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National Park Service

U.S. Department of the Interior



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# NATIONAL PARK SERVICE EMPLOYEE HOUSING PROJECTS

Environmental Assessment

PEPC #: 132210

September 2025

The National Park Service (NPS) has prepared this environmental assessment (EA) consistent with the National Environmental Policy Act (NEPA) (42 U.S.C. 4321 et seq.), the Department of the Interior (DOI) NEPA regulations, 43 CFR 46, and the 2025 DOI Handbook of NEPA Implementing Procedures (516 DM 1 Handbook).<sup>12</sup>

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<sup>1</sup> Certification related to Page Limits: The NPS certifies it has considered the factors mandated by NEPA; that this EA represents its good-faith effort to prioritize documentation of the most important considerations required by the statute within the congressionally mandated page limits; that this prioritization reflects NPS's expert judgement; and that any considerations addressed briefly or left unaddressed were, in NPS's judgement, comparatively not of a substantive nature that meaningfully informed the consideration of environmental effects and the resulting decision on how to proceed.

<sup>2</sup> Certification related to Deadline: The NPS certifies that this EA represents a good-faith effort to fulfill NEPA's requirements within the congressional timeline; that such effort is substantially complete; that, in NPS's expert opinion, it has thoroughly considered the factors mandated by NEPA; and that, in NPS's judgment, the analysis contained therein is adequate to inform and reasonably explain its decision regarding the proposed Federal action.

## NOTE TO REVIEWERS

If you wish to comment on this document, you are encouraged to do so through the NPS Planning, Environment, and Public Comment system at <https://parkplanning.nps.gov/employeehousing>.

You may also mail to:

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## **CHAPTER 1: PURPOSE, NEED, AND ISSUES ANALYZED**

### **1.1 BACKGROUND**

It is the policy of the National Park Service (NPS), in compliance with 5 USC 5911, that employees live in private sector housing unless housing in the private sector within a reasonable commute is unavailable or unaffordable.

Unavailable, for permanent employees, means:

1. there is no local rental market within a reasonable commute; or
2. there is a local rental market, but the amount or type of units is insufficient.

Unavailable, for seasonal tenants, means there is no entity willing to rent a unit during the peak of park visitation season with lease terms approximating the number of months that seasonal employee works.

Unaffordable means that an employee in the position's wage and grade would pay more than 30–35% of their monthly gross income in rent (including insurance, taxes, and utilities).

A reasonable commute means that an employee's travel from the local rental market to the place they report for work, under normal commuting conditions, is approximately one hour and not more than two hours.

When housing in the private sector is unavailable or unaffordable, a park will provide only the amount of Government Furnished Housing (GFH or "park housing") necessary to support operations, per NPS Director's Order 36, "Housing Management."

NPS housing supports mission-critical park operations. Of the 433 parks, monuments, and memorials that the National Park Service manages, 215 provide GFH for employees within their boundaries. Many park housing units are in dire need of renovation or replacement to address maintenance needs, comply with modern safety codes, and better meet employee needs.

### **1.2 CONTEXT**

The national park system is geographically and environmentally diverse with a stunning variety of natural and built environments. It comprises park units from the

Virgin Islands to Alaska and from Guam to Maine. The 215 park units that have park housing reflect this diversity of environments, from rural settings to urban areas; from arctic tundra to deciduous forest; and from rain forest to desert, each with its own communities of flora and fauna. Despite the diversity of environments across the national park system, the housing units share many similarities since the agency has experienced only two major building periods: the New Deal era and the Mission 66 era.

New Deal-era, government-funded park housing from the 1930s tends to be small in scale and characterized by the NPS Rustic style and Indigenous-inspired design. The housing was typically built by small crews using limited equipment and locally available materials. As historic properties, these structures may be individually significant for their architectural style and unique design elements (Carr et al. 2015).

“Mission 66” refers to a massive building campaign within the national park system from 1945 to 1972 that improved, standardized, and democratized the public’s national park experience. The new facilities and infrastructure built during this period were not only for visitor use, but also for park operations and administration. There are approximately 20,000 Mission 66 era facilities across the entire national park system, with the majority concentrated in the Pacific West and Intermountain Regions. Mission 66 building programs were centrally planned and designed and featured the Park Service Modern architectural style. Individual park building programs were designed at the landscape level so that spatial organization, cluster arrangements, circulation patterns, and designed landscape features are as important, if not more important, than individual structures (Carr et al. 2015). Most park housing dates to the Mission 66 era. Through centralized planning and design, this era changed the look of the national park system and created a relatively standardized design aesthetic across park units. There has not been a major construction period since Mission 66.

A park may have inherited structures that predate its establishment and that are now used as housing. For example, many parks are former Department of Defense (DOD) lands and housing may date to the period of DOD ownership.

### **1.3 PURPOSE AND NEED FOR ACTION**

Park housing provides economical, on-site lodging and is essential for recruiting and retaining qualified staff. Many parks are located in remote areas with little access to housing outside the park boundaries. Across the nation, available housing that is both outside park boundaries and within a reasonable driving distance has become

increasingly unaffordable for staff. Park housing is becoming more essential, yet many parks lack adequate housing supply, and those that exist are aging. The majority of housing units were built between 1945 to 1972, during the Mission 66 era, and the average unit on an NPS site is 68 years old. Many of these older units do not meet modern safety standards or building codes.

The purpose of taking action is to provide adequate housing for parks staff.

The action must address the following needs:

1. Comply with the requirements of 5 USC 5911 and NPS DO 36.
2. Provide sufficient park housing to meet the needs for park staffing.
3. Address housing code and safety standard deficiencies in housing units for human health and safety.

The decision left to be made is whether to undertake projects to substantially improve the condition, functionality, and/or capacity of park housing.

#### **1.4 ISSUES ANALYZED IN THIS ENVIRONMENTAL ASSESSMENT**

The following topics were carried forward for further analysis in this EA:

- vegetation
- wildlife
- archeological resources
- cultural landscapes and historic structures

Impact topics that were considered but not carried forward for detailed analysis are listed below. Rationales for their dismissal are addressed in Appendix A.

- air quality
- soundscapes
- socioeconomics
- visitor use and experience

- ethnographic resources
- soils
- wilderness
- paleontological resources
- wetlands and floodplains

## **CHAPTER 2: ALTERNATIVES**

### **2.1 ALTERNATIVE 1: NO ACTION**

For a given park, under the no-action alternative, no new park housing will be constructed. Existing park housing will continue to receive investments in minor, routine repair and maintenance activities that address only basic needs such as replacing failing appliances and replacing hardware for doors and windows. Without addressing the underlying structural and health and safety concerns posed by aging systems and structural elements, the condition of park housing will eventually decline to a point where it can no longer function as housing and may have to be removed.

### **2.2 ALTERNATIVE 2: PROPOSED ACTION (PREFERRED ALTERNATIVE)**

For a given park, under the proposed action, the park would continue investing in minor and routine maintenance but would also undertake housing projects to substantially improve the condition, functionality, and/or capacity of park housing. Potential housing projects may fall anywhere along the following spectrum: repair, rehabilitate, or remodel aging housing units; replace aging housing units; or construct new housing units. A given park would conduct a study to identify the best housing project options for addressing its needs, including consultation over historic properties and permitting as required by applicable laws.

#### **2.2.1 Project Activity Types Under the Proposed Action**

Housing projects may include any of the following activity types:

- Planning studies:
  - Geotechnical surveys of a construction area would involve boring through local soils for analysis and understanding of the geological formations under the project site. This activity would help determine the type of foundation needed to support a structure. Geotechnical bores are typically eight inches in diameter or less and go as deep as needed to find a stable soil layer, generally between 20 and 50 feet deep. Bore holes are backfilled and plugged once the core sample has been obtained.
  - Topographical/hydrologic surveys of a construction area would

involve using a variety of different cartographic tools (e.g. total stations, theodolites, and LiDAR enabled scanners) and techniques to understand the surface geography of a project site, including hills, depressions, waterways, and property boundaries. Small temporary or permanent markers may be installed on the ground as a reference point to ensure consistency in data across multiple surveys. Survey tools have traditionally been tripod-mounted or handheld, but recently, drone use has been proving more efficient for data gathering.

- Wetland delineation of the construction area would involve site testing to analyze soil composition and determine whether the soils and sub-surface hydrology could support wetland habitats and vegetative assessments.
- HazMat surveys of the study area would involve collecting samples from various parts of existing structures and soils to determine whether hazardous substances are present, including lead paint, asbestos, and other carcinogens.
- Support and utility infrastructure installation:
  - Replacement of old utilities or construct new utility corridors, including electrical, water, wastewater, safety lighting, and internet, generally within a quarter mile of the housing unit.
  - Construction of new roads and parking areas, sidewalks and exterior living spaces (patios), generally with less than a half-acre of paved surface.
  - Construction of new footings, which are concrete slabs or basements that provide support for buildings and structures. The footing design depends on the outcome of a soils analysis: some soil conditions allow footings to be constructed directly on the ground, while other conditions necessitate building the footing on piles. Piles are vertical support columns that extend down to a solid layer underground, ensuring that the footing is stable.
- Vegetation clearing/replanting:
  - Implementing projects on existing buildings requires access

around the structures. As a result, vegetation removal and clearing will be necessary where vegetation encroaches on the buildings. A clear zone not to exceed 50 feet around buildings is anticipated for these projects. Additional clearing of approximately 50 feet in width may be necessary along utility corridors.

- Projects that include new construction will require vegetation removal on the site in preparation for ground-disturbing activities including grading and ground disturbance associated with installation of utilities and foundations. These projects may need to clear an area of approximately 2 acres.
- Projects may include new landscaping, reseeding, and revegetation.
- Building interior repair and rehabilitation:
  - This category may include minor repairs and upgrades or more extensive modifications. Health and safety improvements may include removing or replacing old utility infrastructure including pipes, lines, and wiring for water, electricity, heating, and sanitation; widening doorways; renovating or replacing cabinets, counters, and fixtures; and making improvements to meet existing building and fire codes.
  - Projects may add new wiring, piping, and utility lines, as well as new or relocated outlets, light fixtures, switches, and sinks. This work may require removing drywall and other wall surfaces as well as adjusting substructure including wall framings. Upgraded interior utilities may require new or modified exterior elements such as fuse boxes and meters and may require some ground disturbance.
- Building interior remodeling:
  - Projects may remodel interior spaces to meet park staffing needs, including adding or removing interior walls and structures. This may involve changing the number of bedrooms within a building; converting an interior space from single occupancy to multiple occupancy, or vice versa; and/or improving compliance with the Architectural Barriers Act Accessibility Standard (ABAAS) by, for

example, increasing door widths or altering room layouts.

- Building exterior repair, rehabilitation, or remodeling:
  - Projects may remove or replace exterior features such as roofs, siding, doors, windows, light fixtures, garages, drainages, patios, or carports, if they are determined to be structurally unsound and infeasible to maintain.
  - Projects may alter rooflines to more efficiently address environmental conditions like snow loading or sun shading. Exterior features such as windows and doors may need to be replaced to meet modern fire and energy efficiency requirements. Upgraded utilities may require new or modified exterior elements such as fuse boxes and meters and may require some ground disturbance. Exterior modifications may be undertaken to improve ABAAS compliance.
- Structure removal:
  - In some cases, an existing structure may be compromised to the point that it is not practicable to rehabilitate. Such structures may be removed using heavy machinery. If the structure is to be replaced and the existing foundation does not meet current code requirements, the foundation may also be removed which would involve ground disturbance on and around its footprint.
- Construction of new structures:
  - Projects may involve construction of new structures which typically requires preparation of the grounds around the proposed footprint, including clearing and grubbing vegetation and modifying local topography to support drainage and utilities. If a structurally sound foundation does not already exist, a new one would be constructed to support the new building. New housing may be built on site or assembled on site using prefabricated elements. New structures constructed within an existing historic district or cultural landscape would be visually compatible with the historic district or cultural landscape.

### **2.2.2 Limits on Acceptability Under the Proposed Action**

Conditions at each park where housing projects would be undertaken will vary. This environmental assessment would only apply to housing projects that meet or exceed the following limits on acceptability (LOAs) or that have functionally equivalent conditions. These LOAs establish predictability in the nature and severity of potential impacts that allows for meaningful analysis in the next chapter of this environmental assessment. Housing project sites that do not conform to the LOAs would have to conduct a separate NEPA process. All housing projects, regardless of whether or not they use this environmental assessment, must complete compliance processes required by applicable laws and regulations such as the Endangered Species Act (ESA) and the National Historic Preservation Act (NHPA) .

#### **2.2.2.1 Biological Resources**

The project:

- is located outside of designated critical habitat or proposed critical habitat;
- is located outside of proposed, potential, eligible, recommended, or designated wilderness areas;
- is located outside the limits of seasonal raptor closures including bald and golden eagles;
- is located in an area that has no cryptobiotic soil crusts, tundra, or other types of sensitive biome; and
- requires no work that impacts aquatic habitats.

#### **2.2.2.2 Cultural Resources**

The project:

- is in an area that has no sensitive ethnographic resources;
- is in an area that has no human remains;
- is in an area that has no rare or sensitive

archeological sites;

- will not adversely affect National Historic Landmarks; and
- requires no work that would result in loss of National Register of Historic Places (NRHP) eligibility or NRHP-delisting of a historic or cultural property such as a historic district.

#### **2.2.2.3 Geologic Resources**

The project:

- requires no work that would remove or destroy fossiliferous substrate.

#### **2.2.2.4 Water Resources**

The project:

- requires no work that would alter flood elevations or severity;
- requires no work that would alter existing or create new drainage outfalls; and
- requires no work that would result in more than 0.10 acres of new wetland disturbance (temporary or permanent).

### **2.3 BEST PRACTICES**

The following are examples of best practices followed where practicable to avoid or minimize adverse environmental impacts. The list is not exhaustive:

#### **2.3.1 Invasive Species/Noxious Weeds**

- Use weed-free fill material.
- Clean and inspect all equipment and supplies prior to entering the park.

- Use park-approved reseeding mix.

### **2.3.2 Dark Skies**

- Use exterior lighting that complies with International Dark Sky Community guidelines.
- Use black-out curtains or shades for all windows.

### **2.3.3 Protected Species**

- Conduct all vegetation clearing activities outside of bird-nesting and bat-roosting seasons.
- Conduct all demolition outside of bat roosting season.

### **2.3.4 Wetlands**

- Use matting and other measures over identified wetland areas to minimize impacts.

### **2.3.5 Habitat**

- Stage equipment in previously disturbed areas with a preference for areas with hard surfaces such as asphalt, concrete, gravel, or packed earth.

### **2.3.6 Archeological Resources**

- Conduct a literature review and field survey prior to each housing project (if existing information does not suffice) to inform project design and avoid or minimize impacts.
- Conduct archeological monitoring of any ground-disturbing activities unless otherwise approved by the park.
- Lay down a geotextile or gravel base at staging areas that are not on hard surfaces.
- Adhere to the park's artifact management plan.

### **2.3.7 Cultural Landscapes and Historic Structures**

- Consult the National Park Service Mission 66 Era Resources Multiple Property Documentation Form (M66 MPDF) and the 2024 Program Comment on Stewardship and Management of National Park Service Mission 66-Era Facilities (1945–1972) (“M66 Program Comment”) prior to each housing project to inform project design and to mitigate impacts.
- Conduct a literature review of historic properties (including published documentation and recommendations and the NPS Cultural Resource Inventory System database) prior to each housing project to inform project design and to mitigate impacts.
- Incorporate the Secretary of the Interior's Standards for the Treatment of Historic Properties (“Standards for Treatment”) into housing project designs.
- Project design will prioritize protection of topsoil and cultural landscape vegetation, and/or salvage and subsequent replanting, or if not practicable, restoration of historic vegetation patterns after construction.

### 2.3.8 Additional Measures

- Require an environmental manager for each site responsible for tracking and reporting all environmental commitments and requirements.
- Conduct contractor training on key issues including sensitive species, archeological artifacts, and conservation measures.
- Project design teams include cultural resource subject matter experts who meet the Secretary of the Interior’s Professional Qualifications Standards in archeology, historic landscape architecture, historic architecture, architectural history, and/or history.
- Project team includes interdisciplinary natural resource experts capable of identifying and evaluating relevant issues.

## **CHAPTER 3: AFFECTED ENVIRONMENT AND ENVIRONMENTAL CONSEQUENCES**

### **3.1 INTRODUCTION**

This chapter describes the existing conditions of resources, including trends and ongoing and planned actions, and the environmental consequences (impacts) of the proposed action on each resource.

As a result of information gathered during internal scoping, the National Park Service determined the following issues should be carried forward for detailed analysis in the environmental assessment:

- vegetation
- wildlife
- archeological resources
- cultural landscapes and historic structures

Analysis of environmental consequences from the no-action alternative and the action alternative focuses on these same issues. This analysis is based on expected changes that each alternative would have to the current conditions of the resources and resource trends. It includes beneficial and adverse impacts that would likely result from implementing either of the alternatives considered in this plan.

Additional issues and topics were considered during the development of this plan. See Appendix A for brief descriptions of the impact topics discussed during the development process but ultimately dismissed from detailed analysis, and the rationale for dismissal.

### **3.2 VEGETATION**

Vegetation is used in this document as an overarching term for plants as well as other biological taxa not typically considered animals (mosses, lichens, and mushrooms as examples). The term encompasses sensitive species, which include those listed as federally threatened and endangered as well as state-listed species and those of special concern within a park. NPS properties include a wide variety of different habitats and vegetation types ranging from urban and suburban environments to

forests, deserts, coastlines, and more.

Native vegetation communities can be impacted from different sources. Changing environmental conditions can reduce the viability of native vegetation and encourage the introduction or spread of non-native vegetation. New roads, housing, trails, and other infrastructure reduce the amount of land covered by native vegetation, introduce disturbance, and can allow invasive species to establish, changing the characteristics of vegetation communities. Active and passive vegetation management can both positively and negatively affect native plant populations. Across the park service, the issue of preserving and protecting native vegetation is an on-going concern. Many parks struggle to control the introduction and spread of non-native species that can negatively affect native vegetation.

As part of evaluating individual sites, impacts on vegetation need to be considered and, where necessary, consultation with resource and regulatory agencies conducted.

Project areas with particularly sensitive biomes (e.g. cryptobiotic soil crusts and tundra) have been excluded from using this EA through the LOAs in Chapter 2.2 because impacts on these areas can have long term and permanent impacts. If, during site specific investigations, similar sensitive habitats are identified, this EA would not be applicable to those projects.

### **3.2.1 Current and Expected Future Condition of Vegetation if No Action Is Taken**

The National Park System includes more than 400 park units with a rich diversity of vegetation types. Many park units feature multiple overlapping types of vegetation due to their diverse landscapes and climates. In general, park units contain the following types of vegetation:

- Alpine regions are typically found at high elevations where conditions are harsh. Alpine wildflowers, grasses, and lichens are common, and trees are typically scarce.
- Coastal vegetation is typically adapted to saline conditions. Marsh grasses, mangroves, and coastal shrubs are common in these areas.
- Desert vegetation is adapted to withstand harsh, dry conditions and infrequent rainfall. Cacti, creosote bushes, yuccas, and cryptobiotic crusts are common in these areas.

- Forest and woodland vegetation includes a variety of deciduous and coniferous trees, along with a diverse understory of shrubs, ferns, and herbaceous plants.
- Grassland vegetation includes a range of grass species, with interspersed wildflowers and occasional trees or shrubs.
- Mountain vegetation includes coniferous forests (spruce, fir, and pine trees) at lower altitudes.
- Tundra vegetation such as dwarf shrubs, grasses, mosses, and lichens dominate above the tree line and in the polar regions.
- Temperate rainforest vegetation includes old-growth forests with moss-covered trees such as Douglas-firs, western hemlocks, and Sitka spruces, along with a dense understory of ferns and other plants.
- Tropical rainforest vegetation includes lush vegetation with diverse species of ferns, palms, flowering plants, vines, and hardwood trees, some of which are unique to these areas.
- Wetland areas include a range of aquatic and semi-aquatic plants, such as lily pads, cattails, and mangroves.

If no action were taken, no new park housing would be constructed and existing park housing would continue to receive investments in minor and routine repair and maintenance activities that address only basic needs. Fire clear zones, exterior maintenance, and landscape maintenance will all affect existing vegetation communities. Vegetation loss can occur due to clearing and grubbing, and unauthorized or unanticipated disturbance which in turn can lead to long term shifts in plant composition. The amount of vegetation loss can depend on the type and amount of use. Generally, structure maintenance for NPS housing would be restricted to within about 50 feet from the existing structure. Fire clearing may extend several hundred feet from a structure but depends on the type of vegetation present and overall wildfire risk. Low growing vegetation, grasses, and sedges are more resistant than broad-leafed herbs and forbs. Typically, impacts such as vegetation loss and changes in plant composition are confined to within a few meters of the associated work site. Construction and maintenance activities can all introduce and disperse non-native plants and plant pathogens. In addition,

motor vehicles used by park unit staff and construction crews can cause impacts on vegetation, including trampling and dispersal of non-native seeds and plant pathogens.

### **3.2.2 Effects of the NPS Preferred Alternative**

The various activity types proposed under the preferred alternative all can impact vegetation. Ground-disturbing activities such as underground utility replacement, wetland delineations, geotechnical investigations, site grading, and foundation work all will remove vegetation. Even where ground disturbance is not needed, clearing of vegetation around structures may be needed to allow vehicles, people, and machinery to access the structures. In these cases, vegetation may need to be removed or may be otherwise damaged or cause damage to the structures. Installation or expansion of hard surfaces such as sidewalks and roadways may permanently remove vegetation. These hard surfaces can also modify other site conditions such as surface water movement and infiltration as well as localized changes to air and soil temperatures.

Renovation of existing buildings would impact areas of existing ground disturbance, although the disturbance footprint may be expanded to accommodate staging areas and movement of machinery or new infrastructure such as replacing utility lines, sidewalks, or roads to improve access to structures. Structure removal would likewise take place on an expanded footprint of previous disturbance. Construction of new housing units will require a new ground disturbance footprint which may extend to about two acres of disturbance. Adverse impacts on vegetation resulting from housing projects, including new disturbance, will be managed by incorporating sustainable design features, impact avoidance protocols, and post-construction vegetation restoration.

Redesigning existing housing units and constructing new ones could increase the number of employees living in a given housing area. While it is possible that this would lead to an increase in direct impacts on vegetation, the impacts are expected to be controlled as pathways and roads are provided for housing units. This infrastructure will allow for movement of people and vehicles without increasing impacts on vegetation.

Ongoing maintenance of housing areas, including revegetation and landscaping as well as actions of individual park staff, will continue to impact

vegetation around proposed housing projects.

Loss of vegetation can reduce a habitat's biodiversity by removing food and shelter for species. Vegetation loss also effects non-wildlife resources and increases sediment runoff to water bodies, changing water chemistry and altering the physical landscape (Dosskey 2010). Loss of vegetation can increase opportunities for invasive and non-native plant species to be introduced or expand within an ecosystem, further eroding native ecosystem health (Hejda 2009). These effects can be managed and controlled by using various standard construction best practices. For example, cleaning and inspecting equipment and materials before they enter a park reduces the likelihood of introducing new non-native plants into an area; the use of construction matting to distribute the weight of construction equipment can reduce compaction that would otherwise reduce the ability of vegetation to regrow; and use of park-approved seed mixes can encourage the regrowth of native and historic vegetation in disturbed areas.

Increases in hard surface area can modify other site conditions such as surface water movement and infiltration (Ragab et al. 2003) and can cause localized changes to air and soil temperatures (Shamsispour et al. 2013).

Impacts on vegetation from housing projects are typically confined to vegetation on and around project sites and do not have a geographic or shared ecological nexus to vegetation in other areas of the park or other park units. Furthermore, project work on existing housing sites has not resulted in collective impacts on vegetation across the national park system. Adverse impacts on vegetation resulting from housing maintenance projects are mitigated by using park-established vegetation management procedures.

### **3.2.3 Conclusion**

Activities under both the no-action alternative and the preferred alternative have the potential to negatively impact local vegetation. Activities covered by the preferred alternative would have similar negative impacts as the no-action alternative but over a larger footprint, since the use of larger machinery is likely necessary for more intensive structural work and utility repairs, structure removal, structure replacement, and new housing construction. Impacts on vegetation under the preferred alternative would be managed by selecting project sites according to the LOAs in Chapter 2.2. Impacts under both alternatives would be further controlled by incorporating

sustainable design features, impact avoidance protocols, and post-construction vegetation restoration.

Reasonably foreseeable actions include ongoing maintenance and management of other park infrastructure including regular maintenance of roadways and utilities, and general vegetation and pest management. These activities may involve ground disturbance, the use of heavy machinery, and chemical applications. These activities are unlikely to alter the overall resource trends.

### **3.3 WILDLIFE**

Wildlife is used in this document as an overarching term for different animals found in park units including birds, fish, mammals, reptiles, amphibians, and invertebrates. The term encompasses sensitive species, which include those listed as federally threatened and endangered as well as state-listed species and those of special concern within a park. National park system units span many different types of environments, including deserts, coasts, forests, mountains, and prairies, which host a diverse array of wildlife species. Each park unit supports unique ecosystems and a variety of habitats for resident wildlife. Across the park service, the issue of preserving and protecting wildlife and wildlife habitat is an ongoing concern.

As part of evaluating individual sites, impacts on wildlife need to be considered and, where necessary, consultation with resource and regulatory agencies conducted. Modifications in design and timing of construction will be considered to further control impacts on wildlife species.

#### **3.3.1 Current and Expected Future Condition of Wildlife if No Action Is Taken**

If no action were taken, no new park housing would be constructed and existing park housing would continue to receive investments in minor, routine repair and maintenance activities that address only basic needs. The housing units undergoing these repair and maintenance actions may be located in or near wildlife habitats. Park policies direct residents on how to minimize impacts on wildlife.

#### **3.3.2 Effects of the NPS Preferred Alternative**

Under the preferred alternative, structural work, utility repairs, structure removal, structure replacement, and new housing construction would result

in surface disturbance as well as anthropogenic noise and activity. These results may impact habitat or cause temporary displacement of wildlife and modification of wildlife behavior in the immediate vicinity of project sites. Impacts on wildlife can include: habitat loss and fragmentation, pollution, disrupted behavioral patterns, and mortality. The preferred alternative will not impact ESA-designated or ESA-proposed critical habitat because project areas with critical habitat are excluded from using this environmental assessment per the LOAs in Chapter 2.2.

Sudden changes to an environment, such as those associated with construction, are likely to result in immediate changes in wildlife activity, including individuals moving to areas away from the changes. These individuals may return to an area once disturbances stop. Ongoing changes, including loss of habitat, new sources of light and/or noise, or new food sources (garbage) may push wildlife away from an area, or conversely attract different wildlife to an area.

Habitat loss and modification is addressed under the vegetation section. Areas around existing housing can provide habitat for wildlife including foraging, denning, breeding, and migration habitat. Changes to these habitats can result in temporary displacement, modified behavior, and increased interactions with humans. Projects within established housing areas will require vegetation clearing around the structures (within approximately 50 feet). Wildlife in these areas, which already experience disruption from human activity, are likely habituated to human presence. New housing projects requiring site grading and vegetation clearing may be located outside of an established housing area. These projects have the potential to result in increased habitat loss and modification. The LOA in Chapter 2.2 that limits infrastructure improvements to approximately one quarter mile was established in part because this limits the application of this EA to areas near existing housing and other development to control the effects of habitat loss and fragmentation. During construction, areas of around two acres may require clearing to allow for grading and installation of utilities and foundations and will require revegetation after completion to re-establish habitat. Revegetation post-construction is used to re-establish and improve habitats. Some wildlife mortality could result from interactions with vehicles and machinery during the construction process, but wildlife avoidance measures would be incorporated into contract specifications and other best practices during implementation. Revegetation post construction is used to re-establish and improve habitats and will also mitigate the overall loss of

habitat.

Construction activities can result in temporary displacement of wildlife and modification of wildlife behavior in the immediate vicinity of the site. Impacts depend on a variety of factors such as the species present, the intensity and timing of construction, and the behavior of personnel working on the site. Wildlife may avoid active construction sites and then quickly recolonize the area after project completion when there is no more intrusive noise and activity. Wildlife may also habituate to frequently repeated disturbances depending on the species, habitat, and predictability of the time and location of activity. Habituated wildlife may experience few or no impacts from construction activities. On the other hand, in areas where wildlife is not habituated to anthropogenic noise and activity or is unable to habituate, disturbance from construction activities would be unexpected and may cause greater adverse impacts. Wildlife displaced by construction activities on new housing areas may not be able to recolonize later if their habitat is no longer available or if they permanently avoid new human activities and associated noise.

Impacts on wildlife from construction projects are typically confined to areas on and around project sites and do not have a geographic or shared ecological nexus to wildlife in other areas of the park, or in other park units. Adverse impacts on wildlife resulting from housing construction can be controlled by timing construction work to avoid sensitive times of the year such as breeding seasons; and by incorporating design and construction features that protect and/or benefit wildlife and wildlife habitat, including (but not limited to) avoiding disturbance to vegetation, selecting native pollinator species when revegetating, minimizing intrusive lighting, and using exclusion measures to prevent birds, bats, and other species from entering and nesting in buildings, especially during construction.

Noise impacts on wildlife can take many forms, including temporarily impairing essential behaviors, altering use and activity patterns, increasing stress response, decreasing immune response, reducing reproductive success, increasing predation risk, degrading communication, and, if the sound is sufficiently loud, damaging hearing (Bowles 1995, Larkin et al. 1996). These impacts can occur as a result of temporary, even singular, events, or from on-going and continuous noise.

Noise from construction activities will occur, especially where heavy

machinery is used. The noise impacts may result in wildlife avoiding the area. The impacts can be controlled by confining use of heavy machinery to times of day and year when it is less likely to impact wildlife. Noise impacts associated with construction are temporary in nature and wildlife is likely to return to an area once construction has stopped.

Noise pollution associated with human activity is expected in and around park housing. This includes voices, electronics, vehicles, and other disturbances. It is predictable that this noise will affect wildlife within the immediate vicinity of housing. As the size and density of human activities increase, species that are not acclimated to human interactions are likely to move further away from the area (Nellemann et al. 2010). Projects within existing housing areas will be similar to the existing disruption. New housing outside of an existing housing area will spread this pollution and increase the impacts on wildlife. The one quarter mile limit on infrastructure improvements under this EA keeps these new housing projects close to existing noise sources, managing the level of increased noise pollution associated with new housing projects.

Dark skies compliant lighting is a common feature in national parks as a means of minimizing light pollution, as are the use of black out shades to control indoor lighting impacts on wildlife. However, some exterior lighting is necessary to improve the safety of construction workers and residents, and as such, impacts will occur.

Pollution in the form of garbage is an on-going and growing concern for national parks. Housing area design takes waste management into consideration, including the provision of wildlife-safe garbage containers in areas where wildlife may access them. Construction projects produce additional waste that must be managed to prevent impacts on wildlife. Projects within existing housing areas will have access to existing waste management infrastructure. Changes to housing will require consideration of existing systems and whether they need to be modified if increased garbage generation is anticipated. New housing developments have a higher potential for introducing new garbage pollution into wildlife habitats. However, the one quarter mile limitation on infrastructure improvements under this EA (see the LOAs in Chapter 2.2) reduces this potential for impacts by keeping new housing units close to existing sources of garbage at existing housing units.

Construction waste and debris is managed through established construction management practices. These practices are intended to minimize the amount of fugitive garbage produced by construction activities.

### **3.3.3 Conclusion**

Housing renovations under the no action alternative and the preferred alternative both have the potential to negatively impact wildlife through construction-related disturbance and through routine use of housing areas. Housing structural work, utility repairs, structure removal, structure replacement, and new housing construction under the preferred alternative would have negative impacts similar to those of existing housing but would cause a larger footprint of impacts and modified habitat. Impacts on wildlife would be localized and would not have a geographic or shared ecological nexus to wildlife in other park units. Impacts on wildlife under the preferred alternative would be controlled by selecting project sites according to the LOAs discussed in Chapter 2.2. Impacts under both alternatives could be further managed by timing construction work to avoid sensitive times of the year such as breeding seasons; and by incorporating design and construction features that protect and/or benefit wildlife and wildlife habitat, including (but not limited to) avoiding disturbance to vegetation, selecting native pollinator species, minimizing intrusive lighting, and using exclusion measures to prevent birds, bats, and other species from entering and nesting in buildings especially during construction.

Reasonably foreseeable actions include ongoing maintenance and management of other park infrastructure including regular maintenance of roadways and utilities, and general vegetation and pest management. These activities may involve ground disturbance, the use of heavy machinery, and chemical applications. These activities are unlikely to alter the overall resource trends.

## **3.4 ARCHEOLOGICAL RESOURCES**

### **3.4.1 Current and Expected Future Condition of Archeological Resources if No Action Is Taken**

National park system units hold archeological resources representing numerous cultures that thrived from at least 12,000 years ago up to the present. Parks are found in every type of geographic setting including coastlines, deserts, forests, mountains, and islands. The staggering diversity

of archeological resources is testament to the ability of humans to adapt to their local environments. From monumental structural remains to subsurface sites to a wide variety of associated individual artifacts, each park's assemblage of archeological resources is unique and allows the public – through archeological research – to understand human lifeways through the millennia and across the nation's landscapes.

If no action were taken, existing park housing will continue to receive investments in minor and routine repair and maintenance activities that address basic needs. There would be little to no ground disturbance expected and so there would likely be few to no negative impacts on archeological resources. Should a building deteriorate to the point of requiring removal and replacement, construction activities may cause ground disturbance within a limited area. Archeological monitoring would ensure that impacts on archeological resources during demolition and replacement are minimized.

#### **3.4.2 Effects of the NPS Preferred Alternative**

Interior redesign of existing buildings and interior and exterior modifications would likely have little to no impact on archeological resources, provided that equipment staging areas are carefully chosen to avoid surface deposits. Planning studies such as geotechnical studies that support project design would cause limited ground disturbance due to the focused nature of the investigations, and thus very little potential to negatively impact archeological resources. Support and utility infrastructure installation, structure removal, and construction of new structures would all involve ground disturbance, including the potential for installing piles that penetrate deeper into the ground, and therefore have the potential to negatively impact archeological resources.

At any given park, impacts on archeological resources would be avoided or minimized through several strategies. The LOAs described in Chapter 2.2 would be applied to ensure that the project site has no rare or sensitive archeological sites. The best practices described in Chapter 2.2 would be applied to avoid or minimize impacts on archeological resources before and during project implementation. Archeological survey as part of the NHPA Section 106 review process at the earliest stages of the project design phase (if a viable survey has not already been conducted) would ensure that there are no rare or sensitive archeological sites in the project area per the LOAs

and would inform avoidance or mitigation strategies if other archeological sites are discovered. These LOAs and best practices would avoid or substantially limit adverse impacts on archeological resources.

Any impacts on archeological resources under the preferred alternative would be localized, such that impacts on one site or park would not be expected to compound impacts at other sites or parks. Once a park's housing project is complete, it is not anticipated that there would be ongoing impacts on archeological resources.

### **3.4.3 Conclusion**

The LOAs and best practices described in Chapter 2.2 would ensure that impacts on archeological resources under the preferred alternative would be avoided or minimized. The NHPA Section 106 review process would be conducted during the project design phase at each park that undertakes a housing project under the preferred alternative in order to avoid, minimize, or mitigate adverse effects to historic properties including archeological resources. Both alternatives are expected to have limited or no negative impacts on archeological resources.

Reasonably foreseeable actions include ongoing maintenance and management of related park infrastructure including regular maintenance of roadways and utilities, and general vegetation and pest management. These activities may involve limited ground disturbance, the use of heavy machinery, and chemical applications. These activities are unlikely to alter the overall resource trends.

## **3.5 CULTURAL LANDSCAPES AND HISTORIC STRUCTURES**

### **3.5.1 Current and Expected Future Condition of Cultural Landscapes and Historic Structures if No Action Is Taken**

Most park housing dates to the Mission 66 era, but the scale of the Mission 66 development footprint at each park varies significantly across the national park system. Housing units that predate the Mission 66 era (1945 and earlier) exist across the national park system but are far less common. As noted in section 1.2, Mission 66 building programs were designed at the landscape level so that spatial organization, cluster arrangements, circulation patterns, vegetation patterns and other designed landscape features are typically as important, or more important, than the individual structures. Site planning

for housing was an important characteristic of the Mission 66 program and was accomplished by NPS landscape architects, while the housing units followed standard designs developed by NPS architects with limited local adaptations, such as the type of siding used (Carr et al. 2015).

Some parks have Mission 66 housing developed areas such as at Panther Junction in Big Bend National Park. Other parks have only a few housing units from the era, situated within a larger Mission 66 landscape, such as at Tuzigoot National Monument. Across the system, housing units embedded in Mission 66 landscapes—whether in a developed area or as a standalone structure—generally lack historical significance individually. Instead, their significance comes from the larger developed areas to which they belong. During the Mission 66 era, many parks received a Mission 66 master plan for all park infrastructure, in which cases the significant developed area may be the whole park-wide Mission 66 infrastructure.

According to NPS data, while almost 50% of Mission 66-era facilities (all facilities, not just housing) are in “good” or “fair” condition, 35% are in “poor” condition and 16% are in “serious” condition and contribute to the agency’s substantial deferred maintenance and repair backlog. Federally managed historic properties must be evaluated for their National Register of Historic Places (NRHP) eligibility so that any impacts on these properties from federal undertakings can be assessed and avoided, minimized, or mitigated. Yet approximately 75% of NPS Mission 66 facilities have not been evaluated for NRHP eligibility, which complicates planning for projects that impact them. The conditions of Mission 66 properties and the completeness of NRHP inventories and evaluations varies between parks. In general, historic preservation (and basic maintenance) has fallen behind and the majority of these historic structures do not meet modern safety standards or building codes. Continued deterioration may eventually leave many of the buildings unsafe for occupation, and in some cases, this may necessitate demolition.

If no action were taken, existing park housing (Mission 66-era housing as well as housing from any earlier period) will continue to receive investments in minor and routine repair and maintenance activities that address basic needs. At a given park, staff may find funding to stabilize the existing historic structures with varying degrees of success, but the long servicewide trend of housing structure deterioration would likely continue. Demolition of individual Mission 66 housing units may not necessarily impact the NRHP

eligibility of the historic district to which it belongs, depending on the defining characteristics of the particular historic district. Demolition of an individually NRHP-eligible or NRHP-listed housing structure would cause its loss of NRHP eligibility or delisting from the NRHP.

### 3.5.2 Effects of the NPS Preferred Alternative

Almost all projects under the preferred alternative are likely to cause impacts on historic properties from the Mission 66 era. Housing units that predate 1945 exist throughout the national park system but are far less common and may also be impacted by housing projects.

This analysis is based on guidelines for assessing potential impacts on Mission 66 properties from Carr et al. (2015).

Planning studies associated with housing projects are expected to have a neutral impact on Mission 66 properties since the impacts are limited to small areas of ground disturbance.

Installing utilities and other infrastructure may cause a negative impact on Mission 66 properties if historical utilities are removed or replaced, or if new above-ground utilities or other infrastructure (e.g. a new parking area) are added within a Mission 66 landscape. The degree of impact may be limited if, for example, utilities are replaced in kind (preserving historical function) or if new infrastructure is either buried or visually and functionally compatible with the cultural landscape.

Building interior repair and rehabilitation of Mission 66 housing units would not constitute a negative impact if the alterations are limited in scale and do not result in major changes to building exteriors. For example, some interior utilities upgrades require limited exterior modifications such as installation of a fuse box.

Building interior remodeling of Mission 66 housing units may cause negative impacts on the building if it alters the definition of interior spaces, function of spaces, or sequence through spaces (Carr et al. 2015). However, these impacts would be limited to the individual housing unit and would have no impact on any historic district to which the building contributes.

Exterior repair, rehabilitation, or remodeling of Mission 66 housing units may cause negative impacts on the building if they include additions or other

major exterior alterations that transform its outward appearance. Such transformative additions and alterations may include exterior fenestration or a new roof structure that is nonreversible and completely alters the exterior appearance of the building. However, these impacts would be limited to the individual housing unit and may have little or no impact on any historic district to which the building contributes.

Demolition and replacement of a Mission 66 housing unit would constitute a negative impact on the building itself and to any Mission 66 districts to which it contributes. However, if the new building is compatible in design with the Mission 66 architectural style, demolition and replacement may constitute only a limited impact on resources since Mission 66 housing properties are analyzed at the level of the historic district, as will be discussed below.

Construction of new structures or housing units in a Mission 66 district would constitute a negative impact on the cultural landscape. These impacts would be limited if the new housing units are compatible in design with the Mission 66 architecture style, including the design of the building's surrounding landscape, and if the spatial arrangement of the housing units, any new circulation patterns, and new vegetation (and other designed landscape features) are consistent with the historic district's design.

Certain project work to building interiors and exteriors will stabilize the physical integrity of existing housing units. If conducted according to the Standards for Treatment, this constitutes a beneficial impact on Mission 66 properties that otherwise would continue to deteriorate and potentially be demolished for safety reasons.

When analyzing the impacts of a housing project, the Mission 66 property being analyzed for impacts will generally be defined as a historic district rather than an individual building, sometimes limited to just the housing district which may include other components of a Mission 66-era developed area. The negative impacts on Mission 66 buildings discussed above, therefore, should be thought of as impacting a component (the building) of a larger historic property rather than a historic property per se. When applying the Standards for Treatment to an overall project that involves multiple buildings, the assessment of impacts would consider the cumulative effect (as defined in the Standards for Treatment) of the overall project, rather than on each building or site individually. Depending on the park-specific context, even the demolition of a Mission 66 building that contributes to a historic

district may constitute only a limited impact on the historic district.

Therefore, projects that repair, rehabilitate, or remodel Mission 66 building interiors or exteriors, and projects that demolish and replace a limited number of housing units, would have only a limited impact on Mission 66 properties (defined as historic districts) because there would be few or no impacts on the spatial organization, cluster arrangements, circulation patterns, vegetation patterns, or other designed landscape features of the district. This assessment assumes that the Standards for Treatment would be applied to all project designs, so that, for example, replacement housing units and associated infrastructure such as driveways would be compatibly designed and impacts on historic vegetation patterns associated with housing units (e.g. vegetation clearing for access as noted in Chapter 2.2) would be avoided or minimized (see also best practices in Chapter 2.2, regarding prioritizing protection of topsoil and cultural landscape vegetation).

For housing units constructed before 1945, the potential range of impacts under the preferred alternative would be similar to those described for individual buildings from the Mission 66 era. These pre-1945 buildings may have been constructed individually or in a small cluster that originally did not create a historic district but, subsequently during the Mission 66 era, may have been altered and/or incorporated into a historic district. Therefore, impacts on these buildings may have to be analyzed at the level of the individual building (for its pre-1945 character) as well as at the level of the historic district if the building was later incorporated into a Mission 66 district. At a given park, the level of impacts on these housing units as individual historic structures would be limited by application of the LOAs described in Chapter 2.2, namely that project work would not result in a loss of NRHP eligibility or the NRHP-delisting of the individual building.

The severity of impacts on any cultural landscapes or historic structures under the preferred alternative would be substantially limited by application of the LOAs described in Chapter 2.2. Any future park housing project that may cause a loss of NRHP eligibility or the NRHP-delisting of a historic property—for example, a Mission 66 historic district or an individually-eligible pre-1945 housing unit—would not be subject to this environmental assessment. For housing projects that are subject to this environmental assessment, negative impacts on cultural landscapes and historic structures would be avoided or minimized through several strategies, including the best practices listed in Chapter 2.2. These strategies include consulting the M66

MPDF and the M66 Program Comment prior to each housing project to inform project design and avoid or mitigate impacts on Mission 66 properties; and incorporating the Standards for Treatment into project designs impacting historic structures and cultural landscapes from any era to ensure that project work is compatible with preservation guidelines. Each individual park undertaking a housing project would conduct the NHPA Section 106 review process during the project design phase to avoid, minimize, or mitigate adverse effects to historic districts and historic structures.

Because impacts on cultural landscapes and historic structures under the preferred alternative would not cause a loss of NRHP eligibility or the delisting of a NRHP property, impacts from a housing project at a given park would be localized, such that impacts on one site or park would not be expected to compound impacts at other sites or parks (e.g. the loss of an entire architectural style).

### **3.5.3 Conclusion**

Both the no-action alternative and the preferred alternative would result in negative impacts on historic structures and landscapes, particularly Mission 66–era properties. For a given park under the no action alternative, it is likely that investments in minor and routine repair and maintenance activities over time will fail to keep pace with preservation needs. A given park under the preferred alternative, repair, rehabilitation, remodeling, and demolition-and-replace projects may negatively impact individual components of Mission 66 historic districts (such as buildings or vegetation) but the district as a whole will have either a limited negative impact or a beneficial impact (in cases where contributing housing units are stabilized and preserved). Pre-1945 housing units may also experience limited negative impacts (in cases where character-defining features are impacted) or beneficial impacts on the extent that the individual building is stabilized. Application of the LOAs in Chapter 2.2 will ensure that negative impacts on all cultural landscapes and historic structures in the project areas are limited in severity, and the best practices articulated in the same chapter will further avoid or minimize negative impacts. The NHPA Section 106 review process would be conducted during the project design phase at each park that undertakes a housing project under the preferred alternative in order to avoid, minimize, or mitigate adverse effects to historic properties including historic structures and historic districts.

Reasonably foreseeable actions include ongoing maintenance and management of related park infrastructure including regular maintenance of roadways and utilities, and general vegetation and pest management. These activities may involve ground disturbance, the use of heavy machinery, and chemical applications. These activities are unlikely to alter the overall resource trends.

## **APPENDIX A: ISSUES AND IMPACT TOPICS NOT CARRIED FORWARD FOR DETAILED ANALYSIS**

### **AIR QUALITY**

The proposed action would result in the following short-term, construction-related emissions:

- Tailpipe emissions from construction equipment (e.g., dozer, backhoe) and trucks hauling construction materials to the site.
- Vehicle emissions from construction workers commuting to and from the site.
- Fugitive dust from soil excavation, site disturbance and deconstruction.

To protect air quality, the Clean Air Act (CAA) requires the Environmental Protection Agency (EPA) to set National Ambient Air Quality Standards (NAAQS) for six pollutants (called "criteria" air pollutants) which can be harmful to public health and the environment. The primary NAAQS are established at levels considered protective of public health, including "sensitive" populations such as children, the elderly, and people with heart and lung conditions. Areas where monitored air quality does not meet the NAAQS are designated as nonattainment and the appropriate air regulatory agency must develop an implementation plan to address air pollutants contributing to the NAAQS violations. It is expected that construction activities would conform with applicable construction air quality requirements. Therefore, this impact topic was dismissed from detailed analysis.

### **SOUNDSCAPES**

Noise impacts to wildlife are considered in Chapter 3.3. This section concerns impacts to park soundscapes in general. Anthropogenic noise from renovations of existing housing and from removal and replacement of existing housing would result in temporary construction-related noise. The construction of new housing facilities would also cause temporary construction-related noise, and any permanent changes to the ambient soundscape from park employees living in these new units will be similar to those from the existing housing. New housing units constructed under this EA would be within a quarter mile of existing housing units, and so the resultant new noise would occur in proximity to previously impacted environments. The impacted areas will be localized and relatively small. As a result, impacts on soundscapes were not carried forward for detailed analysis.

### **SOCIOECONOMICS**

The proposals in this environmental assessment impact employee housing within park unit boundaries. A positive socioeconomic impact may be the creation of temporary local construction jobs. The only potential negative socioeconomic impacts of the employee housing program on people and communities outside of park units might be the loss of paying tenants in surrounding communities if park staff are able to take advantage of GFH instead. However, 5 USC 5911 directs that GFH shall not be constructed where adequate housing is available on the local market. Therefore, this potential loss of customers would be low, and in any case, an analysis of associated socioeconomic impacts would be speculative, and so this topic is dismissed from detailed analysis. As a result, impacts on socioeconomics were not carried forward for detailed analysis.

### **VISITOR USE AND EXPERIENCE**

Most employee housing projects are expected to impact areas of parks away from core visitor use areas. This is especially true of Mission 66–era housing, since one of the major planning innovations of the era was to separate park functions. Although there are exceptions, in general, “the locations of the residential complexes balanced the desire for reasonably close access to the other park facilities, such as administrative offices, visitor centers, and maintenance yards, and the desire for the complexes to be separated from public access both visually and physical” (Carr et al. 2015). New construction is not anticipated near core visitor use areas. For rehabilitation projects on existing housing that is closer to visitor use areas, construction work is not expected to result in closures to core visitor use areas, and in any case, disruptions to visitor use would be temporary. As a result, impacts on visitor use and experience were not carried forward for detailed analysis.

### **ETHNOGRAPHIC RESOURCES**

Ethnographic resources are objects and places, including sites, structures, landscapes, and natural resources, with traditional cultural meaning and value to associated peoples. Research and consultation with associated peoples identify and explain the places and things they find culturally meaningful. Ethnographic resources range from plants such as pinyon pines, to culturally important viewsheds, to Indigenous archeological materials, to shrines, and to other sacred sites. Housing projects in areas with sensitive ethnographic resources are specifically excluded from using this environmental assessment by the LOAs established in Chapter 2.2. Each individual park undertaking a housing project would conduct the NHPA Section 106 review process during the project design phase, including consultation with traditionally associated peoples, at which time sensitive ethnographic resources could be identified. Proposed housing project sites with sensitive ethnographic resources would also have to undergo a separate NEPA process. As a result, impacts on ethnographic resources were not carried forward for detailed analysis in this

environmental assessment.

## **SOILS**

Impacts on soils from employee housing projects are localized, meaning they are typically confined to soils on and around the work site and access routes and do not have a geographic or shared ecological nexus to soils in other areas of park units. Furthermore, existing housing sites have not resulted in any collective impacts on soils across the national park system or otherwise at the national level. Housing projects that conform to the LOAs established in Chapter 2.2 of this EA must be outside of sensitive soil types such as cryptobiotic crusts or tundra where even minimal disturbance can have long term impacts. Construction impacts may include localized compaction from heavy equipment access, underground utility installation and/or replacement, and site grading. As a result, impacts on soils were not carried forward for detailed analysis.

## **WILDERNESS**

Projects in proposed, potential, eligible, recommended, or designated wilderness areas, as defined under the Wilderness Act, are specifically excluded from this EA. Any construction noise that may be audible in wilderness areas would be temporary. As a result, impacts on wilderness were not carried forward for detailed analysis.

## **PALEONTOLOGICAL RESOURCES**

Fossils may be discovered anywhere, but the areas where fossils are most likely to be found are identified as “fossiliferous substrate.” These geologic formations are most likely to contain substantial fossil records. Housing projects with impacts on fossiliferous substrate are specifically excluded from this EA per the LOAs established in Chapter 2.2. As a result, impacts on paleontological resources were not carried forward for detailed analysis.

## **WETLANDS AND FLOODPLAINS**

Wetlands and floodplains may be present on a given housing site. The LOAs established in Chapter 2.2 limit the impacts on these resources that would be allowed for inclusion under this EA. Additional compliance associated with work in wetlands and floodplains as required by statutes, regulations, or policy, must still be followed. As a result, impacts on wetlands and floodplains were not carried forward for detailed analysis.

## **HUMAN HEALTH AND SAFETY**

One of the objectives of the proposed project is to reduce the risk to human health and safety by addressing health and safety code issues at park housing which will result in beneficial impacts to human health and safety. Therefore, the topic of human health and safety was dismissed as a resource topic from further analysis.

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