

## **ALTERNATIVE D: DECREASED MOTORIZED ACCESS**

As shown in figure 34a, direct impacts under alternative D total 6,351 acres of land (0.51% of the Glenn Canyon land area). These areas could potentially experience a 3 dBA increase in natural ambient level due to conventional vehicle operations. During times when no motorized vehicles are operating in a particular area, no impacts would occur. The degree and geographic extent of impacts on soundscapes would not be affected by the 96 dBA limit because no OHV or street-legal ATV use would be allowed within Glen Canyon (the limit only applies to OHVs and street-legal ATVs)

### **Lone Rock Beach and Play Area**

Lone Rock Beach would be open to conventional motor vehicles only under alternative D, by permit. All motor vehicle use would be discontinued at the Lone Rock Beach Play Area under alternative D. Impacts on natural soundscapes from conventional vehicles operating on Lone Rock Beach could extend up to 2,900 feet from the source (at 15 mph). The scale and labeling of figure 34a do not make this small area of noise effects visible.

### **Accessible Shorelines**

Off-road use would be discontinued at 11 accessible shoreline areas, while four (Dirty Devil, Farley Canyon, Stanton Creek, and Hite Boat Ramp only) would remain open only to conventional motor vehicles. Impacts on natural soundscapes from conventional motor vehicles operating on accessible shorelines could extend up to 2,900 feet from the source (at 15 mph). The scale and labeling of figure 34a do not make this small area of noise effects visible. The typical usage pattern at the accessible shorelines is that vehicles drive to the beach and park, thus the duration of impacts would be short-term and the intensity of impacts would be low.

### **Travel on GMP Roads in Glen Canyon**

Only conventional motor vehicles would be authorized to operate on GMP roads in Glen Canyon under alternative D. Therefore, no direct impacts on soundscapes from OHV or street-legal ATV use would occur (conventional vehicle use on GMP roads is only considered as part of cumulative impacts).

### **Ferry Swale**

No ORV routes would be designated in the Ferry Swale area under alternative D. Therefore, there would be no direct impacts on soundscapes.

### **Cumulative Impacts**

The actions by others contributing to cumulative impacts under alternative D would be the same as described for alternative A. Approximately 481,146 acres of land or 38.36% of Glen Canyon land area would be in the cumulative noise effect zone under alternative D (see figure 34b). The 96 dBA limit on OHV and street-legal ATVs is not applicable under alternative D because no OHVs or street-legal ATVs would be allowed.

The potentially adverse impacts on soundscapes from aircraft overflights, watercraft, and motorized vehicle use on roads and off-road on adjacent federal lands would result in long-term adverse cumulative impacts when combined with the impacts of alternative D.

The closure of 11 accessible shorelines would decrease the area of Glen Canyon subject to motorized vehicle noise effects. In particular, the southern parts of Crosby Canyon and Warm Creek would be within the cumulative noise effect zone under alternative A would not be in the cumulative noise effect zone under alternative D. The extent of cumulative impacts would also be reduced around Bullfrog North and South although portions of these areas

would still be within the noise effect zone of roads under alternative D. The portions of Paiute Canyon, Neskahi, and Copper Canyon within Glen Canyon would no longer be within the cumulative motorized vehicle noise effect zone.



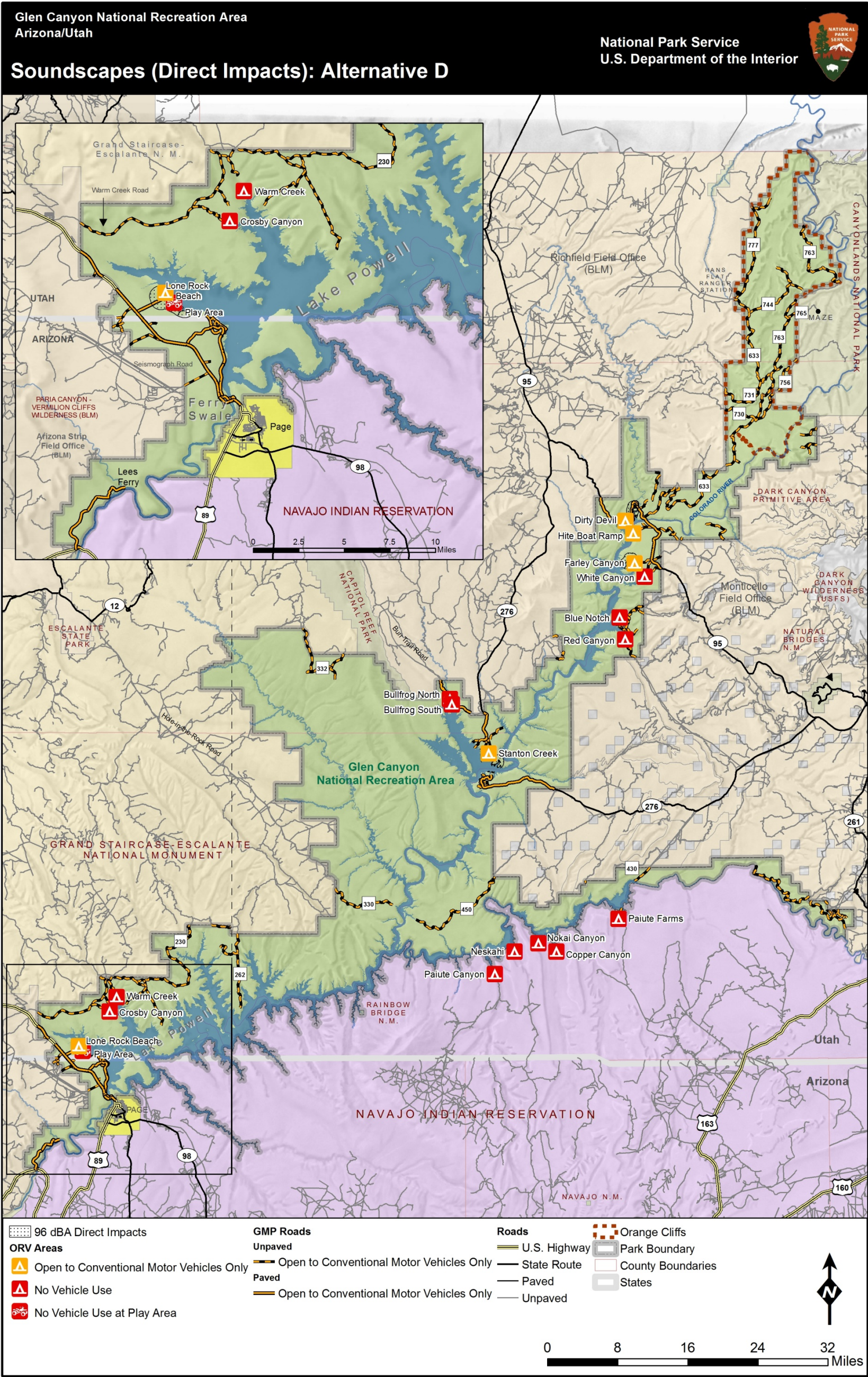


FIGURE 34A: DIRECT IMPACTS ON THE SOUNDSCAPE FROM ALTERNATIVE D







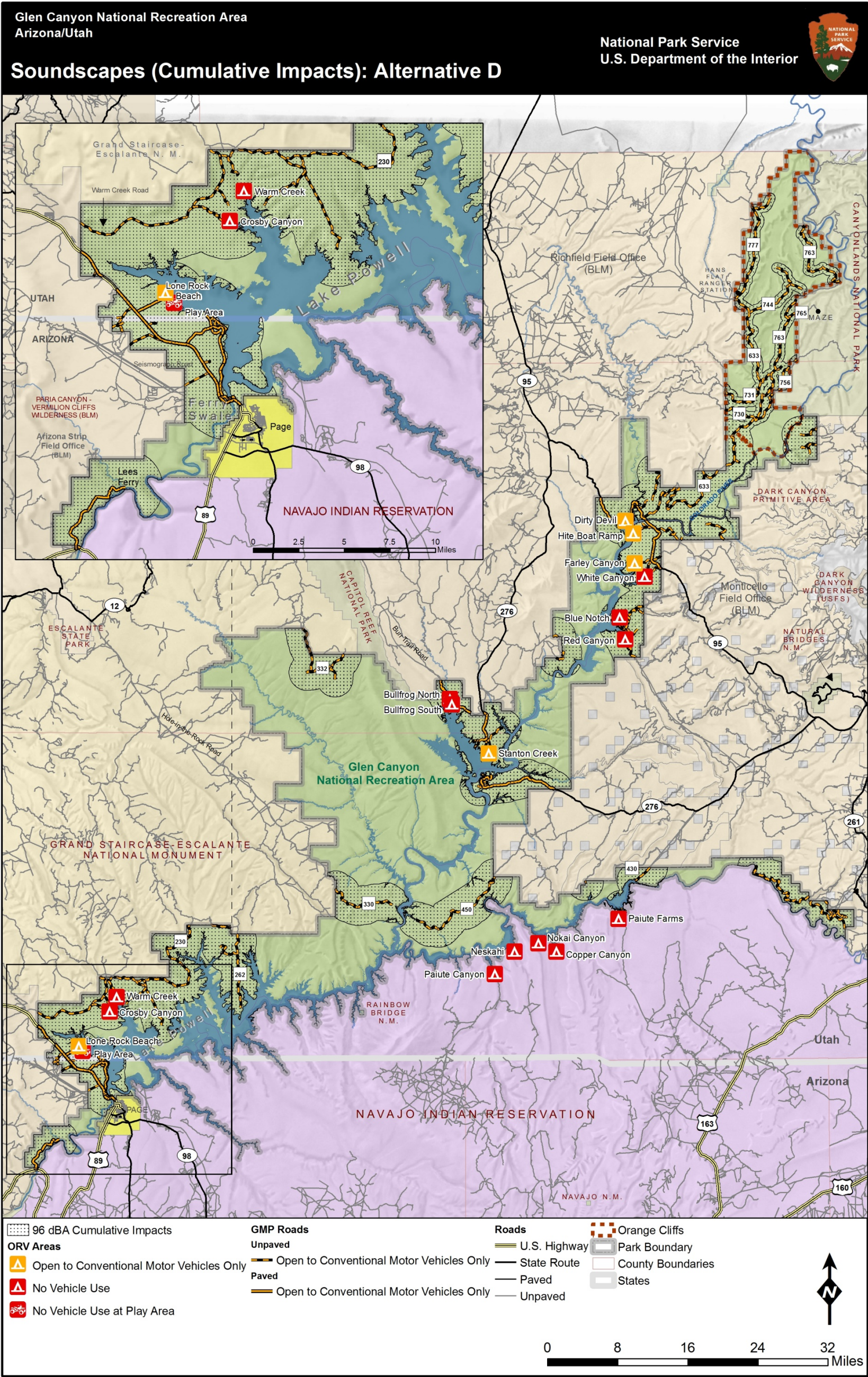


FIGURE 34B: CUMULATIVE IMPACTS ON THE SOUNDSCAPE FROM ALTERNATIVE D





## **ALTERNATIVE E: MIXED USE**

As shown in figure 35a, direct impacts under alternative C total 373,135 acres of land (28.75% of the Glen Canyon land area). These areas could potentially experience a 3 dBA increase in natural ambient level due to motorized vehicle operations. During times when no motorized vehicles are operating in a particular area, there would be no impacts. The degree and geographic extent of impacts on soundscapes would be substantially increased through implementation of the 96-dBA limit on OHVs and street-legal ATVs (82,190 fewer acres within the direct impact noise effect zone or 23.20% of Glen Canyon).

### **Lone Rock Beach and Play Area**

Lone Rock Beach and the Lone Rock Beach Play Area would be open to conventional motor vehicles, OHVs, and street-legal ATVs under alternative E, with the exception of a 20-acre vehicle-free area. All types of motor vehicles would also be allowed in the Lone Rock Beach Play Area. The level of use of these areas is expected to remain high and similar to existing conditions (77,000 vehicle entrances in 2011, see the “Socioeconomics” section in this chapter). Impacts would extend up to 5,460 feet with the 96 dBA limit. All of Lone Rock Beach would be within the noise effect zone of motor vehicle use at the Lone Rock Beach Play Area under alternative E, with the 96-dBA limit (see figure 35a). This would include impacts on the listening area of wildlife and non-motorized human uses. The duration of impacts would be extensive—the play area in particular can result in nearly continuous motorized vehicle use during the day (see chapter 3). The 96 dBA limit would likely provide a noticeable reduction in the intensity of sound levels in this area by eliminating the loudest vehicles.

The vehicle-free area would provide benefits to non-motor vehicle users at a local level, reducing the intensity of human-caused changes in natural soundscapes attributable to motorized vehicles. Noise from OHVs and street-legal ATVs would be reduced in vehicle-free area under alternative E because the distance between OHV and street-legal ATV use in designated areas and the vehicle-free area would increase. However, OHV and street-legal ATV activities in the play area would be still audible.

### **Accessible Shorelines**

Impacts on soundscapes along accessible shorelines would be similar to those described under alternative C. However, off-road use would be discontinued at Warm Creek, and therefore no direct impacts on soundscapes would occur at this accessible shoreline. Warm Creek would still be within the noise effect zone of OHVs and street-legal ATVs operating on nearby GMP roads, but the extent of this impact would be reduced through implementation of the 96 dBA limit.

### **Travel on GMP Roads in Glen Canyon**

Adoption of the 96-dBA limit would likely provide a noticeable reduction in overall motorized vehicle sound levels by eliminating the loudest OHVs and street-legal ATVs. The extent of impacts would be reduced to 5,460 with the 96-dBA limit. Although no data is available on exact volumes, the GMP roads (especially unpaved roads) have low traffic volumes and would be expected to continue to have low volumes under alternative E. Therefore, the duration of direct impacts on soundscapes would be short-term and the intensity of impacts would be low.

In addition, a minor reduction in the noise effect zone (with the 96 dBA limit) could occur due to the reduction of the speed limit on unpaved GMP roads from 45 mph to 25 mph. For reasons discussed in the methodology section, this potential benefit was not accounted for in the spreadsheet analysis and tabulation of acreage within the noise effect zone.



## **Ferry Swale**

Impacts on soundscapes in the Ferry Swale area would be the same as described for alternative C.

## **Cumulative Impacts**

The actions by others contributing to cumulative impacts under alternative E would be the same as described for alternative A. The cumulative impact percentage would be reduced to 38.76% of Glen Canyon with the 96 dBA limit on OHVs and street-legal ATV s (see figure 35b).

The potentially adverse impacts on soundscapes from aircraft overflights, watercraft, and motorized vehicle use on roads and off-road within Glen Canyon and on adjacent federal lands would result in long-term adverse cumulative impacts when combined with the adverse (no mitigation) or beneficial (with mitigation) impacts of alternative E.



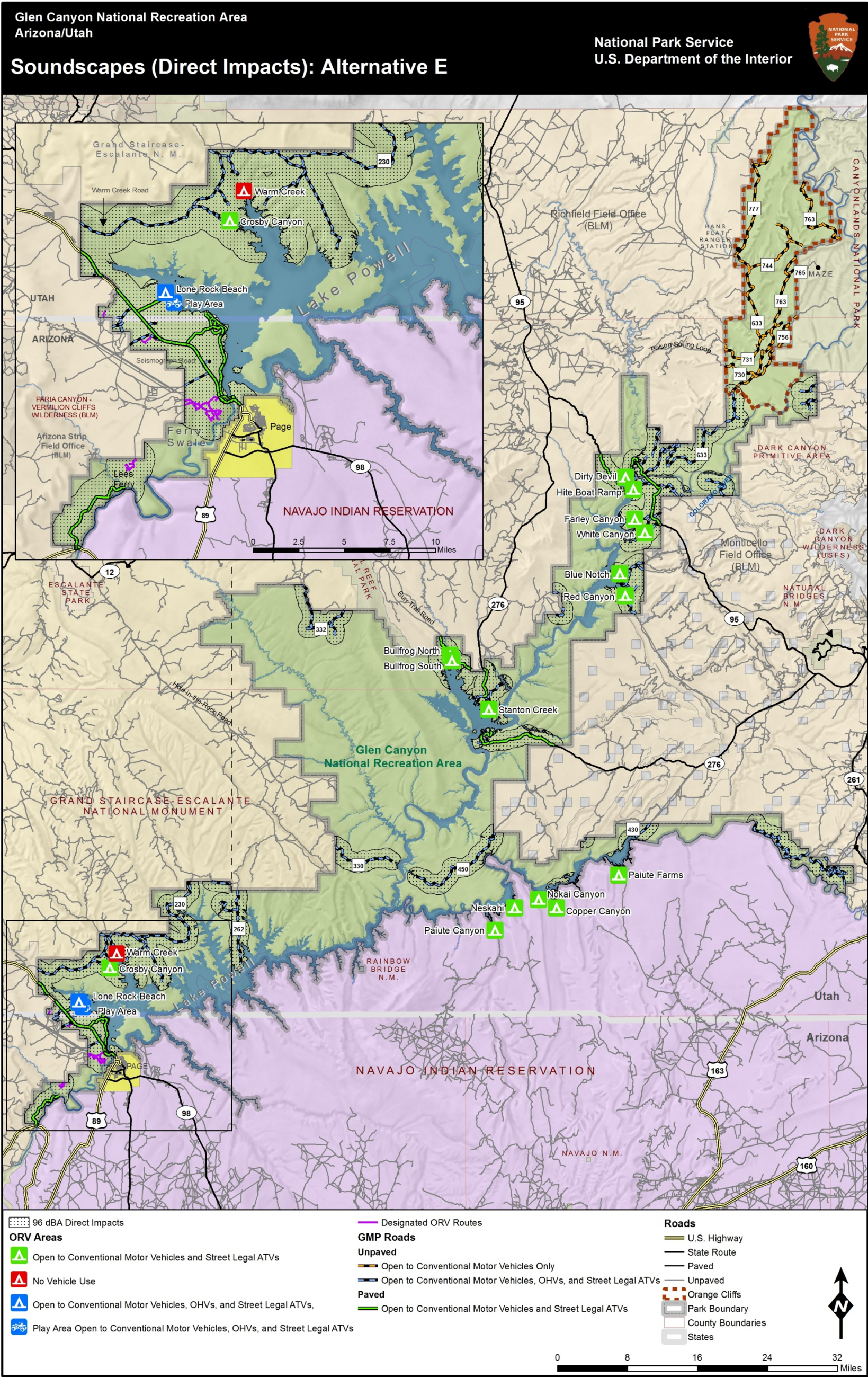
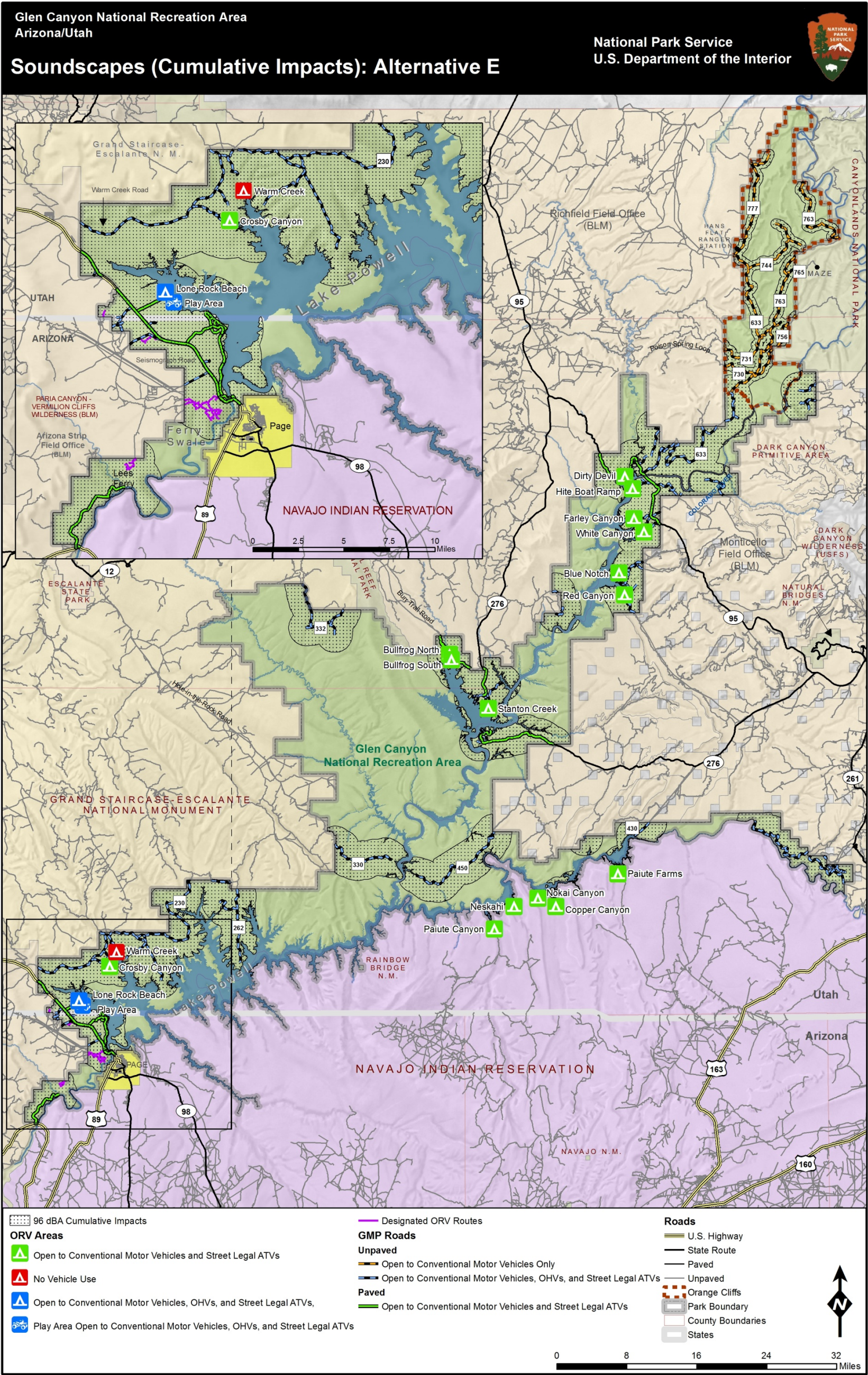


FIGURE 35A: DIRECT IMPACTS ON THE SOUNDSCAPE FROM ALTERNATIVE E













## CONCLUSION

Table 33 provides an overview of the direct and cumulative impact analysis results for each alternative for Glen Canyon as a whole. Figures 31a, 32a, 33a, 34a, and 35a show the direct impact zone of OHV and street-legal ATV use. Figures 31b, 32b, 33b, 34b, and 35b show the cumulative noise effect zone taking into account the direct impacts of each alternative plus the use of conventional motor vehicles on GMP roads. The noise effect zones shown on the maps and summarized in the table represent the area where there would be a 3 dBA or greater increase in sound levels due to motorized vehicles over the natural ambient level of approximately 20 dBA. A 3 dBA increase is important because it results in a 50% reduction in listening area for humans and wildlife (see the methodology section).

**TABLE 33: ACREAGE OF GLEN CANYON WITH 50% REDUCTION IN LISTENING AREA DUE TO MOTORIZED VEHICLES, WITH AND WITHOUT 96 dBA LIMIT**

Alternative	No Limit on OHV and ATV Noise <sup>a</sup>				96 dBA Limit on OHV and ATV Noise			
	Direct Impacts		Cumulative Soundscape Impact: All Motorized Vehicles <sup>b</sup>		Direct Impacts		Cumulative	
	Acres Affected	Percent of Glen Canyon Affected <sup>b</sup>	Acres Affected	Percent of Glen Canyon Affected	Acres Affected	Percent of Glen Canyon Affected <sup>b</sup>	Acres Affected	Percent of Glen Canyon Affected
A	362,269	28.88%	487,693	38.88%	N/A <sup>c</sup>	N/A	N/A <sup>c</sup>	N/A
B	351,408	28.02%	481,136	38.36%	270,503	21.57%	481,136	38.36%
C	479,270	38.21%	542,381	43.24%	377,555	30.10%	515,773	41.12%
D	6,351	0.51%	481,146	38.36%	N/A <sup>a</sup>	N/A	N/A <sup>c</sup>	N/A
E	373,135	29.75%	492,895	39.30%	290,945	23.20%	486,188	38.76%

a. The shaded areas of the table are not applicable, and are shown for comparison purposes only. No OHV or street-legal ATV use would be allowed under alternative D, therefore the 96-dBA limit is not applicable to this alternative.

b. The direct impacts scenario examines the impact of motorized vehicle use that is the subject of this plan/DEIS, which does not include conventional vehicle use on GMP roads (OHV and street-legal ATV use on such roads is included as part of direct impacts). The cumulative noise analysis includes conventional motor vehicle use on all GMP roads, paved and unpaved, within Glen Canyon. Although conventional vehicle use on GMP roads is not affected by any of the action alternatives, they were included in the analysis to provide a more realistic understanding of the cumulative area of the recreation area that is affected by motorized vehicle noise.

c. The 96 dBA limit would not be established under alternative A, the no-action alternative.

In terms of direct impacts on soundscapes, the prohibition of OHVs and street-legal ATVs on GMP roads under alternative D would result in substantially less impacts on natural soundscapes than alternative A and the other action alternatives (B, C, and E). Less than 1% of the Glenn Canyon land area would be within the direct impact noise effect zone of conventional vehicles under alternative D, compared to 28.88% of Glen Canyon under alternative A. Alternatives B and D would eliminate the high-intensity sound levels attributable to off-road use at the Lone Rock Beach Play Area and would not designate ORV routes in Ferry Swale. The beneficial impacts of alternative D on soundscapes would be most noticeable near the Lone Rock Beach Play Area. However, beneficial impacts would not be as noticeable in remote areas distant from roads and the play area—the quality of soundscapes in these areas would remain high and similar to existing conditions.

Alternative C would have a substantially greater direct impact on soundscapes than alternative A affecting 38.21% of the total land area of the Glen Canyon National Recreation Area. The primary cause of the higher acreage



affected under alternative C is allowing OHVs and street-legal ATVs on GMP roads in the Orange Cliffs Unit (roads in the Orange Cliffs Unit would be open to conventional vehicles only under other alternatives). Incorporation of the 96-dBA tailpipe limit under alternative C would reduce the impacts, but they would still be greater than alternative A and the other action alternatives (377,555 acres or 30.10%). The increase in impacts would be most noticeable in the vicinity of roads in the Orange Cliffs Unit. However, the quality of soundscapes in remote areas distant from where motor vehicles are allowed would remain high and similar to existing conditions.

Under alternative B, the elimination of off-road use at Lone Rock Beach and play area, as well as at accessible shorelines, would result in a slightly lower acreage of the Glen Canyon National Recreation Area potentially impacted compared to alternative A (10,861 acres less or 28.02% of the land area). The extent of direct impacts under alternative B would also be less than under alternatives C and E, but greater than under alternative D. While the reduction in acreage is not large on a recreation area-wide basis because street-legal ATV use would continue on GMP roads (outside Orange Cliffs Unit), the intensity and duration of impacts in the vicinity of the Lone Rock Beach area would be reduced substantially. Incorporating the 96-dBA limit, direct impacts would be reduced to 270,503 acres, or 21.57% of the land area. The beneficial soundscapes impact of eliminating off-road use at Lone Rock Beach and play area would be very noticeable in adjacent areas. However, beneficial impacts would not be as noticeable in remote areas distant from the play area – the quality of soundscapes in these areas would remain high and similar to existing conditions.

Alternative E would result in slightly greater impacts on soundscapes than alternative A (approximately 10,866 acres more, or 29.75% of the land area). The primary driver in the difference in impacted acreage from alternative A is that street-legal ATVs would be allowed at accessible shorelines and OHVs on unpaved GMP roads under alternative E. Alternative E would result in greater direct impacts on soundscapes than alternatives B and D, but less impacts than alternative C. At the local level, the designation of a vehicle-free area at Lone Rock Beach would reduce the intensity of potential impacts, but off-road use in the adjacent play area would remain noticeable. Mitigation of noise from OHVs and street-legal ATVs (the 96-dBA tailpipe limit) would reduce the impacts of alternative E to less than alternative A (290,945 acres or 23.20%). The increase in impacts due to alternative E would be most noticeable in the vicinity of accessible shorelines. The quality of soundscapes in remote areas would remain high and similar to existing conditions.

All of the alternatives would contribute to adverse cumulative impacts on natural soundscapes in combination with actions by others that include conventional vehicle use on GMP roads, illegal use on adjacent lands, aircraft overflights and watercraft, among others. The difference between direct impacts and cumulative impacts is particularly important for alternative D, where 481,146 acres (38.36%) of land area would be impacted, primarily due to conventional motor vehicle use on GMP roads. Cumulative impacts on soundscapes without the 96 dBA limit would be the greatest under alternative C. Cumulative impacts under alternative E would be less than alternative C, but greater than alternatives A, B, and D.

The context for evaluating the significance of soundscapes impacts is the GMP management zones. For example, motorized vehicle use within the Development Zone (which includes Lone Rock Beach and play area) is consistent with the objectives of that zone. Human activity and associated motorized vehicle noise is generally an expected and accepted element of Development and Recreation and Resource Utilization Zones. Thus, motorized vehicle use in such areas would likely result in less than significant impacts on natural soundscapes. The majority of soundscape impacts from the alternatives occur in the Development and Recreation and Resource Utilization Zones. However, even when motorized vehicle use occurs in the appropriate Development and Recreation and Resource Utilization Zones, impacts on the natural soundscape can extend into the adjacent Natural Zone where such sounds are inconsistent with the management objectives of the zone. Areas where impacts from OHV or street-legal ATV use extend into the Natural Zone and the areas along unpaved GMP roads, including NPS 330, 332 and 450. However, the core of the Natural Zone areas remains a pristine natural soundscape under any of the alternatives. In addition, noise extending into this zone from vehicles authorized under any alternative, will likely

be infrequent, as visitation is not likely to increase greatly and as many roads and shorelines are not regularly visited.

The intensity of soundscape impacts is considered based on the decibel level of the sources involved. The sound level and thus the intensity of impact is greatest closest to the source (e.g., the OHV, street-legal ATV, or conventional motor vehicle) and decreases with increasing distance. Because of the low natural ambient level in much of Glen Canyon National Recreation Area, a pass-by of an OHV or street-legal ATV can be heard over long distances, reducing the listening area for humans and wildlife as explained in the methodology section. The intensity of soundscape impacts is also influenced by the operating characteristics of the vehicles—activities at higher speeds and with more frequent acceleration create a greater load on the vehicle engine and higher noise levels compared to cruise conditions. Thus, the most intense soundscape impacts at Glen Canyon are associated with the Lone Rock Beach Play Area. However, at the scale of the entire park and in consideration of the impacts in relation to the GMP management zones, the impacts are likely not significant.

## **VISITOR USE AND EXPERIENCE**

### **GUIDING REGULATIONS AND POLICIES**

Enjoyment of park resources and values by the people of the United States is fundamental to the purpose of all national parks. NPS is committed to providing appropriate, high-quality opportunities for the public to enjoy the parks. Because not all recreational activities are appropriate for each park, NPS will encourage activities that are appropriate to the purposes for which the park was established, are appropriate to the unique park environment, will promote enjoyment through direct association with park resources, and can be sustained without causing unacceptable impacts on park resources or values (NPS 2006a, Section 8.2).

The recreational use of motorized ORVs is subject to multiple regulations and policies. Most of these regulations are directed toward preventing impacts on park resources and values, as well as on visitor experience.

The Code of Federal Regulations (CFR) states that ORVs may be authorized for use only in national recreation areas, national seashores, national lakeshores, and national preserves (36 CFR 4.10). The majority of national park system units are off-limits to off-road use. For many park units, this prohibition extends to the use of ATVs and similar vehicles designed primarily for off-road driving, even when used on roads.

Overall, the management of visitor use and experience, like all management decisions affecting the resources of a national park, is subject to the Organic Act. It is this foundational law that requires NPS to “provide for the enjoyment” of the national parks while also leaving them “unimpaired for future generations.” Where there is conflict between the public enjoyment of a park area and the conservation of a park value or resource, then “conservation is to be predominant” (NPS 2006a, Section 1.4.3).

This same mandate is reflected in the Glen Canyon GMP (NPS 1979). Although the GMP identifies the primary objective for Glen Canyon as “to manage the recreation area so that it provides maximal recreational enjoyment to the American public and their guests,” the document similarly requires that Glen Canyon be managed “to preserve the scenic, scientific, and historic features contributing to the public enjoyment of the area.”

These purposes—one recreation and enjoyment, the other the preservation of resources and values—are reflected in the objectives of this plan/DEIS:

- Manage authorized vehicle uses to provide safe and healthful opportunities for visitor access and recreation.