

ALTERNATIVE E: MIXED USE

Lone Rock Beach

Similar to alternatives A and C, no impacts on proposed wilderness at Lone Rock Beach would be expected under alternative E, because there are no proposed wilderness areas at Lone Rock Beach.

Lone Rock Beach Play Area

Similar to alternatives A and C, no impacts on proposed wilderness at the Lone Rock Beach Play Area would be expected under alternative E, because there are no proposed wilderness areas at the Lone Rock Beach Play Area.

Accessible Shorelines

Under alternative E, off-road use Warm Creek would be discontinued permanently. Fourteen accessible shorelines (12 existing areas plus Paiute Farms and Nokai Canyon) would be authorized for use by conventional motor vehicles and street-legal ATVs. Areas of proposed wilderness could experience negative impacts due to the noise that is expected to be emitted by conventional motor vehicles and street-legal ATVs, based on the soundscapes analysis. This noise would degrade the untrammeled, natural, and undeveloped condition of the proposed wilderness area (including the introduction of manmade noise), negatively impact the opportunity for visitors to experience natural quiet and solitude, and compromise the primeval characteristics of the proposed wilderness area. Under alternative E, noise from conventional motor vehicles and street-legal ATVs is expected to travel approximately 8,020 feet into the proposed wilderness area that is adjacent to the shoreline areas before it is reduced to the 20 dBA natural ambient level. With the 96-dBA noise limit mitigation measure, noise from ORVs is expected to travel 5,460 feet from the shoreline areas before it reaches the 20 dBA natural ambient level. Under alternative E, only the Dirty Devil, Hite Boat Ramp, Blue Notch, and Red Canyon accessible shorelines would create impacts from conventional motor vehicle and street-legal ATV use to proposed wilderness areas, because these are the only accessible shorelines that are adjacent to proposed wilderness areas that would be open to these vehicles. Further, these accessible shoreline areas generally do not experience high vehicle use. The typical usage pattern at the accessible shorelines is that vehicles drive to the shoreline and park, thus the duration would be short term and impacts would be low.

Travel on GMP Roads in Glen Canyon

Under alternative E, conventional motor vehicles and street-legal ATVs would be authorized to operate on all GMP roads (paved and unpaved) while OHVs would be authorized to operate on unpaved GMP roads. No OHVs or street-legal ATVs would be authorized on GMP roads in the Orange Cliffs Unit. As a result, adverse impacts on proposed wilderness areas adjacent to GMP roads would occur in areas where OHV or street-legal ATV noise is audible to visitors, which would degrade the natural condition of the proposed wilderness areas (including the introduction of man-made noise), negatively impact the opportunity for visitors to experience natural quiet and solitude, and compromise the primeval and untrammeled characteristics of the proposed wilderness areas. With the 96 dBA noise limit mitigation measure, noise from OHV or street-legal ATV is expected to travel 5,460 feet from the GMP roads before it reaches the 20 dBA natural ambient level. However, visitors in proposed wilderness areas would likely only hear noise from OHVs and street-legal ATVs infrequently and temporarily, because the vehicles would be traveling through the area.

Ferry Swale

Under alternative E, impacts on proposed wilderness areas within Ferry Swale would be the same as under alternative C (see figure 40a).

Cumulative Impacts

Under alternative E, the same past, present, and future activities within Glen Canyon have the potential to affect the quality of proposed wilderness areas as under alternative A. Overall, without the 96 dBA limit, 25.67% of proposed wilderness areas would be impacted by motor vehicle noise, whereas 25.57% of proposed wilderness would be impacted with the 96 dBA (see figure 40b). The impacts of these actions, in combination with the negative impacts on proposed wilderness areas under alternative E, would result in negative cumulative impacts on proposed wilderness. Although the closure of one accessible shoreline area (Warm Creek) adjacent to proposed wilderness to off-road use under alternative E would provide beneficial impacts, overall long-term cumulative impacts on proposed wilderness areas would be adverse, as described in the “Soundscapes” section.

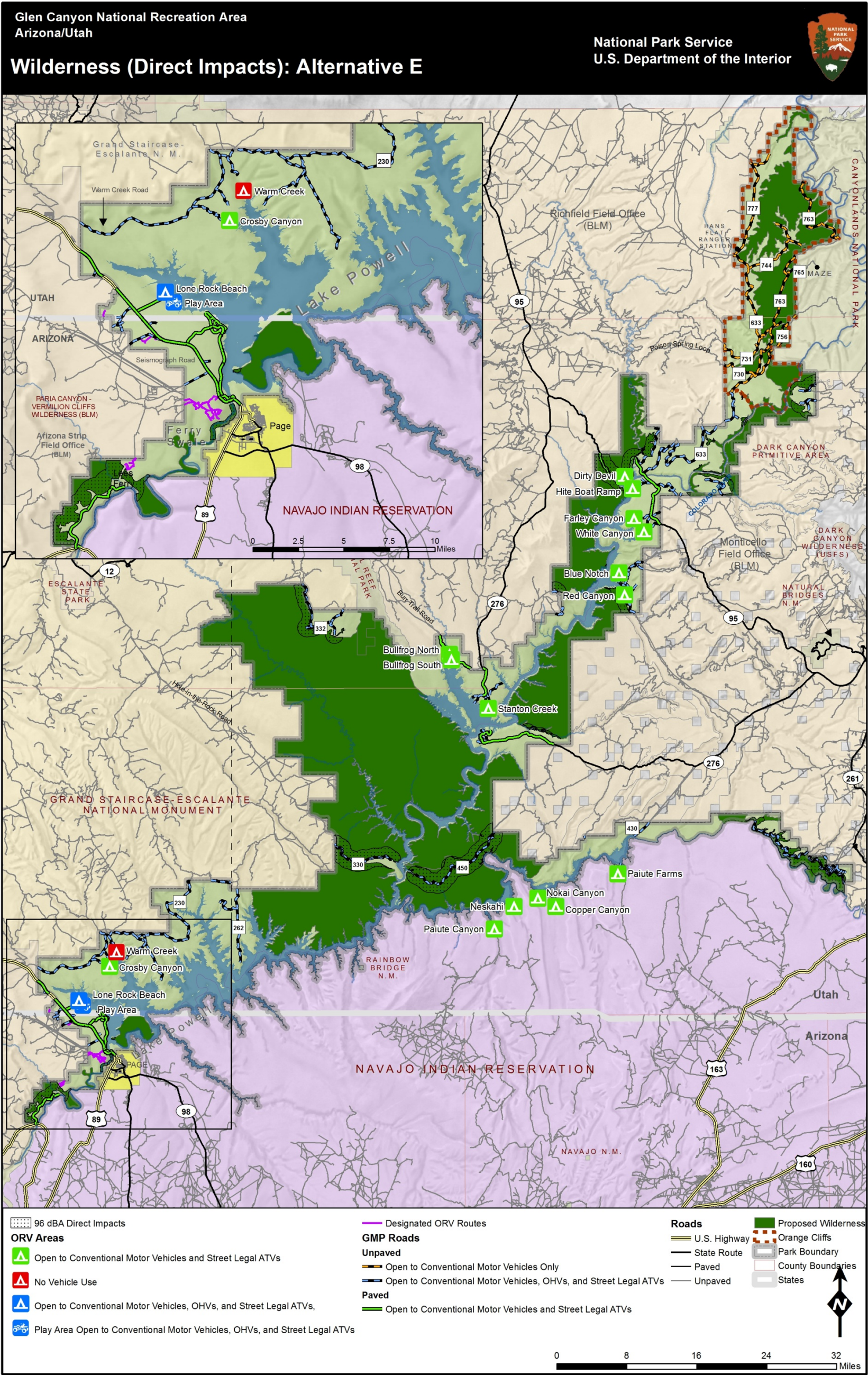


FIGURE 40A: DIRECT IMPACTS ON WILDERNESS FROM ALTERNATIVE E

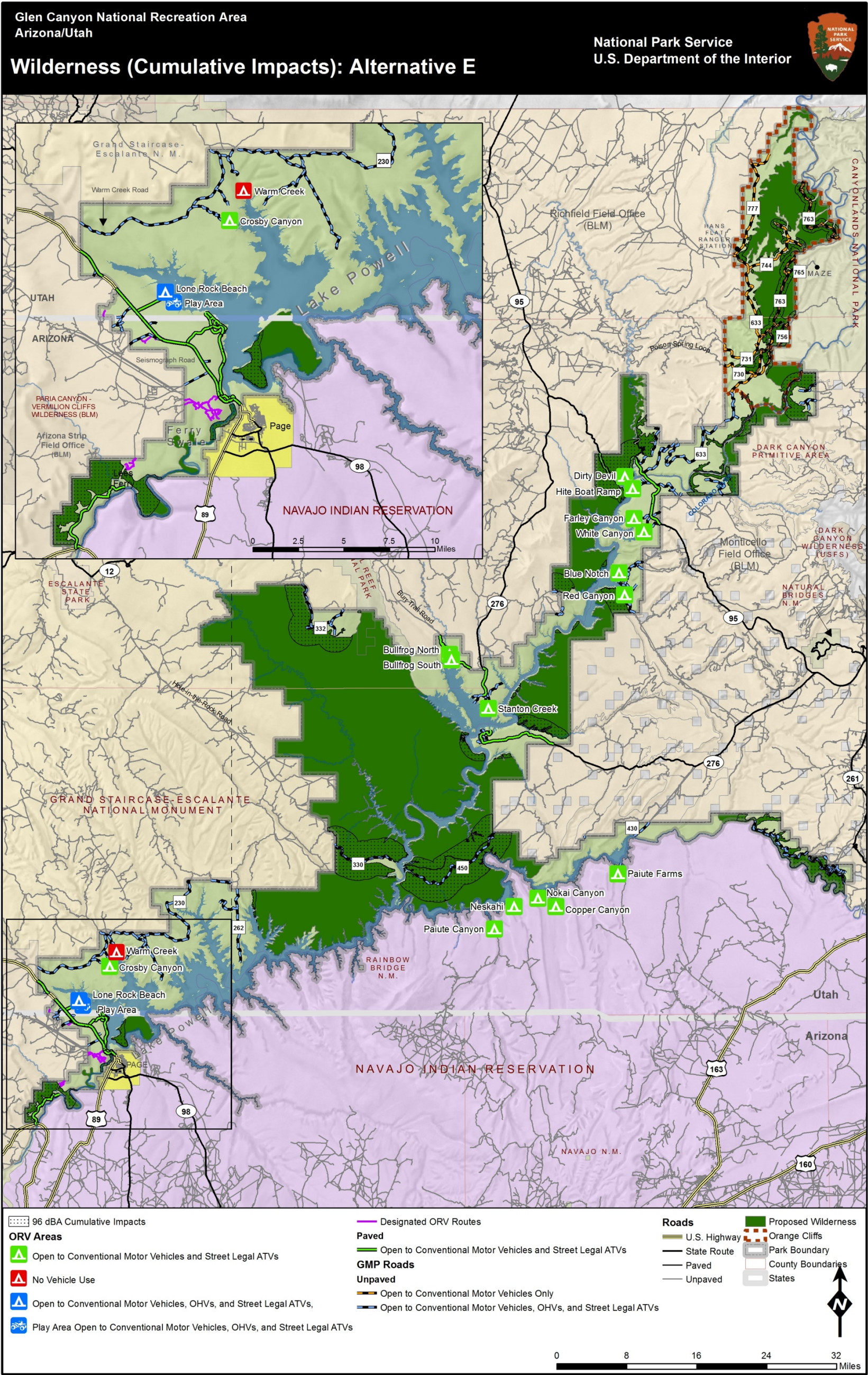


FIGURE 40B: CUMULATIVE IMPACTS ON WILDERNESS FROM ALTERNATIVE E

CONCLUSION

Table 39 provides an overview of the direct and cumulative impact analysis results for each alternative for Glen Canyon as a whole. Figures 36a, 37a, 38a, 39a, and 40a show the direct impact zone of OHV and street-legal ATV use on proposed wilderness areas, while figures 36b, 37b, 38b, 39b, and 40b show the cumulative noise effect zone taking into account all types of motorized vehicles (including conventional motor vehicles).

TABLE 39: ACRES OF WILDERNESS IN GLEN CANYON THAT WOULD BE IMPACTED BY NOISE FROM MOTORIZED VEHICLES, WITH AND WITHOUT THE 96-DBA LIMIT

Alternative	No Limit on OHV and ATV Noise ^{a,b}				96-dBA Limit on OHV and ATV Noise ^b			
	Direct Impacts		Cumulative Soundscape Impact: All Motorized Vehicles ^a		Direct Impacts		Cumulative	
	Acres of Wilderness Affected	Percent of Wilderness Affected ^c	Acres of Wilderness Affected	Percent of Wilderness Affected	Acres of Wilderness Affected	Percent of Wilderness Affected ^a	Acres of Wilderness Affected	Percent of Wilderness Affected
A	102,903.23	16.13%	164,059.02	25.72%	N/A	N/A	N/A	N/A
B	101,745.09	15.95%	163,083.53	25.57%	67,767.76	10.63%	163,083.53	25.57%
C	157,361.73	24.67%	195,211.66	30.61%	109,372.19	17.15%	181,066.25	28.39%
D	670.03	0.11%	163,083.53	25.57%	670.03	0.11%	163,083.53	25.57%
E	102,939.96	16.14%	163,710.64	25.67%	68,506.54	10.74%	163,111.58	25.57%

Notes: This table includes impacts on proposed and potential wilderness because both are treated equally and managed as wilderness.

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

b. 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.

c. 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 vehicle use on all unpaved and paved roadways 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.

Based on the “Soundscapes” analysis, without the 96-dBA limit, 16.13% of proposed wilderness areas would be impacted by motor vehicle noise under alternative A. Compared to alternative A, alternative D would have the greatest beneficial impacts on proposed wilderness areas, because only 0.11% of proposed wilderness would be directly impacted from noise, compared to 16.13% of proposed wilderness areas under alternative A. Conversely, alternative C would result in the greatest increase of impacts from noise on proposed wilderness areas compared to alternative A, because 17.15% of proposed wilderness would be directly impacted under alternative C (24.67%, without the 96 dBA noise limit). Alternatives B and E would have very similar impacts on proposed wilderness compared to alternative A. Under alternative B, 10.63% of proposed wilderness would be directly impacted by noise, while 10.74% of proposed wilderness would be impacted by noise under alternative E (these percentages would increase to 15.95% and 16.14% respectively, without the 96 dBA noise limit).

As stated in chapter 3, proposed and potential wilderness encompasses approximately 51% of the total area of Glen Canyon. Based on the direct impact analysis for all alternatives, between 0.11% and 17.15% of proposed wilderness could be impacted by noise from motor vehicles. While the highest percentage (24.67% under alternative C without a 96 dBA limit for OHVs and street-legal ATVs) may appear to be a significant percentage of proposed wilderness

expected to experience noise from motor vehicles, it must be noted that this noise is expected to encroach on proposed wilderness areas infrequently and intermittently. Impacts on proposed wilderness areas would likely be noticeable in areas where motor vehicle noise is audible to visitors because motor vehicle use would degrade the natural condition of the proposed wilderness areas (including the introduction of man-made noise), negatively impact the opportunity for visitors to experience natural quiet and solitude and a unique experience provided by the proposed wilderness areas, and compromise the primeval characteristics of the proposed wilderness area. However, because the areas where motor vehicles would be allowed to operate adjacent to proposed wilderness areas would be used intermittently, visitors within those proposed wilderness areas would still be able to experience solitude and natural quiet without the intrusion of man-made noise a majority of the time (for example, visitors in these areas would likely only hear noise from motor vehicles for a few minutes, and only a few times a day). Further, there would still be ample opportunity for solitude and natural quiet within portions of proposed wilderness that are not impacted by motor vehicle noise.

When considering the impacts on proposed wilderness, the wilderness qualities must also be considered: the ability to experience solitude, or a primitive and unconfined type of recreation, in an untrammelled, natural, and undeveloped setting. Because visitors in proposed wilderness areas are expected to only be exposed to noise from motor vehicles intermittently, and only a few times a day, it is highly plausible that visitors to proposed wilderness areas would be able to enjoy these wilderness qualities far more frequently than not. That is, visitors would consistently enjoy the natural quiet and solitude substantially more frequently than they would hear noise from motor vehicles. As a result, impacts on proposed wilderness areas are not likely to be significant under any alternative.

UNAVOIDABLE ADVERSE IMPACTS

NPS is required to consider if the alternative actions would result in impacts that could not be fully mitigated or avoided (NEPA section 101[c][ii]).

ALTERNATIVE A: NO ACTION

Under alternative A, there would be long-term, unavoidable adverse impacts on soils, vegetation, wildlife and wildlife habitat, special-status species, archeological resources, and paleontological resources due to the continued off-road use of Lone Rock Beach, the play area, and designated ORV routes in Ferry Swale by all types of motor vehicles and the accessible shoreline areas by conventional motor vehicles. Associated physical damages to these resources would result from continued motor vehicle use in areas where these resources exist. These impacts would be more prevalent at accessible shorelines because the Lake Powell shoreline has fluctuated in recent years and more topography has been exposed in these ORV areas. In some instances the designated ORV area is no longer bounded by natural features resulting in land beyond the designated ORV area being exposed to off-road use. Unavoidable impacts on proposed wilderness would result from motor vehicle noise (from conventional motor vehicles and street-legal ATVs on GMP roads) being audible to visitors and impacting the opportunity for visitors to experience natural quiet and solitude, thus compromising the primeval characteristics of the proposed wilderness area. In addition, there would be continued unavoidable minor adverse impacts on soundscapes from continued use at the play area from the high intensity motor vehicle activities; potential impacts on ethnographic resources from continued use of Hole-in-the-Rock (an unpaved GMP road) by conventional motor vehicles and street-legal ATVs and from purposeful and inadvertent vandalism; and health and safety as conventional motor vehicles, OHVs, and street-legal ATVs would continue to operate together at Lone Rock Beach and the play area, but only conventional motor vehicles would be authorized for use at accessible shorelines.

ALTERNATIVE B: NO OFF-ROAD USE

Unavoidable adverse impacts for this alternative would be greatly reduced compared to alternatives A, C, D, and E, because the prohibition of off-road use within Glen Canyon would result in the recovery of resources (soils, vegetation, wildlife and wildlife habitat, special-status species) in highly impacted off-road areas and prevent future disturbances to some degree of archeological and paleontological resources. This would mitigate adverse impacts on these resources. There would be some unavoidable adverse impacts on visitors no longer being able to access Lone Rock Beach, the play area, and 15 accessible shoreline areas (13 existing areas plus Nokai Canyon and Paiute Farms) and to the local economy from loss of visitor spending, jobs, and income. Unavoidable impacts on proposed wilderness would also result from motor vehicle noise (from conventional motor vehicles and street-legal ATVs on GMP roads) being audible to visitors and impacting the opportunity for visitors to experience natural quiet and solitude, thus compromising the primeval characteristics of the proposed wilderness area. In addition, there could be continued unavoidable minor adverse impacts on ethnographic resources from continued use of Hole-in-the-Rock by conventional motor vehicles and street-legal ATVs and from purposeful and inadvertent vandalism.

ALTERNATIVE C: INCREASED MOTORIZED ACCESS

Under alternative C, there would be long-term, unavoidable adverse impacts on soils, vegetation, wildlife and wildlife habitat, special-status species, archeological resources, and paleontological resources due to the continued off-road use of Lone Rock Beach and the play area by all types of motor vehicles, increased access by all types of vehicles at the 15 accessible shoreline areas, and on designated ORV routes in Ferry Swale. Associated physical damages to these resources would result from continued and increased motor vehicle use in areas where these resources exist. These impacts would be more prevalent at accessible shorelines because the Lake Powell shoreline has fluctuated in recent years and more topography has been exposed in these ORV areas combined with the potential increase in the number of motor vehicles using the areas, could result in greater adverse impacts than the other alternatives. In some instances the designated ORV area is no longer bounded by natural features resulting in land beyond the designated ORV area being exposed to off-road use. Unavoidable impacts on proposed wilderness would result from motor vehicle noise (from conventional motor vehicles, OHVs, and street-legal ATVs on GMP roads) including in the Orange Cliffs Unit being audible to visitors and impacting the opportunity for visitors to experience natural quiet and solitude, thus compromising the primeval characteristics of the proposed wilderness area. In addition, there would be continued unavoidable minor adverse impacts on soundscapes from continued use at the play area from the high intensity motor vehicle activities; ethnographic resources from continued and increased use of Hole-in-the-Rock by conventional motor vehicles, OHVs, and street-legal ATVs and from purposeful and inadvertent vandalism; and health and safety as conventional motor vehicles, OHVs, and street-legal ATVs would operate together at Lone Rock Beach, the play area, all accessible shorelines areas, and on GMP roads. Off-road use would be monitored and mitigation measures, including barricading and closures would be used to reduce impacts on resources in places where evidence of illegal use occurs.

ALTERNATIVE D: DECREASED MOTORIZED ACCESS

Under alternative D, there would be long-term, unavoidable adverse impacts on soils, vegetation, wildlife and wildlife habitat, special-status species, archeological resources, and paleontological resources due to the continued off-road use of Lone Rock Beach by conventional motor vehicles, and the four accessible shoreline areas by conventional motor vehicles. Associated physical damages to these resources would result from continued motor vehicle use in areas where these resources exist. These impacts would be more prevalent at accessible shorelines authorized for use because the Lake Powell shoreline has fluctuated in recent years and more topography has been exposed in these ORV areas and unavoidable adverse impacts from conventional motor vehicle use on these accessible shorelines would be the same as alternative C. In some instances the designated ORV area is no longer bounded by natural features resulting in land beyond the designated ORV area being exposed to off-road use. Unavoidable impacts on proposed wilderness would be slight and result from noise emitted from conventional

motor vehicles on GMP roads potentially being audible to visitors near Dirty Devil and impacting the opportunity for visitors to experience natural quiet and solitude, thus compromising the primeval characteristics of the proposed wilderness area. In addition, there could be continued unavoidable minor adverse impacts ethnographic resources from continued use of Hole-in-the-Rock by conventional motor vehicles, OHVs, and street-legal ATVs and from purposeful and inadvertent vandalism; and health and safety as conventional motor vehicles would continue to be authorized to operate at Lone Rock Beach and the four accessible shorelines. Off-road use would be monitored and mitigation measures, including barricading and closures would be used to reduce impacts on resources in places where evidence of illegal use occurs.

ALTERNATIVE E: MIXED USE (PREFERRED ALTERNATIVE)

Under alternative E, there would be long-term, unavoidable adverse impacts on soils, vegetation, wildlife and wildlife habitat, special-status species, archeological resources, and paleontological resources due to the continued off-road use of Lone Rock Beach and the play area by all types of motor vehicles, 14 accessible shoreline areas authorized for use by conventional motor vehicles and street-legal ATVs (12 existing accessible shoreline areas plus Paiute Farms and Nokai Canyon), and along unpaved GMP roads authorized for increase motor vehicle use by OHVs. Associated physical damages to these resources would result from continued motor vehicle use in areas where these resources exist. These impacts would be more prevalent at accessible shorelines because the Lake Powell shoreline has fluctuated in recent years and more topography has been exposed in these ORV areas. In some instances the designated ORV area is no longer bounded by natural features resulting in land beyond the designated ORV area being exposed to off-road use. Unavoidable impacts on proposed wilderness would result from motor vehicle noise being audible to visitors and impacting the opportunity for visitors to experience natural quiet and solitude, thus compromising the primeval characteristics of the proposed wilderness area. In addition, there would be continued unavoidable adverse impacts soundscapes from continued use at the play area from the high intensity motor vehicle activities; ethnographic resources from continued use of Hole-in-the-Rock by, and from purposeful and inadvertent vandalism; and health and safety as conventional motor vehicles, OHVs, and street-legal ATVs would continue to operate together at Lone Rock Beach and the play area and on unpaved GMP roads, and conventional motor vehicles and street-legal ATVs would operate together 14 accessible shorelines. Off-road use would be monitored and mitigation measures, including barricading and closures would be used to reduce impacts on resources in places where evidence of illegal use occurs.

IRREVERSIBLE OR IRRETRIEVABLE COMMITMENTS OF RESOURCES

NPS must consider if the effects of the alternatives cannot be changed or are permanent (that is, the impacts are irreversible). NPS must also consider if the impacts on recreation areas resources would mean that once gone, the resource could not be replaced; in other words, the resource could not be restored, replaced, or otherwise retrieved (NEPA section 102[c][v]).

An irreversible commitment of resources is defined as the loss of future options. The term applies primarily to the effects of using nonrenewable resources, such as minerals or cultural resources, or to those factors such as soil productivity that are renewable only over long periods. It could also apply to the loss of an experience as an indirect effect of a “permanent” change in the nature or character of the land.

An irretrievable commitment of resources is defined as the loss of production, harvest, or use of natural resources. The amount of recreational activities foregone is irretrievable, but the action is not irreversible. If the use changes, it is possible to resume production. An example of such a commitment would be the loss of motor vehicle access in a particular accessible shoreline area as a result of a decision to close an area. If the decision were reversed, visitor experiences related to motorized access, though lost in the interim, would be available again.

ALTERNATIVE A: NO ACTION

Under alternative A, impacts on soils, archeological resources, and paleontological resources due to the continued off-road use of Lone Rock Beach and the play area by all types of motor vehicles, the accessible shoreline areas by conventional motor vehicles, and designated ORV routes in Ferry Swale by all types of motor vehicles could result in irreversible and irretrievable impacts on Glen Canyon's natural and physical resources. Impacts on these resources would continue, especially at accessible shorelines open to conventional motor vehicle use because the Lake Powell shoreline has fluctuated in recent years and more topography has been exposed in these ORV areas. In some instances the designated ORV area is no longer bounded by natural features resulting in land beyond the designated ORV area being exposed to off-road use. Impacts on these resources would be concentrated along designated ORV routes rather than scattered along user-created routes in Ferry Swale. Continued off-road use has already resulted in the structure and composition of soils in off-road areas being subject to continual degradation over prolonged exposure to compaction and associated erosion caused by off-road use, as well as the disturbance of vegetation communities in areas of off-road use. In addition, vegetation, wildlife and wildlife habitat, special-status species, could suffer irretrievable adverse effects if no action is taken.

ALTERNATIVE B: NO OFF-ROAD USE

Alternative B has the least potential for irreversible impacts (soils, archeological resources, and paleontological resources) since no off-road use would be authorized at Glen Canyon. Alternative B has the potential for irretrievable impacts related to the prohibition of off-road use within Glen Canyon and the forgone visitor use and experiences related to off-road use.

ALTERNATIVE C: INCREASED MOTORIZED ACCESS

Alternative C has the most potential for irreversible impacts, if Glen Canyon's resources (soils, archeological resources, ethnographic resources, and paleontological resources) are adversely affected from increased motorized access to include increased off-road opportunities and vehicle numbers. Alternative C also has the potential for irretrievable impacts on vegetation, wilderness, soundscapes, wildlife and wildlife habitat, and special-status species, due to the continued and increased off-road use at Lone Rock Beach, the play area, 15 accessible shoreline areas, and at Ferry Swale by all types of motor vehicles.

ALTERNATIVE D: DECREASED MOTORIZED ACCESS

Alternative D has the potential for some irreversible impacts if Glen Canyon's resources (soils, archeological resources, ethnographic resources, and paleontological resources) are adversely affected by continued off-road use by conventional motor vehicles at accessible shorelines. Alternative D also has the potential for irretrievable impacts on vegetation, wilderness, soundscapes, wildlife and wildlife habitat, special-status species, and visitor use and experience due to off-road use of Lone Rock Beach, and four accessible shoreline areas by conventional motor vehicles only.

ALTERNATIVE E: MIXED USE (PREFERRED ALTERNATIVE)

Alternative E has the potential for irreversible impacts. Glen Canyon's resources (soils, archeological resources, ethnographic resources, and paleontological resources) could be adversely affected from increased motorized access by conventional motor vehicles and street-legal ATVs at 14 accessible shorelines and continued off-road use at Lone Rock Beach, the play area, and on designated ORV routes in Ferry Swale. Alternative C also has the potential for irretrievable impacts on vegetation, wilderness, soundscapes, wildlife and wildlife habitat, and special-status species, due to the continued off-road use at Lone Rock Beach, the play area, 14 accessible shoreline areas, and at Ferry Swale.

