for each resource by combining the direct and indirect impacts of the alternatives being considered with other applicable past, present, and reasonably foreseeable future actions in the study area. The study area for cumulative impacts was expanded to include the entire GSMNP in order to adequately address cumulative impacts to Park resources. Cumulative impacts of some resource topics (e.g., economics) have the potential to extend outside this defined study area boundary and are discussed from a regional perspective. In addition, some past, current, or future actions outside this study area are discussed due to their relevance to the project or their regional impact.

Cumulative effects can be distant from the project in time, as well as space; therefore, a time horizon for the analysis was also considered. The temporal boundary for the analysis was set generally beginning in the late nineteenth century in order to consider those past actions that played a major role in shaping the study area. A future temporal boundary of 20 years (2025) was set to encompass planned projects in the study area, as

Clarification of the term "baseline" for this project:

The Partial-Build Alternative to Bushnell and the Northern Shore Corridor include a baseline route, as well as options to that route. Baseline routes and options are detailed in Section 2.5 and shown on Figure 2-8. Baseline routes have been compared to existing conditions. Impact analyses for the options are shown as a difference from the associated baseline route.