

Table 1 Continued
Roadway Design Criteria Guidance

- 1 The average daily traffic volumes were preliminary assumptions based on the range of traffic appropriate for each roadway type.
- 2 Roadway curvature advisory postings may have lower speed limits.
- 3 The width of grass shoulders may vary in some locations.
- 4 Grades may be up to 2 percent steeper for lengths less than 500 feet on one-way downgrades and low-volume roads.
- 5 K Value is associated with vertical curvature and stopping sight distance.

2.2 Initial Options Considered

An extensive list of initial options to be considered was compiled after review of previously documented concepts and recommended alternatives from various sources. North Carolina Department of Transportation files and GSMNP documents were reviewed. GSMNP documents included: the GMP, GMP Final EIS, Road System Evaluation, Transportation Concepts, and the Development Concept Plan Environmental Assessment for Deep Creek and Laurel Branch. The 1943 Agreement was also reviewed. Various other correspondence spanning the project's history, including public comments received since the study has begun and agency letters, was reviewed. Public comments were obtained through court reporter transcripts and other written correspondence sent to the project post office box, the NPS, the Federal Highway Administration (FHWA), and the project website.

All options were given full consideration in the development of the preliminary study alternatives. The list, which consisted of approximately 100 options, was preliminarily reviewed to determine if the options met the criteria described above. (Note: "Criteria" includes the purpose and need, the 1943 Agreement, the goals and objectives, the reasonability of the option, the screening criteria, and the roadway design criteria.) Those that did not meet the criteria were eliminated from further consideration. In addition, those options that were considered to have a substantially higher magnitude of adverse impact were eliminated from further consideration. The initial options are shown in Appendix A. This list was included in the public handout provided at the public workshops in February/March 2004 and on the project website.

Transportation System Management (TSM) should be included as an alternative for consideration in a transportation improvement project where applicable. The TSM alternative can include a variety of strategies for maximizing the efficiency and effectiveness of existing transportation facilities. The TSM alternative is usually relevant only for major projects proposed in urbanized areas with populations over 200,000. Because the study area is rural with a low density population, the existing

roadway network is operating at an acceptable LOS, and the purpose of and need for the proposed project does not include a traffic-related need, TSM options were eliminated from further study.

As appropriate, Mass Transit should be included as an alternative for consideration in a transportation improvement project. Such an alternative includes reasonable and feasible transit options such as bus and rail and should be evaluated as an alternative to major highway projects in urbanized areas with populations over 200,000. The study area is rural with low population density and no bus service operates in the area. Furthermore, because of the need for flat grades and gentle curves, the construction of a rail line through the study area would cause much greater environmental damage than any of the partial-build or build alternatives being proposed. For these reasons, Mass Transit was eliminated from further consideration as an alternative.

Whereas US 74-NC 28 has adequate capacity to serve through and local east-west traffic south of the lake, it offers no access to GSMNP. Even though the existing road is adequately serving local and through traffic, it is doing little, if anything, to enhance the GSMNP visitor experience. The 1943 Agreement specified a road on the north shore of Fontana Lake, connecting Bryson City and Deal's Gap. While the existing road system provides the east-west connection from Bryson City to Deal's Gap as intended in the 1943 Agreement, it is doubtful that improving the present system would meet the full intent of the 1943 Agreement because NC 28 does not traverse north of Fontana Lake. Therefore, any plans to improve existing NC 28 were eliminated from further consideration.

2.3 Initial Build and Partial-Build Concepts Considered

The initial partial-build and build concepts are shown as corridor segments in Figure 6. These concepts reflect the initial options discussed above that met the project's purpose and need, goals and objectives, and were considered reasonable. The screening criteria and roadway design criteria were used to locate these corridor segments. Because of the rugged terrain, engineering constraints such as the horizontal and vertical alignment were given careful consideration in the development of these corridor segments. After a review of the corridor segments, certain segments and destination locations were eliminated from further study due to the anticipated magnitude of their impacts as compared with the other corridor segments. The anticipated impacts included the likelihood for greater habitat fragmentation, wildlife segmentation, and other impacts to the backcountry experience. These potential segments would also likely require substantial earthwork, resulting in deeper cuts and higher fills. The remaining segments are shown in Figure 7 as the Preliminary Study Alternatives. The partial-