



FINDING OF NO SIGNIFICANT IMPACT

Hermit Road Rehabilitation Grand Canyon National Park

Grand Canyon National Park proposes to rehabilitate the seven-mile long historic Hermit Road, located on the South Rim between Grand Canyon Village and Hermits Rest. Proposed actions described in the September 2006 Environmental Assessment include widening and resurfacing the road, improving existing trails, overlooks and parking areas, and constructing a multi-modal greenway trail.

Hermit Road and most of its associated overlooks and parking areas are historic, designed and constructed in 1934-1935 by the Bureau of Public Roads and the National Park Service, and retain a high degree of integrity. However, overall road condition is poor and does not meet current safety standards. The road is too narrow for safe bus passage, especially when bicyclists and pedestrians are on the road. Pedestrian and bicycle use occurs in part because existing trails are inadequate for both pedestrians and bicycles. In some areas there is not room between the roadway and rim for an adequate trail. However, many park visitors walk or bike between scenic overlooks along Hermit Road. Pedestrian and bicycle use, combined with shuttle buses, tour buses and other vehicle traffic on this narrow two-lane road, creates a safety hazard. In addition, inadequate maintenance is threatening the road's historic integrity.

Objectives of the Action

1. Minimize disturbance to the natural and cultural environment, and restore areas damaged by social trailing and other impacts, to the extent practical, using native species.
2. Improve visitor experience along Hermit Road by:
3. Retain the historic character of the road, overlooks and trail.
4. Improve the condition of the road and overlooks.
5. Increase road width to accommodate buses.
6. Provide safe access for pedestrians along the rim from the Village to Hermits Rest thereby minimizing social trailing.
7. Provide safe access for bicyclists to overlooks, viewpoints and Hermits Rest.
8. Improve overlooks and parking to meet current ADA standards.

In September 2006 the National Park Service (NPS) prepared an *Environmental Assessment for the Rehabilitation of Hermit Road*. This EA, in accordance with the National Environmental Policy Act, analyzed the impacts that will likely result from implementation of the project. The Environmental Assessment (EA) evaluated three alternatives for addressing the purpose and need for action (Alternatives B, C and D). The EA also evaluated taking only minimal action (Alternative A, No Action) to address critical safety concerns for comparison with the action alternatives. The EA further evaluated a management option (temporal road closure) to close Hermit Road periodically to all motor vehicles, an option that could be applied to any alternative. Alternative D is the preferred alternative.

PREFERRED ALTERNATIVE

Hermit Road will be widened to a uniform width of 24 feet for its full length, to provide two, 11-foot-wide vehicle lanes and one-foot-wide shoulders on each side of the road. This will increase the road width by 4 feet from the original construction width and will continue to provide two-way bus traffic.

There are five areas between Hopi Point and the west end of The Abyss where the rim and the roadway are too close together, forcing hikers using the unpaved trail to use the roadway. These locations all correspond with existing pullouts. The maximum increase in width at these five locations will be four feet (for a total roadway width of up to 28 feet) to provide an approximately four- foot- wide designated pedestrian area between existing pullout walls and vehicle travel lanes. The areas that will require this additional widening will not exceed 500 feet in length.

Connecting Trail: A new “connecting trail” will be created between Maricopa Point and Powell Point where the existing Orphan Mine enclosure fence blocks access to the rim trail between these two overlooks. This has created numerous social trails in the area and confusion for visitors hiking between these two destinations. Utilizing existing social trails as much as possible, a suitable single alignment for this one- mile long trail will be selected to provide continued access for visitors away from the roadway. The connecting trail will tie into the shuttle bus and trail improvements at Maricopa Point (see below) and the existing unpaved rim trail at Powell Point. Tree removal and new ground disturbance will be minimized and the surface of the trail may be pavement; the appropriate surface of the trail is still being evaluated.

Unpaved Rim Trail Improvements: Minimal improvements will also be made to the unpaved trail from Powell Point to the area where the old 1912 wagon route intersects with the trail west of The Abyss, a distance of approximately 3 miles. Improvements will include obliteration of social trails so that the primary trail is easily recognizable; vegetation removal/trimming as needed to maintain a clear path; stone/boulder retention at steep areas where trail is sloughing; and stone steps in steep areas.

Greenway Trail: A three- mile long, two- way, multi- use, bicycle/pedestrian trail, called a greenway, will be designated from the Abyss to Hermits Rest using the alignment of the historic 1912 road corridor. The trail segment will begin just east of the 1912 corridor at an historic pull- out on the west end of The Abyss. A new outbound shuttle bus stop will be created using an existing pullout near the location of the 1912 road intersection with Hermit Road, and an additional inbound shuttle bus stop will be added to the existing shuttle bus stop at Pima Point. The majority of the trail distance between the Abyss and Hermits Rest will utilize the existing disturbed 1912 road corridor, minimizing the need for new ground disturbance. The trail will be constructed adjacent to the access road into Pima Point, requiring widening of this 20- foot- wide road approximately eleven feet; two feet to accommodate wider travel lanes for buses and nine feet for the greenway. The trail will be paved and will be no greater than nine- feet wide for most of its length. For the last approximately 1/3 mile to Hermits Rest, the trail will be narrowed to approximately five feet and will stay on the road’s north side. At this location, bicyclists will share the road with vehicle traffic to Hermits Rest. The creation of a new shuttle bus stop at the start of the greenway trail will allow for visitors to access the trail directly from shuttle buses. The creation of a new return stop at Pima Point will allow greenway trail users to also directly access buses from the greenway trail, facilitating its use, while recognizing its distance from the more developed area of Grand Canyon Village. When shuttle buses become fully accessible in the near future (all current buses are being replaced with fully accessible buses), the greenway will be easily accessible to all visitors.

No road crossings will be necessary for the greenway trail; the trail will be entirely on the north side of the road. The preferred alternative also includes installation of interpretive signage along the greenway segment to interpret the historic 1912 road corridor to visitors. NPS will select appropriate locations for creating several trail pull- off(s) or short spur trail(s) to scenic views along the greenway trail segment between The Abyss and Hermits Rest. The locations for these will be selected based on input from the interdisciplinary team to ensure any potential for resource impacts are minimized.

Paved Rim Trail (West Rim Trail) Rehabilitation: The existing historic paved path will be rehabilitated according to the Secretary of the Interior’s Standards for the Treatment of Historic Properties from the Village to Maricopa Point. Actions will be replacement- in- kind to include: removal and replacement of asphalt

paving, replacement of missing or broken stones along trail edges, and re- setting of loose or misplaced stones. No new ground disturbance will occur and all work will occur within the existing trail footprint.

Overlook Improvements: Rehabilitation and improvements will occur at the Hermit Road Interchange and at each major overlook that currently accommodates shuttle buses and/or tour buses: Trailview Overlook I, Trailview Overlook II, Maricopa Point, Powell Point, Hopi Point, Hopi Overlook, Mohave Point, The Abyss, Pima Point and Hermits Rest. A new shuttle stop will be created under this alternative and for the purposes of this document, will be called the West Abyss Shuttle Stop. All improvements are described below and are organized by overlook moving from east to west along Hermit Road.

Improvements focus on parking areas, shuttle bus stops, and adjacent pedestrian use areas. Improvements will provide for accessible routes from parking areas to pedestrian paths; improved parking and circulation; reduced potential conflicts between shuttle buses, tour buses, private vehicles, pedestrians and bicyclists; and improved visitor furnishings and facilities associated with shuttle bus stops. Improvements common to each overlook include: replacement in-kind of asphalt paving; raised walkways with stone or concrete curbing along existing stone walls to facilitate shuttle bus loading/unloading; concrete braking pads for shuttle bus and/or tour buses to provide a durable-use surface and to clearly delineate bus parking areas; placement of trash/recycling receptacles; and, as needed, relocation or replacement of information waysides/kiosks and benches. Existing stone walls and curbing, except as noted for specific overlooks, will be retained in their current configuration. Asphalt trails from the overlooks to viewpoints will be repaired and/or replaced in kind. Improvements will include repair/replacement of asphalt; repair and stabilization of historic and modern rock trail liners and minor alterations to make trails accessible.

Types, quantities and styles of additional site furnishings (bike racks, signage, and benches) will be carefully evaluated with cultural resource staff to determine appropriateness and consistency with the surrounding cultural landscape.

Some reductions or increases in pavement are proposed at overlook parking areas to facilitate circulation and parking. Improvements specific to each overlook are listed below, from east to west along Hermit Road. The majority of work proposed at each overlook will occur within existing footprints, with very little new ground disturbance. However, at Pima Point, Mohave Point and at the Hermit Road Interchange some small areas adjacent to paved surfaces will be disturbed. At entrance roads that access overlook parking areas there will also be slight disturbance outside of the paved surface to accommodate better turning movements for vehicles. These slight modifications will result in approximately 0.5 acres of new ground disturbance.

Hermit Road Interchange - The existing shuttle bus shade shelter will be removed and a new shade shelter will be built to accommodate visitor queuing at the appropriate location adjacent to the shuttle bus stop. As needed, some of the existing concrete will be replaced on the loop and the loop will become one-way. Buses will continue to be able to unload on the south side, in addition to being able to both load and unload on the north side, at the location of the bus shade shelter. The lane used for exiting onto Village Loop Drive will be slightly modified to accommodate wider turning radii for buses and will require removal of a small portion of non-historic stone wall. Two design elements will be considered between the Interchange and the Rowe Well Road intersection with Hermit Road; use of a concrete surface instead of asphalt for approximately 500 feet of the roadway and the construction of a small sandstone curb for approximately 300- 400 feet along the north side of the roadway to address drainage issues. These aspects, including the size and design of the new bus shelter (located outside the boundary of the Grand Canyon Village National Historic Landmark District), as well as other detailed design elements, will be evaluated for their potential impacts to historic resources, and modified as necessary, as outlined in the MOA for this project between the park and the SHPO.

Trailview Overlook I - Existing stairs will be removed from a stone wall opening and replaced with an ADA accessible ramp. A six-inch-high raised walkway for shuttle bus loading/unloading will be placed adjacent to

the west side of the existing stone wall. A concrete braking pad for the shuttle bus will be placed adjacent to the raised walkway.

Trailview Overlook II – A stone curb tree well will be constructed around an existing tree within the asphalt paved area. All asphalt paving will be replaced in-kind. Shuttle buses do not stop here, so no improvements will be made for shuttle bus access.

Maricopa Point – To enhance the protection of a rare plant population and adjacent suitable habitat, and to improve visitor experience, the parking area and access-road pavement, both non-contributing features of the historic property, will be removed and the overlook will no longer be accessible by tour bus or private vehicle. The pedestrian path to Maricopa Point will be re-designed and improved to a more direct trail. A new shuttle bus stop will be created near the end of the existing Maricopa Point access road, connecting to the re-designed pedestrian path to the point. The shuttle stop will be a pull-out only, with enough room for a shuttle bus to pull-in, drop off visitors, and pull-out onto Hermit Road west-bound. Shuttle buses will access this new stop directly from Hermit Road, using the existing pavement and flat ground at the access road's west end. A stone seat wall, differentiated from historic stone walls, will be constructed along the stop.

Other paved pathways in the area will be removed so that the paved trail to Maricopa Point will be visible, and the connecting trail to Powell Point is obvious to visitors at the shuttle stop. This will require removing portions of historic trail and adding new elements to the area to meet project objectives. How this is accomplished will be carefully reviewed by cultural resources staff and the SHPO, as outlined in the MOA for this project. The existing rim trail east of Maricopa Point will be directed along the road edge in this area until it reaches the re-designed trail to Maricopa Point and the connecting trail leading to Powell Point. All areas currently denuded by social trailing will be revegetated, and visually appealing buffers (vegetation, rocks, other) between the re-designed trail to the point and the existing fence around the rare plant population will be created.

Powell Point – This overlook will become both an in-bound and an out-bound shuttle bus stop. Two six-inch-high raised walkways for shuttle bus loading/unloading will be placed adjacent to the existing stone wall. Two concrete braking pads for shuttle buses will be placed adjacent to the raised walkway. An information wayside will be added within the pedestrian surfacing. Because this will change the bus stops for visitors, new wayfinding signs and changes to park publications will be necessary. Asphalt paving will be replaced throughout the rest of the overlook/parking area, pavement will be striped in some areas to define the rim trail for pedestrians, and the overlook will remain in a one-way configuration.

Hopi Point & Hopi Overlook – Shuttle buses currently use Hopi Overlook as both an inbound and outbound shuttle stop for most of the day, while Hopi Point is used by shuttles only at sunset. Hopi Overlook will become an outbound shuttle stop only and inbound buses will stop at Powell Point instead (see description above for Powell Point). A concrete braking pad will be added at Hopi Overlook and a six-inch-high raised walkway for shuttle bus loading/unloading and asphalt paving will be replaced throughout. No tour buses will be allowed to stop at Hopi Overlook.

A six-inch high raised walkway for shuttle bus loading/unloading will be added at Hopi Point to accommodate shuttle bus use at sunset, but no concrete braking pad will be needed. Asphalt paving will be replaced throughout the parking area and the entrances to the overlook will be slightly widened to accommodate better turning radii for buses. Tour bus parking will be accommodated on both sides of the parking area, using existing surfaces.

Mohave Point – A six-inch-high raised walkway for shuttle bus loading/unloading will be placed adjacent to the south side of the existing stone wall. Two concrete braking pads for inbound and outbound shuttle bus stops will be placed adjacent to the raised walkway. Access will be one-way, and entrance roads will be widened to accommodate turning radii at their connection point to the main roadway. Asphalt paving will be

replaced along entrance/exit roads. There may be a need to widen the asphalt surface somewhat at the overlook to better accommodate buses maneuvering in this area.

Abyss – A six- inch- high raised walkway for shuttle bus loading/unloading will be placed adjacent to the south side of the existing stone wall. Concrete braking pads will be placed adjacent to the pedestrian surfacing and tree wells will be installed. Existing benches will be replaced with new benches.

West Abyss Shuttle Stop - A new shuttle stop will be created at an existing pull- out, west of The Abyss and east of the 1912 road corridor that will be used for the greenway trail. Improvements will include a six- inch- high raised walkway for shuttle bus loading/unloading placed adjacent to the south side of the existing stone wall. A concrete braking pad for the shuttle bus will be placed adjacent to the raised walkway. Shuttle bus signing will be added, as will recycle/trash receptacles. A small existing pedestrian overlook will be paved with crusher fines or asphalt surfacing and existing stone stairs will be removed to make this area accessible. An eight- to nine- foot- wide opening will be provided in the western- most wall to accommodate the greenway trail; the exact width of this opening may vary so that the existing joints in this historic stone wall can be used in order to minimize the level of disturbance to historic features.

Pima Point - Additional signing will be installed to designate in- bound and out- bound shuttle bus stops at Pima Point. Circulation will remain one- way. A six- inch- high raised walkway for shuttle bus loading/unloading will be placed adjacent to the south side of the existing stone wall. A concrete braking pad for the shuttle bus will be placed adjacent to the raised walkway.

Hermits Rest - Concrete braking pads will be placed adjacent to the existing curb. The adjacent walkway will be placed flush with the top of the curb, on the north side of the curb and will also be the terminus for the greenway trail. A seat wall will be added to the north side at the bus waiting area and bike racks, of appropriate style and design, will be added.

As a result of these changes, outbound buses (on their way west to Hermits Rest) will stop at Trailview Overlook I, Maricopa Point (at the new pull- out constructed adjacent to the roadway), Powell Point, Hopi Point, Mohave Point, The Abyss, West Abyss (at the new stop created here), Pima Point and Hermits Rest. Inbound buses (on their way east to the Village) will continue to provide a semi- express return service and will stop at just three locations: Pima Point, Mohave Point and Powell Point (at the newly designated inbound stop).

Minor Road Realignment: Hermit Road will be realigned and shifted approximately six feet south in three locations proximate to each other between Mohave Point and The Abyss shuttle bus stop, for a total distance of approximately 2,100 linear feet. The road will be shifted to accommodate the need for a wider area between the roadway and the rim on the north side in these areas and to avoid the need to construct a guardwall.

The preferred alternative will result in approximately 53 acres of total disturbance, of which approximately 15 acres will be new ground disturbance, requiring the removal of vegetation; 11 acres for the road rehabilitation, 1.5 acres for greenway trail construction, one acre for improvements to the unpaved trail and 0.5 acres for overlook improvements.

Construction Staging Areas: Existing pullouts and overlook parking areas will be used for construction equipment staging areas during road rehabilitation to minimize disturbance outside existing developed areas. An existing, disturbed, flat area just south of Hermit Road, close to The Abyss shuttle bus stop and an old quarry to the north may also be used throughout construction for equipment and materials staging.

Asphalt Batch Plant: A diesel- powered asphalt batch plant will be set up in the park for this project. An existing disturbed area at the park dump site (also previously used for this purpose) will be used. The park dump site is located between South Entrance Road and Center Road, approximately ¼ mile west of the South Entrance

Road near Grand Canyon Village. The approximately five- to- eight acre previously disturbed site will be used for storing materials necessary for mixing asphalt, the plant itself, and equipment needed to haul the asphalt to the project site.

Salvage and Revegetation Plan Components: A detailed Salvage and Revegetation Plan is being developed for this project to guide vegetation aspects including pre- construction, during construction and post- construction actions. Actions include native seed collection from the project area and nearby park lands for propagation at a nursery, exotic species control near project boundaries (such as along Hermit Road and proposed trail- improvement or trail- construction areas) and salvaging existing trees and shrubs from areas disturbed during construction. Salvaging existing vegetation will require use of backhoe and a small work crew. Crews will operate for a one- to- three week period in the project area, using a pick- up truck and small trailer to transport salvaged trees and shrubs to the park greenhouse or other suitable location for maintenance. The salvaged trees and shrubs will then be used in the project area following completion of project activities to augment screening of the road and trail components and to revegetate areas with excessive social trailing. Trees will also be used as necessary at overlooks and parking areas to replace trees that have died, as deemed appropriate for the cultural landscape. Salvaged vegetation may also be used for other park projects as necessary and feasible. Following construction actions and full implementation of the project, watering of replanted vegetation, continued exotic species control and monitoring of revegetation efforts will continue. The work detailed in the Salvage and Revegetation Plan will occur as early as summer 2007 and will continue through approximately 2011.

Construction Schedule and Timing/Road Closures: Road rehabilitation and overlook improvements will occur at the same time and are factored into the timing estimates above. Proposed rehabilitation and improvements to the paved rim trail, asphalt paths between overlooks and viewpoints, and the unpaved trail will also likely be done during the construction period to take advantage of the area closure to visitors, but could be completed either before or after the road work, as this work is funded differently and will use different work crews. Greenway trail construction will occur during the road construction period.

Road construction will occur from west to east. The road section from west of Mohave Point to Hermits Rest will be completely closed during the construction period, with the exception of providing very limited morning shuttle bus access for overnight permit holders to the Hermit Trailhead during April, May, September, October and November (see below) . The section of road from the Hermit Road Interchange to Mohave Point will remain open during construction of the western half of the road. Road construction will begin in 2008 and will take approximately one construction season to complete. Work will likely begin in April and end in November, dependent on weather conditions. Work on the eastern portion of the road will begin after the July 4 holiday weekend. The west end of the road will be closed to visitors during the entire construction period; the east end of the road will be closed to visitors from early July through November. Shuttle buses and tour buses will not operate on the west end for the entire duration, but will be allowed on the eastern part of the road up until early July. Portions of the rim trail will be open to correspond with road closures. This closure scenario will speed up the construction allowing for the work to be completed within one season.

Substitute Day Hiking Opportunities during the Construction Period: Visitors desiring to do a day hike down the Hermit Trail or to access rim trail day hiking opportunities in the project area past Mohave Point will not be allowed access during the entire construction period. Until early July of the construction period, visitors will be provided access to the rim trail up to Mohave Point only, the time that the roadway in this section will also remain open while construction begins on the western section of the road. After early July when the road becomes entirely closed for the remainder of the construction period, all day hiking opportunities in the project area will be prohibited. NPS will actively promote options for other in- canyon day hikes, such as the Bright Angel Trail, the South Kaibab Trail and the Grandview Trail as substitutes for the Hermit Trail. NPS will also promote other rim trail opportunities on the South Rim as substitutes for the rim trail in the project area, such as that between El Tovar and Pipe Creek Vista and a section of greenway trail expected to be completed between Pipe Creek Vista and the South Kaibab Trailhead. Expanded use of the Grandview Trail might require

additional preventative search and rescue activities and additional information regarding safe distances for day hikes in the summer.

Hermit Trailhead Access for Overnight Users during the Construction Period: Access to the Hermit Trailhead will be limited during the construction period. Visitors with overnight permits for backcountry areas accessed by the Hermit Trail will only be allowed access to the trailhead in April, May, September, October and November. During these high- use months, access to the trailhead will be limited to two, early morning shuttle buses for those with backcountry permits only. Backcountry permit holders will only be allowed to hike down the Hermit Trail during these months and will not be allowed to hike out at the Hermit Trailhead; this will restrict use of the Hermit Trailhead to one- way loop hikers. Hikers during these months, using a morning shuttle, will be allowed to hike in via the Hermit Trailhead but will be required to hike out the Bright Angel Trailhead or Bass Trails. No access will be provided to or from the Hermit Trailhead during June, July or August during the construction period. Backcountry permit applicants will be informed of these temporary restrictions on access via the Hermit Trailhead prior to being issued their permits.

Substitute Concessioner Operated Bus Tours during Construction Period: Due to the length of the construction period and its impact on the current use of the road, concession tour bus operations on Hermit Road will need to be temporarily modified to provide a level of replacement service for visitors that are displaced. Commercially operated tour buses are presently restricted from Hermit Road; these operations will not be displaced due to construction period road closures.

From April through early July during the construction period, tour buses will continue to access portions of Hermit Road up to and including Mohave Point. Sunset and sunrise tours will remain the same, but without access to Pima Point. The two- hour trips that currently go to Hermits Rest will be rerouted to Yavapai Observation Station, Yaki Point and a turnaround at “Duck on a Rock” overlook. No more than 3 tour buses will be allowed at a time at these locations. Use of the Yavapai Observation Station amphitheater will be encouraged over entry into the Observation Station.

From early July to November when the road is closed entirely, sunrise tours will utilize Mather Point, Yaki Point and/or Duck on a Rock. An additional sunset tour to Desert View (with sunset at Yaki Point during the return) will be added. These substitute routes will apply to tours that do not serve Grand Canyon Railway.

For tours that do serve the Railway, Yavapai Observation Station, Yaki Point and Duck on a Rock will be used. These tours will have exclusive use at Yaki Point and Yavapai Observation Station (no other commercial tour buses will be allowed) and no more than 3 buses will be allowed at one time.

These changes to tour bus routes will be temporary and last only the duration of the construction period.

Substitute Shuttle Bus Routes during Construction Period: Due to the length of the construction period and its impact on the current use of the road, shuttle bus operations on Hermit Road will need to be temporarily modified to provide a level of replacement service for visitors and shuttle service employees that are displaced.

From April through early July during the construction period, shuttle buses will continue to access their normal routes on Hermit Road up to and including Mohave Point. In addition, increased service will be provided on the shuttle route from Canyon View Information Plaza (CVIP) to the South Kaibab Trailhead and Yaki Point.

From early July to November, a new shuttle bus route from CVIP to Desert View will be implemented. This route will stop at Grandview, Tusayan Ruins and Desert View. Moran Point may also be used as a stop. Increased service will continue on the South Kaibab Trailhead and Yaki Point route as well. These temporary changes will require some minor improvements such as temporary signs and additional pavement striping at Grandview. If Moran Point is used for the Desert View route, a portable chemical toilet will be installed.

For service during sunset that is typically provided to Hopi Point in the project area, existing shuttle service to Yaki Point will be increased. Visitors will be encouraged to walk the rim trail between El Tovar and Yavapai Observation Station and to drive to viewpoints along Desert View Drive for sunset viewing as well.

Slash Removal: Trees and woody vegetation will need to be removed under any action alternative selected to accommodate road widening and new trail construction. The resultant slash created will be removed from the project area where possible and smaller material will be chipped. Larger material, such as usable poles, will be stockpiled in a suitable park location (such as the dry dump site or other previously disturbed location) and made available for other park uses or given away. NPS will arrange for transfer of some of this material for local American Indian community use.

Vista Clearing: In order to enhance canyon views from Hermit Road, NPS will consider opportunities for clearing of vegetation that has grown up along the roadway since its construction. This strategic, vista clearing will be conducted only where appropriate to enhance views from the roadway while also considering safety for vehicles, enhancement of the cultural landscape, and protection of sensitive resources. A small team will be formed to develop objectives for vista clearing and to implement it in an appropriate manner. The team will include, at a minimum, a representative from cultural resources, natural resources, the trail crew and the park's landscape architect.

Visitation Changes and Operations: The existing shuttle buses with trailers that are used on the Hermits Rest Route will be replaced by 40- foot compressed natural gas, low floor buses by 2008. No immediate changes in visitation are expected based on implementation of any alternative. It is assumed that some small change (small increase) in operation may be necessary to respond to visitation changes likely over the long- term. This small visitation increase, combined with use of new buses that have slightly less capacity, is expected to result in the addition of two or three shuttle buses.

No changes will occur to the road closure period for private vehicles under any action alternative. Private vehicles will continue to be restricted during nine months of the year, and allowed December – February when shuttle buses are not running. Bicyclists will continue to be allowed to use the roadway under any alternative selected.

The existing speed limit of 30 mph will remain in place from Mohave Point to Hermits Rest. For the segment of road up to Mohave Point, the speed limit will be reduced to 25 mph to meet safety standards.

Temporal Road Closure

Accommodation of pedestrians and bicyclists in a vehicle- free environment will be achieved through use of a daily road closure, on a trial basis. At some point following rehabilitation, Hermit Road will be closed at Mohave Point to all but pedestrians and bicyclists (provisions will be made for emergency- and concession- vehicle access) during regularly- scheduled times. Tour buses, shuttle buses and any visitors with an accessibility permit will turn around at Mohave Point during the closure period. The trial closure period will be the same as the nine- month shuttle bus operation, March 1 – November 30, and may be implemented up to seven days a week and up to 3 hours a day, likely from 7 a.m. to 10 a.m.

A temporal road closure allows for unique experiences without substantial infrastructure expenditures or resource impacts. It will be adaptively managed so as to respond to future needs, allowing for the testing of the daily time period used and its effectiveness, the length of the yearly closure period, and the impact (positive or negative) it may have on visitors or employees.

A temporal road closure will not result in any additional ground disturbance. Consultation with the park's Soundscape Program and other pertinent park staff (such as interpretation or visitor use specialists) will occur when developing implementation details for the temporal road closure. To implement this closure, Mohave

Point improvements will be implemented so that a one- way traffic direction through the overlook is provided, allowing vehicles to turn around during the closure period. A gate or other device will be installed on the existing roadway in already disturbed areas to alert the public to the closure.

MITIGATION MEASURES

The mitigation measures listed below are considered part of the preferred alternative and will be followed during project implementation. These actions were developed to lessen the potential for adverse impacts from implementing the preferred alternative, and have proven to be effective in reducing environmental impacts on previous projects.

Contractor Orientation Contractors working in the park are given orientation concerning proper conduct. This orientation is provided both in writing and verbally at a preconstruction meeting. This policy will continue for this project. Orientation will include, but not be limited to:

- Wildlife should not be approached or fed.
- Collecting any park resources, including plants, animals, and historic or prehistoric materials, is prohibited.
- Contractor must have a safety policy and a vehicle fuel spill and leakage policy.
- Other environmental concerns and requirements discussed elsewhere in this EA will be addressed, including relevant mitigation measures listed below.
- Construction specifications will include details related to protective measures for existing vegetation along the roadside, as provided by the cultural resource staff and the park landscape architect.

Limitation of Area Affected The following mitigation measures will be implemented to minimize the area affected by construction activities and to minimize the potential for adverse impacts due to connected actions:

- Staging areas for construction office (a trailer), construction equipment and material storage will either be located in previously disturbed areas near project sites (such as at existing overlook parking areas) or in other disturbed areas that best meet project needs and minimize new ground disturbance. All staging areas will be returned to pre- construction conditions or better once construction is complete. Standards for this, and methods for determining when standards are met, will be developed in consultation with the park's South Rim Vegetation Program Manager.
- Construction zones will be fenced with construction tape, snow fencing, or similar material before construction activity. Fencing will define the construction zone and confine activity to the minimum construction area required. All protection measures will be clearly stated in construction specifications, and workers will be instructed to avoid conducting activities beyond the construction zone as defined by fencing.
- The areas selected for use as substitute shuttle bus and tour bus routes during the construction period will be reviewed by park staff prior to implementation to verify that potential impacts to natural and cultural resources and existing park operations are minimized.

Soil Erosion To minimize soil erosion, the following mitigation measures will be incorporated into the action alternatives:

- Standard erosion control measures such as silt fences, sand bags or equivalent control methods will be used to minimize any potential soil erosion.
- Trenching operations will be by rock saw, backhoe, track hoe, Pionjar, ditch digger and/or trencher, with excavated material side- cast for storage. After trenching is complete, bedding material will be placed and compacted in the trench bottom. Backfilling and compaction will begin immediately after trenching, and the trench surface will be returned to pre- construction contours.

All trenching restoration operations will follow guidelines approved by park staff. Compacted soils will be scarified, and original contours reestablished.

- A Salvage and Revegetation Plan, as described under actions common to all action alternatives, will be developed by the park's South Rim Vegetation Program Manager and the Federal Highways Administration in consultation with a landscape architect. Any revegetation efforts will use site-adapted native species and/or site-adapted native seed, and park policies regarding revegetation and site restoration will be incorporated. The plan will consider, among other things, use of native species, plant salvage potential, exotic vegetation and pedestrian barriers. Policy related to revegetation will be referenced from *NPS Management Policies* (NPS 2001b; Chapter 9).

Vegetation To minimize vegetation impacts, prevent exotic vegetation introduction and minimize spread of noxious weeds, the following mitigation measures will be incorporated into the action alternatives:

- Inventories for existing populations of exotic vegetation at construction sites have already occurred in the primary proposed disturbance areas. As design plans develop, these will be cross-referenced with existing vegetation survey information to insure that no new survey is necessary prior to start of work.
- A Vegetation Program specialist will provide input on salvage potential and tree avoidance at project sites where necessary. A supervisory biologist will also spot-check work progress, particularly near sensitive areas such as Maricopa Point and Hermits Rest.
- All construction equipment that will leave the road (e.g., bulldozers and backhoes) will be pressure-washed prior to entering the park. The location selected for vehicle washing, in addition to that selected for the batch plant, will be approved by a supervisory biologist.
- Staging area location for construction equipment will be park-approved, and the need for treatment of exotic vegetation will be considered.
- Vehicle parking will be limited to existing roads, areas directly adjacent to existing roads where necessary, or staging areas.
- Pruning necessary for this project and for any future periodic maintenance adjacent to overlooks and trails will adhere to the park's tree-pruning guidelines with the goal of retaining health and integrity of trees and shrubs treated. Damage to trees or roots in or adjacent to project areas during construction will be avoided as much as possible.
- Any fill, rock or additional topsoil needed will be obtained from a park-approved source. Topsoil from the project area will be retained whenever feasible.
- All areas disturbed by construction will be revegetated using site-adapted native seed and/or plants.
- All areas disturbed will be mulched with a carbon source, such as wood chips, to decrease nitrophyllic exotic annual species.
- Exotic species encroachment and distribution will be monitored for two- to three years following construction completion.
- Revegetation efforts will be initiated as soon as possible following construction to minimize native species competition with exotic species.
- The two uncommon plant communities identified during the vegetation survey will be avoided during road widening under any action alternative, including an approximately ten-meter buffer.

Water Quality and Floodplains To minimize potential water quality impacts, the following mitigation measures will be incorporated into the action alternatives:

- The requirements for a storm-water pollution prevention plan will be addressed by FHWA during the construction contract and will meet all statutory NPS and FHWA standards. All National Pollutant Discharge Elimination System requirements will be met.

- Standard erosion control measures such as silt fences, sand bags or equivalent control methods will be used to minimize any potential sediment delivery to streams.
- The park hydrologist will be consulted on the specific size, location and layout of any new culverts and piping to ensure impacts are minimized.

Special Status Species To protect any unknown or undiscovered threatened, endangered, or special status species, the construction contract will include provisions for the discovery of such. These provisions will require cessation of construction activities until park staff evaluated the impact, and will allow contract modification for any measures determined necessary to protect the discovery. Mitigation measures for known special status species are as follows:

California Condor

- Prior to the start of a construction project, the park will contact personnel monitoring California condor locations and movement to determine condor status in or near the project.
- Project workers and supervisors will be instructed to avoid interaction with condors and to contact the appropriate personnel immediately if and when condor(s) occur at a project site.
- If a condor occurs at the project site, permitted personnel will employ techniques to cause the condor to leave the site as necessary. The particular project activity will temporarily cease if injury of a condor is imminent.
- Project sites will be cleaned up at the end of each work day (i.e., trash disposed of, scrap materials picked up) to minimize the likelihood of condors visiting the site. Park condor staff will complete a site visit to ensure adequate clean-up measures.
- To prevent water contamination and potential condor poisoning, the park- approved vehicle fluid- leakage and spill plan will be adhered to. This plan will be reviewed by the park biologist for adequacy in addressing condors.

Sentry Milkvetch and Tusayan Flameflower

- The sensitive plant locations south and north of the road (and all east of Maricopa Point) will be avoided during road widening under all action alternatives. The park's South Rim Vegetation Program Manager or their representative will be consulted during future design phases to assist in this effort. The need for additional fencing and signage around these populations will be considered. Monitoring to detect any recreational impacts to the populations after construction is complete will also be considered.
- Design and implementation of Maricopa Point improvements will be carefully considered to avoid impacts to both occupied and potential habitat areas for these species.

Soundscapes To minimize construction impacts on soundscapes , the following mitigation measures will be incorporated into the action alternatives:

- To reduce noise, construction equipment will not be left idling any longer than is necessary for safety and mechanical reasons, and no construction will occur at night.
- The park's soundscape program manager will be consulted on details related to how the temporal road closure option will be implemented.

Cultural Resources To minimize construction impacts on cultural resources, the following mitigation measures will be incorporated into the action alternatives:

- If previously unknown archeological resources are discovered during the project, a park archeologist will be contacted immediately. All work in the immediate vicinity of the discovery will be halted until the resources are identified and documented and an appropriate mitigation strategy developed, if necessary, in accordance with the stipulations of the 1995 Programmatic Agreement among the National Park Service, the Arizona State Historic Preservation Officer and the Advisory

Council on Historic Preservation regarding the General Management Plan/Environmental Impact Statement, Grand Canyon National Park, Arizona.

- All workers on this project will be informed of appropriate site etiquette and about the penalties of illegally collecting artifacts or intentionally damaging any archeological or historic property. Workers will also be informed of correct procedures if previously unknown resources are uncovered during construction activities.
- To ensure cultural resource protection, a cultural resource specialist will be assigned to conduct spot monitoring of the project during construction. Consistent monitoring during project implementation will occur specifically to protect historic road features.
- An archeological site occurs adjacent to the roadway in one location where road widening under any action alternative will disturb it (AZ B:16:1125). This site will be mitigated as part of this project and will occur prior to construction. A mitigation/data recovery plan for the site will be approved and implemented prior to construction, in consultation with the SHPO and affiliated Native American groups.
- Any additional archeological work or historic documentation conducted pursuant to the Memorandum of Agreement with the SHPO will be carried out by, or under the direct supervision of a person or persons meeting, at a minimum, the appropriate qualifications set forth in the Secretary of the Interior's "Professional Qualifications" (49 FR 44738- 46739) for professional archeologists and professional historians.
- After the project is complete, periodic monitoring of three archeological sites between the roadway and the greenway trail west of The Abyss to Hermits Rest will be conducted to determine if recreational impacts are occurring.
- One archeological site in the proximity of the greenway trail will be avoided with minor trail rerouting.
- Wherever possible, vegetation clearing or grading along the road edge will be limited in order to maintain a representative sample of brass caps and benchmarks and to minimize adverse impacts to the road's landscape character.
- In order to protect cultural resources in the general proximity of the Abyss staging area from inadvertent disturbance, the boundaries of the useable areas for staging of equipment and supplies will be fenced.
- Areas selected for equipment and materials staging are expected to be in existing disturbed areas or existing paved overlooks where there is no potential for archeological resource disturbance. If the sites selected for these activities change during later design phases for implementation of any of the alternatives, additional archeological surveys will be conducted.
- Any archeological site or historic feature within 10 meters of road construction activities will be protected with drift fence, or similar barrier, where feasible, prior to project implementation. Where pavement is being replaced adjacent to historic walls, extreme care will be taken not to damage resources.
- Slash will not be piled on any archeological site.
- Details relating to protective measures for existing vegetation to be retained will be written into construction specifications.
- The park landscape architect and a cultural resource specialist familiar with the features of Hermit Road will periodically be on site during the vegetation clearing and grubbing phases to monitor the implementation of previously established vegetation clearing limits and staging areas, and to provide input into any field changes. On- site monitoring throughout the entire construction period of all aspects of the project's implementation will be provided, as feasible.
- Ensure that short sections of the road that will be widened an additional four feet to allow for a designated pedestrian area will not affect cultural resources.
- Minimize new ground disturbance during rehabilitation of the West Rim Trail and retain the historic width of the trail.

- All actions will be undertaken in accordance with the Secretary of the Interior's Standards for the Rehabilitation of Historic Properties.
- NPS will continue to consult with Arizona SHPO, as appropriate, regarding specific design elements and plans for implementation of the project. The 70% design plans will be submitted to the SHPO.
- Prior to the installation of signs, gates or other physical barriers along the access road to the Waldron Trailhead (see Park Operations and Safety, below), cultural resources staff will be notified to ensure avoidance of sensitive cultural resources.

Visual Resources To minimize visual impacts, mitigation measures will include the following:

- Natural, muted colors, that replicate existing location hues, will be used to blend any built materials into the landscape. Materials and their colors (for example, concrete braking pads and pedestrian surfaces at overlooks) will be carefully evaluated to be sure they are appropriate and consistent with the cultural landscape.
- Design plans for road rehabilitation and overlook improvements will be reviewed by the park's landscape architect as they are prepared. The location and appearance of the new shuttle bus shelter at the Interchange will be developed in consultation with the park's landscape architect and the SHPO to minimize the potential for new disturbance to important views in this area.
- The park landscape architect will provide input into the Salvage and Revegetation Plan for prescriptions to use for replanting of vegetation along the roadway and in other areas of the cultural landscape.
- Vegetation (to also include shrubs and tree branches) within 6 feet of the road edge will be maintained as much as is feasible.
- Any plans for strategic vista clearing along the roadway will be developed in consultation with the park's landscape architect.
- Whenever possible, the use of fences along the road and rim area should be avoided. The park landscape architect will be involved with the development of any proposals to cordon off areas to protect resources (such as sensitive plants) and will evaluate the impacts of the proposal so that the Superintendent can make an informed decision. Types of barriers, including materials and structural forms considered, should be evaluated in order to reduce their adverse impacts on the visual/scenic resource and landscape character.
- Location of the greenway trail, particularly the section between Pima Point and Hermits Rest, will be approved by a park landscape architect during design and construction.
- The surface of the connecting trail between Maricopa Point and Powell Point and the greenway trail will be considered carefully during future design phases. NPS will consider alternatives to paving, such as soil hardeners, soil cement or other additives that could provide a uniform surface and meet accessibility standards while minimizing intrusions into the cultural landscapes in these areas. The historic paved rim trail that exists between these two locations (and is primarily within the Orphan Mine enclosure) will remain in place to provide flexibility to use this historic alignment if the Orphan Mine area is once again opened to visitors.

Visitor Experience And Wilderness The following mitigation measures will be incorporated into the action alternatives to minimize construction impacts on visitor experience :

- While road construction activities are not likely to have direct impacts on wilderness values, the potential indirect effects to visitors accessing the backcountry wilderness at the Hermit Trailhead will be mitigated through information contained in the Backcountry Permit package regarding road construction and phone calls to permit applicants.
- Backcountry visitors requesting overnight permits to areas accessed by the Hermit Trailhead will be notified of project implementation through the Backcountry Information Center. Close

coordination will occur with the Backcountry Information Center. Sufficient advance notice will be provided so that those requesting permits are aware of the restrictions on access into and out of the Hermit Trailhead during the road closure period.

- Unless otherwise approved by the park, operation of heavy construction equipment will be restricted to dawn to dusk, year- round.
- As time and funding allow, information regarding project implementation and other foreseeable future projects will be shared with the public through park publications (such as *The Guide*) and other appropriate means during construction periods. This may take the form of an informational brochure or flyer distributed at the gate and sent to those with reservations at park facilities, postings on the park's website, press releases and/or other methods. The purpose will be to minimize potential for negative impacts to visitor experience during project implementation and other planned projects during the same construction season.

Park Operations and Safety The following mitigation measures will be incorporated into the action alternatives to minimize construction impacts on park operations and minimize safety risks to employees and visitors:

- NPS, concessionaires and other park employees and residents will receive the public notification on project implementation and road closures, as appropriate.
- NPS will provide for expanded preventative search and rescue operations along the Grandview Trailhead by an expected increase in day hikers displaced from the Hermit Trail.
- NPS will consider the need for additional signage along the Waldron Trailhead access road to accommodate the expected indirect increase in users displaced from the Hermit Trailhead during the construction period. While increased use is not expected to be high nor long- term, NPS anticipates that some level of use by experienced backcountry hikers may occur during the construction period. To assist visitors with finding the trailhead and not getting lost, and to minimize the potential for inadvertent resource damage, a limited number of small, unobtrusive signs may be placed along the road corridor to the trailhead. Prior to the installation of signs, cultural resources staff will be notified.
- NPS will monitor the expected indirect increase in use at the Waldron Trailhead. If resource damage, increased preventative search and rescue operations and/or other issues surface during this time, NPS will consider the need for gates or other closure methods, as deemed necessary through monitoring. Prior to the installation of any gate or other physical barrier, cultural resources staff and vegetation staff will be notified.

Air Quality Air quality impacts of the action alternatives are expected to be temporary and localized. To minimize these impacts, the following actions will be taken:

- To reduce entrainment of fine particles from hauling material, sufficient freeboard will be maintained, and loose material loads (aggregate, soils, etc.) will be tarped.
- To reduce tailpipe emissions, construction equipment will not be left idling any longer than is necessary for safety and mechanical reasons.
- To reduce construction dust in the short term, water will be applied to problem areas. Equipment will be limited to the fenced project area to minimize soil disturbance and consequent dust generation.
- Landscaping and revegetation will control long- term soil dust production. Mulch and plants will stabilize soil and reduce wind speed/shear against the ground surface.
- The establishment of the asphalt batch plant near Center Road and the South Entrance Road will meet all necessary permit requirements and environmental standards for this type of operation.

ALTERNATIVES CONSIDERED

The EA evaluated a No Action alternative and several action alternatives for addressing the purpose and need for action. The preferred alternative was identified as Alternative D and is as described previously in this document in detail.

Alternative A – No Action Alternative: Under the No Action Alternative, Hermit Road would be minimally repaired under the No- Action Alternative, but no improvements would be made to existing road uses or to pedestrian and bicycle access between Grand Canyon Village and Hermits Rest. The seven- mile road surface would be repaved to its historic width of 20 feet to provide two, ten- foot lanes without a paved shoulder. The No- Action Alternative is a minimal- action alternative. It addresses urgent safety concerns related to the road's surface condition by resurfacing the road and restoring its original historic width. While this alternative would result in some level of change to the existing condition, it does not meet the purpose and need for action. This alternative was not the selected alternative for this project.

Alternative B – Widen for Safe Bus Access: Under Alternative B, Hermit Road would be widened to a uniform 24 feet for its seven- mile length to provide two, 11- foot- wide vehicle lanes and two, one- foot- wide paved shoulders on each side of the road. Alternative B would also include roadway widening up to an additional 4 feet in five areas to accommodate a pedestrian area; minimal improvements to the unpaved rim trail, West Rim trail improvements, creation of a connecting trail between Maricopa Point; and many of the overlook improvements described in the preferred alternative. Alternative B would not include the construction of a greenway trail. This alternative was not the selected alternative for this project.

Alternative C – Greenway: Under Alternative C, Hermit Road would be widened to a uniform width of 24 feet to provide two, 11- foot- wide vehicle lanes and two, one- foot- wide paved shoulders on each side of the road. Alternative C would also create a paved, two- way, multi- use, bicycle/pedestrian trail, called a greenway, between Grand Canyon Village and Hermits Rest. The trail would be approximately 7.5 miles long and would be on the south side of the road in some areas and on the north side of the road in others. Alternative C would also include roadway widening up to an additional 4 feet in five areas to accommodate a pedestrian area; minimal improvements to the unpaved rim trail, West Rim trail improvements; many of the overlook improvements described in the preferred alternative; and some changes in bus operations at Hopi Point and Hopi Overlook. This alternative was not the selected alternative for this project.

ENVIRONMENTALLY PREFERABLE ALTERNATIVE

The environmentally preferred alternative is determined by applying the criteria suggested in the National Environmental Policy Act of 1969 which guides the Council on Environmental Quality (CEQ). The CEQ provides direction that “[t]he environmentally preferable alternative is the alternative that will promote the national environmental policy as expressed in NEPA Section 101”:

1. Fulfill the responsibilities of each generation as trustee of the environment for succeeding generations;
2. Assure for all generations safe, healthful, productive, and aesthetically and culturally pleasing surroundings;
3. Attain the widest range of beneficial uses of the environment without degradation, risk of health or safety, or other undesirable and unintended consequences;
4. Preserve important historic, cultural and natural aspects of our national heritage and maintain, wherever possible, an environment that supports diversity and variety of individual choice;
5. Achieve a balance between population and resource use that will permit high standards of living and a wide sharing of life's amenities; and
6. Enhance the quality of renewable resources and approach the maximum attainable recycling of depletable resources.

Through the process of internal and public scoping, the environmentally preferred alternative selected is Alternative D, the alternative identified as the preferred alternative in this document. The preferred alternative

best meets the purpose and need for action and best addresses overall park service objectives and evaluation factors while minimizing impacts to park resources. The preferred alternative will result in approximately 12 acres of new ground disturbance, requiring vegetation removal: 11 acres for road rehabilitation and one acre for greenway trail construction. All action alternatives would result in the same amount of disturbance for road widening since all widen the road to 24 feet. Alternative C would result in more new ground disturbance than the preferred due to the construction of a greenway trail for the road's full length. While Alternative B would meet the intent of many of the project objectives and would result in less new ground disturbance than the preferred, the preferred alternative goes farther to address the need for a greenway trail, as identified in the GMP and in the project objectives, without requiring as many road crossings as Alternative C. The preferred alternative best achieves the balance between resource use and visitor experience, as specifically identified in numbers 3 and 4 above, while also minimizing new resource impacts as identified in numbers 2, 4 and 5 above.

WHY THE PREFERRED ALTERNATIVE WILL NOT HAVE A SIGNIFICANT EFFECT ON THE HUMAN ENVIRONMENT

As defined in 40 CFR §1508.27, significance is determined by examining the following criteria:

Impacts that may be both beneficial and adverse. As fully discussed in the EA, the preferred alternative will not measurably affect air quality, floodplains and wetlands, minority or low- income populations, prime and unique farmland, socioeconomic values, or recommended wilderness.

Implementation of the preferred alternative will result in moderate adverse impacts to archeological resources due to the fact that one known archeological site cannot be avoided during road widening actions and will need to be mitigated, and indirect impacts to one to four additional sites following greenway trail construction and the potential for additional social trailing in other areas.

Implementation of the preferred alternative will result in minor to moderate adverse impacts to watershed resources (soils and water) due to approximately 15 acres of new ground disturbance. This level of ground disturbance is expected to result in reduced water infiltration, reduced soil porosity, and increased soil erosion through compaction and displacement of soil.

Implementation of the preferred alternative will result in minor to moderate adverse impacts to vegetation due to a loss of vegetation on approximately 15 acres along the road edge and for greenway trail construction, up to approximately 1,400 to 1,450 trees of all size classes, and the potential for spread of exotic species.

Implementation of the preferred alternative will result in minor to moderate adverse impacts to general wildlife due to a loss of vegetation on approximately 15 acres along the road edge and for greenway trail construction, up to approximately 1,400 to 1,450 trees of all size classes, loss of habitat for a variety of species including direct mortality to mammalian prey species and loss of multiple bird territories, decreased wildlife security and increased disturbance to adjacent habitat along the roadway. Short term impacts during the construction period are expected due to increased noise and activity.

Implementation of the preferred alternative will result in negligible to minor adverse impacts to special status species (Mexican spotted owl, California condor, northern goshawk, peregrine falcon, sentry milk vetch, Tusayan flame flower, Allen's lappet- browed bat, long- legged Myotis, and pale Townsend's big- eared bat) due to 15 acres of new ground disturbance, loss of 1,400 – 1,450 trees of all size classes, potential for disturbance to foraging habitat and prey species. Moderate, beneficial impacts to sentry milk vetch and Tusayan flame flower are expected due to improvements at Maricopa Point.

Implementation of the preferred alternative will result in negligible to moderate adverse impacts to soundscape due to increased noise and activity during the construction period. No measurable changes are expected over the long- term in the expected duration, level or affected area of human- caused sounds as a result of this project.

Implementation of the preferred alternative will result in minor to moderate adverse impacts to visual and scenic quality due to two new shuttle bus stops, a portion of the greenway trail near Pima Point and near Hermits Rest where it will be visible from the roadway, widening the road at pinch points and the loss of vegetation along the roadway edge, minimized over time as vegetation comes back into these areas.

Implementation of the preferred alternative will result in minor to moderate beneficial impacts to visitor experience and safety due to widening of the roadway and the road shoulder, implementation of improvements to West Rim Trail, the unpaved rim trail, creation of a greenway trail segment, construction of a connector trail between Maricopa Point and Powell Point, and improvements to overlooks and parking areas - all of which create a safer environment for all users of Hermit Road. Short- term moderate adverse impacts are expected during the construction period.

Implementation of the preferred alternative will result in minor to moderate beneficial impacts to park operations due to widening and resurfacing of the existing roadway, improvements to pedestrian paths to accommodate hikers off the roadway, creation of a greenway trail segment separate from the road for bicyclists and pedestrians and improvements to overlooks and parking areas –all of which create a safer environment for all users of Hermit Road, including shuttle and tour bus operations. Short- term moderate adverse impacts are expected during the construction period.

Degree of effect on public health or safety. Adherence to mitigation measures designed to minimize safety risks and adverse impacts to visitors during the construction period will address these limited risks to public safety. Minor to moderate, beneficial, long- term impacts to visitors are expected due to improvements in visitor facilities (such as the greenway trail segment, unpaved rim trail improvements, West Rim Trail improvements and widening of the road) These improvements are expected to decrease the safety risks associated with vehicle, pedestrian and bicyclist conflicts and enhance the movement of visitors that are walking or biking without conflicting with vehicle traffic.

Unique characteristics of the geographic area such as proximity to historic or cultural resources, park lands, prime farmlands, wetlands, wild and scenic rivers, or ecologically critical areas. The preferred alternative will not measurably affect air quality, floodplains and wetlands, minority or low- income populations, prime and unique farmland, socioeconomic values, or recommended wilderness. No wild and scenic rivers are designated near the project area and none will be affected by implementation of the preferred alternative. No ecologically critical areas occur within the project area and disturbance is primarily limited to that adjacent to the road corridor. Mitigation measures will be implemented that minimize the potential for adverse impacts to natural and cultural resources.

Degree to which effects on the quality of the human environment are likely to be highly controversial. There were no highly controversial effects identified during either preparation of the EA or the public review period.

Degree to which the possible effects on the quality of the human environment are highly uncertain or involve unique or unknown risks. There were no highly uncertain, unique or unknown risks identified in the EA or during the public review period.

Degree to which the action may establish a precedent for future actions with significant effects or represents a decision in principle about a future consideration. The preferred alternative neither establishes a precedent for future actions with significant effect nor represents a decision in principle about a future consideration.

Whether the action is related to other actions with individually insignificant but cumulatively significant impacts. Implementation of the preferred alternative will not result in any significant cumulative impacts.

Degree to which the action may adversely affect districts, sites, highways, structures, or objects listed on National Register of Historic Places or may cause loss or destruction of significant scientific, cultural, or historical resources. One archeological site occurs within the project area that will be directly impacted by proposed actions and up to four other sites have the potential to be indirectly impacted following project implementation. Historic features of the road and its associated overlooks, including culverts and headwalls, benchmarks and brass cap monuments, walls at historic pullouts and overlook parking areas and the West Rim Trail all have the potential to be affected by proposed actions. All components of the preferred alternative take into consideration the potential for impacts to these sensitive cultural resources and project proposals have been designed with protection of these resources in mind, so that adverse effects are minimized. A Memorandum of Agreement with the State Historic Preservation Officer has been finalized (18 January 2007) to ensure that NPS responsibilities under Section 106 for protecting these cultural resources are met. All stipulations identified in the Memorandum of Agreement have been incorporated into the project and are referenced in the mitigation measures section of this document.

Tribal review of the EA and of the Memorandum of Agreement is complete.

Degree to which the action may adversely affect an endangered or threatened species or its critical habitat. For purposes of Section 7 consultation under the Endangered Species Act, implementation of the preferred alternative may affect, but is not likely to adversely affect, the Mexican spotted owl and Sentry milk vetch. Concurrence on these determinations was received from the U.S. Fish and Wildlife Service on 7 February 2007.

The California condor was listed as an endangered species in 1967. A nonessential, experimental population of California condors has been established in Northern Arizona, and within Grand Canyon National Park the condor has the full protection of a threatened species. Implementation of the preferred alternative is likely to adversely affect the California condor due to the potential for disturbance to their normal breeding behavior from construction noise and activity and in their attraction to project sites where they could be involved in unintended human- condor interactions on the ground. Mitigation measures have been developed jointly between park staff and the U.S. Fish and Wildlife Service (FWS) to minimize the potential for adverse impacts to the condor during project implementation. These measures are included as part of the proposed action and identified under the preferred alternative. NPS requested formal consultation with the FWS on the project on 6 October 2006 and received a Draft Biological Opinion from FWS on 7 February 2007. The Biological Opinion was finalized on March 26, 2007. It is the opinion of the FWS that the project is not likely to jeopardize the continued existence of the California condor due to the limited scope and duration of the project and that only a few condors are likely to be adversely affected by the action. The FWS does not anticipate that the proposed action will incidentally take any California condors due to the uncertainty of where condors may nest in 2008, during the construction period. No conservation recommendations were identified.

Whether the action threatens a violation of Federal, state or local environmental protection law. The preferred alternative violates no federal, state, or local environmental protection laws.

IMPAIRMENT OF PARK RESOURCES OR VALUES

In addition to determining the environmental consequences of the preferred and other alternatives, National Park Service policy (*Management Policies*, 2006) requires analysis of potential effects to determine whether or not actions will impair park resources. The fundamental purpose of the National Park System, established by the Organic Act and reaffirmed by the General Authorities Act as amended, begins with a mandate to conserve park resources and values. National Park Service managers must always seek ways to avoid, or to minimize to the greatest degree practicable, adverse impacts on park resources and values. However, the laws do give the National Park Service the management discretion to allow impacts to park resources and values when necessary and appropriate to fulfill the purposes of the park, as long as the impact does not constitute impairment of the affected resources and values. Although Congress has given the National Park Service the management discretion to allow certain impacts within parks, that discretion is limited by the statutory

requirement that the National Park Service must leave park resources and values unimpaired, unless a particular law directly and specifically provides otherwise. The prohibited impairment is an impact that, in the professional judgment of the responsible National Park Service manager, will harm the integrity of park resources or values, including the opportunities that otherwise will be present for the enjoyment of those resources or values. Impairment may result from National Park Service activities in managing the park, visitor activities, or activities undertaken by concessionaires, contractors, and others operating in the park. An impact to any park resource or value may constitute impairment. An impact will be more likely to constitute impairment to the extent that it affects a resource or value whose conservation is:

- Necessary to fulfill specific purposes identified in the establishing legislation or proclamation of the park;
- Key to the natural or cultural integrity of the park; or
- Identified as a goal in the park's general management plan or other relevant NPS planning documents.

Because there will be no major adverse impacts to a resource or value whose conservation is (1) necessary to fulfill specific purposes identified in the establishing legislation or proclamation of Grand Canyon National Park; (2) key to the natural or cultural integrity of the park; or (3) identified as a goal in the park's general management plan or other relevant National Park Service planning documents, there will be no impairment of Grand Canyon National Park's resources or values as a result of implementation of the preferred alternative.

PUBLIC INVOLVEMENT

The EA was made available for public review and comment during a 30- day period ending 6 November 2006, through a combination of direct mailing, issuance of a press release and posting on the Planning, Environment and Public Comment website (<http://parkplanning.nps.gov/grca>). All those that previously provided comments during the public scoping periods received either a printed copy or an email notification that the EA was available for public review.

Three comment letters and/or e- mails were received and are summarized as follows: 1) Grand Canyon Railway expressed support for the project and with the option to partially close the road west to east during the construction period. They raised concern with implementation of the construction and how it might affect traffic flow, visitor confusion and congestion and expressed support for the idea of providing substitute shuttle bus routes during the construction period for their guests; 2) Arizona Department of Environmental Quality asked that NPS address waste management and that NPS place waste receptacles, including recycling receptacles on shuttles or at shuttle stops; 3) Coalition of Arizona Bicyclists expressed concern with any greenway trail proposal that will provide shared use between bicyclists and pedestrians and felt that this will result in an increased number of accidents between bicyclists and pedestrians. The Coalition recommended that NPS discourage bicycle use on the greenway and to widen the road enough so that a one way bike lane is provided on each side.

Consultation between the NPS and the State Historic Preservation Officer (SHPO) was completed with the finalization of a Memorandum of Agreement (MOA) on 18 January 2007. Consultation between the NPS and tribal groups occurred as part of public scoping, as part of review of the EA and as part of the completion of the MOA to guide Section 106 consultation and the cultural resource aspects of the project. All affiliated tribes with an interest in this project were asked if they will like to be a concurring party to the MOA. Responses at various times in the process were received from the Pueblo of Zuni, the Kaibab Paiute Tribe, the Navajo Nation, the Hopi Tribe and the Hualapai Tribe. No tribes asked to be a concurring party to the MOA and no tribes provided any specific comments on the EA.

ERRATA SHEET
Response to Comments

Hermit Road Rehabilitation
Grand Canyon National Park

The NPS received three responses to a request for comments on the EA for the Rehabilitation of Hermit Road (September 2006). The comment period ended 9 November 2006. An interdisciplinary team reviewed these responses to identify any substantive comments. Substantive comments were considered to be comments which:

- question, with reasonable basis, the accuracy of information in the EA.
- question, with reasonable basis, the adequacy of environmental analysis.
- present reasonable alternatives other than those presented in the EA.
- cause changes or revisions in the proposal.

Some comments were received that were considered substantive. These comments were reviewed in detail by the project interdisciplinary team. Substantive comments received are summarized below with the NPS response.

Comment: From Yaki Point to Hermits Rest there are a total of ten overlooks. Seven of those ten overlooks will be closed from perhaps June through November. This will create unbelievable confusion and congestion and could result in another massive waive of adverse publicity.

Response: NPS recognizes the importance of communicating with the public and our partners regarding the temporary closure of Hermit Road (and its associated overlooks) during the construction period. The EA evaluates in detail three potential options for road closure during construction to attempt to minimize impacts on visitors as well as to reduce costs and impacts to park resources. These options are described on page 23 of the EA and evaluated in Chapter 3. On page 24, the EA describes that substitute shuttle bus and tour bus routes will be necessary during the construction period to accommodate visitors displaced from Hermit Road routes. Mitigation measures have been developed to minimize the potential for adverse impacts to visitor experience and are described on page 45 of the EA. NPS anticipates that the implementation of appropriate substitute shuttle and tour bus routes and implementation of these mitigation measures (which include information exchange with visitors) will minimize the magnitude of effect on visitors. These changes are detailed on page 7 of this document and supplement that described in the EA with more details on implementation. While NPS agrees that accommodation of visitors during the road construction period will be challenging, NPS disagrees that implementation of the preferred alternative will result in exorbitant confusion, congestion or massive adverse publicity.

Comment: The EA does not address waste management. We encourage the NPS to place waste receptacles, including recycling receptacles, on their shuttles or at the shuttle stops.

Response: While the EA does not focus on waste management as part of the proposed actions, it does specify that trash/recycling receptacle placement is part of the project. Refer to page 17- 18 of the EA, under Elements Common to All Action Alternatives. NPS agrees that waste management is important and the use of both trash and recycling receptacles in appropriate locations along Hermit Road is part of the rehabilitation effort. Existing trash and recycling receptacles in the project area may be replaced, relocated or supplemented with new ones as part of this project.

Comment: Alternatives that will widen the roadway to 24 feet will improve roadway width but will still not conform to AASHTO guidelines for shared roadways.

Response: All action alternatives described in the EA widen the road to a uniform width of 24 feet, which will result in an increase in width of 3 to 6 feet. This will provide two, 11-foot vehicle lanes with one-foot paved shoulders. NPS recognizes that this is a substantial improvement in the condition of the roadway over its existing condition and is adequate to meet current safety standards for bus traffic. As described on pages 36- 38 of the EA, alternatives that were considered initially but ultimately dismissed from further detailed analysis are described. NPS preliminarily evaluated an option to widen the road up to 30 feet, the width necessary to provide for adequate vehicle travel lanes and two, one-way bike lanes. This was dismissed from further analysis due to the substantial adverse impact this would create on this National Register of Historic Places-eligible roadway; it would substantially change the road's historic character due to the increase in width and the level of striping and other management aspects that would be necessary.

NPS believes that a uniform width of 24 feet with a paved shoulder will greatly improve the existing condition and will provide a safer option for bicyclists (compared to the current condition) who choose to use the road. Hermit Road is not considered a shared roadway, as defined by the AASHTO standards, because it does not provide a separate bike lane. Therefore, NPS will not promote it as a bicycle facility. However, Hermit Road, similar to other roads throughout Grand Canyon National Park, will remain open to bicyclists.

Comment: Any alternative that has a greenway trail identified as a shared-use path will considerably increase the likelihood of bicycle-pedestrian collisions and yet this adverse outcome is mentioned only briefly in the public health and safety section. Since the path will only be 8 feet wide and anticipated for use by “especially family groups with strollers and young children”, we believe this is a recipe for an increased number of accidents. Bicyclists should be discouraged from using the greenway.

Response: The “Guide for the Development of Bicycle Facilities” (American Association of State Highway and Transportation Officials, or AASHTO, 1999), recommends a 10-foot width for a two-directional shared use path. The guidelines support a reduced width of 8 feet if certain conditions are met (including good visibility for passing and expected low bicyclist and pedestrian use), and support an increased width of 12 feet or even 14 feet if substantial use by bicyclists, joggers, skaters and pedestrians is expected, steep grades, and/or large maintenance vehicles. These recommended widths are all in keeping with Americans with Disabilities Act (ADA) requirements for wheelchairs on trails (a minimum width of 5 feet is recommended so as to provide 30 inches of width for each of two wheelchairs side by side). NPS has discretion in the way in which it chooses to implement AASHTO guidelines, depending on a variety of factors, including the potential for impacts to natural and cultural resources. For this segment of the greenway trail along a portion of Hermit Road, 8 feet was initially selected as the maximum width and was analyzed as such in the EA. While the proposed greenway trail will be a two-directional, shared use path, NPS believes that this segment of trail will not receive the high levels of use that will require a 10-foot-wide or greater trail. NPS is obligated to consider the effect of proposed actions on natural and cultural resources and consistency with other greenway trails existing and planned in other areas of the park. In this case, NPS proposes to keep the width of the new trail to a minimum to avoid unnecessary impacts to resources while still meeting the intent of the AASHTO recommendations.

NPS agrees that conflicts between bicyclists and pedestrians can occur on shared use paths and that the safety of all user groups is a goal of any new facilities. The proposal to construct an 8-foot-wide shared use greenway as part of the Hermit Road project is consistent with other trail segments in the park. For instance, the rim trail that occurs from Kolb Studio to Pipe Creek Vista all along the developed zone of Grand Canyon Village on the South Rim is approximately 9 feet wide (some areas are wider). However, in recognition of the high level of pedestrian use on this trail and its proximity to the canyon edge, bicyclists are not allowed due to the potential for accidents. On the greenway trail segment (away from the rim) that connects Canyon View Information Plaza with Grand Canyon Village and serves visitors and residents throughout the Village, the width is 12 feet except for those segments of trail that are within the National Historic Landmark District. In these areas, the

width was reduced to 8 feet to minimize the level of effect this new trail will have on this important historic resource. Therefore, minimizing the width of the 3- mile long greenway to reduce impacts to park resources and to be consistent with other greenway segments in the park while still providing a width that is adequate to meet the level of anticipated use is consistent with other trail planning in Grand Canyon National Park.

That said, NPS considers the safety of our visitors and employees paramount. After reconsideration of the proposed width of the trail in light of your comments, the anticipated level of use by pedestrians on this trail, and review of the AASHTO guidelines, NPS proposes to increase the width of this segment of greenway trail to 9- feet. NPS believes this increased width more adequately addresses the projected use of the trail, recognizing its distance from the Village, and is consistent with other segments of greenway trail in the park. In addition, if the level of use of the greenway segment along Hermit Road between the Abyss and Hermits Rest receives more use by pedestrians and bicyclists than originally thought, or it increases over time beyond that expected, and/or a frequency of accidents or near misses is reported, the Superintendent has discretion to close the trail to a user group if necessary. The park is not aware of accidents between bicyclists and pedestrians on the shared use greenway within Grand Canyon Village, either on the 12- foot- wide or the 8- foot- wide segments.

This change from an 8- foot maximum width to a 9- foot maximum width is captured in the description of the preferred alternative on page 2 of this document. The text of the EA on page 30 was modified to reflect this change, as follows:

*The trail would be paved and would be no greater than ~~eight~~ **nine**- feet wide for most of its length. For the last approximately 1/3 of a mile to Hermits Rest, the trail would be narrowed to approximately five feet and would stay on the road's north side. At this location, bicyclists would share the road with vehicle traffic to Hermits Rest.*

This increased width of one foot has been discussed with the interdisciplinary team and verified with the estimates of effects to natural and cultural resources described in the EA. The team has agreed that this slight change would not alter the anticipated level of impacts to park resources. For this reason, no changes are necessary to the environmental consequences section of the EA due to this revision to the project scope.

In light of your comments on the frequency of accidents and subsequent discussions with other park staff on this subject, the text of the EA on page 174 has been changed to more accurately reflect the potential for accidents on shared- use paths, as follows:

*It is possible, however, that Alternative D will result in ~~slightly~~ **a higher** potential for pedestrian/bicyclist collisions due to both user groups on the greenway traveling in both directions. This is possible on any shared use path, but potentially higher in this case since the trail will be only ~~8~~ **9** feet wide. The potential for pedestrian/bicyclist collisions is ~~although~~ **considered negligible to minor**.*

Comment: We recommend that the roadway be widened to an appropriate width for shared use by shuttle buses and bicyclists. One- way bike lanes on the road should be part of the proposal.

Response: As stated above, NPS considered widening the road up to 30 feet to accommodate appropriate vehicle travel lanes and one- way bike lanes. As described on page 36 of the EA, this option was dismissed from detailed analysis due to the unacceptable impacts this increased width will have on the historic character of the road.

Comment: NPS has identified the need for minor modification and revisions to certain aspects of the preferred alternative description since the EA was distributed for review. These minor modifications pertain primarily to the details of design elements at overlooks and parking areas, but also include more specific actions on how NPS intends to accommodate visitors during the road closure period.

Response: All of these minor modifications are described fully as part of the preferred alternative description on pages 2- 9 of this document and replace all corresponding text in the EA for these components of the preferred alternative. These minor modifications and more specific details on actions described generally in the EA have been discussed with the interdisciplinary team and verified with the estimates of effects to natural and cultural resources described in the EA. The team has agreed that these changes, with the implementation of some additional mitigation measures (as identified in this document on pages 9- 15) will not alter the anticipated level of impacts to park resources from the project as a whole. For this reason, no changes are necessary to the environmental consequences section of the EA due to these small changes and clarifications that have occurred since the issuance of the EA for public comment.