





# Environmental Consequences

*The National Environmental Policy Act requires that environmental impact statements disclose the environmental effects of proposed federal actions. In this case, the proposed federal action would be the adoption of a general management plan for Ebey's Landing National Historical Reserve. This chapter describes the environmental consequences of implementing the components of the three alternatives previously described. These components are based on the issues that were identified during the public scoping sessions and that are discussed in the previous "Purpose and Need for the Plan" chapter. By examining the environmental consequences of all alternatives on an equal basis, decision-makers can decide which approach creates the most desirable combination of the greatest beneficial results with the fewest adverse effects on the Reserve.*

Each program or management action that could impact resources or resource uses has been analyzed, and the conclusions of those analyses are described by resource topic. Where data are limited, professional judgment has been used to project environmental impacts. Professional judgment was based, in part, on observation, analysis of conditions, and responses in similar areas.

The alternatives in a general management plan are intended to provide broad management directions. Because of the general nature of the alternatives, the potential consequences of the alternatives are analyzed in similarly general terms. Consistent with the NEPA and NHPA Section 106, the NPS would conduct additional environmental analyses with appropriate documentation before implementing site-specific actions.

In the case of Ebey's Landing National Historical Reserve, the majority (approximately 85 percent) of the property is privately owned. The remaining land is owned by a variety of public entities, including the Town of Coupeville, Island County, Washington State Parks, and the National Park Service. Federal government regulations would apply only to those lands that are owned in fee or on those lands where there is a federal undertaking (such as federal funding, federal action or licensing). In some instances, lands owned in partial interest (easements) by the National Park Service (approximately three percent) or other federal agency would be subject to federal regulation; however, this situation would only occur if the easement language addressed a specific topic or landscape element that is federally regulated. Federal regulations may also apply in certain cases

where federal funding is used for projects. The implication of this land ownership pattern is that many of the actions in this plan are non-federal. This plan is envisioned as a partnership document. The NPS can only make recommendations or work with other non-federal levels of government, nonprofit organizations, and interested persons in order to implement the recommendations outlined in this plan.

The existing conditions for all of the impact topics that are analyzed are identified in the "Affected Environment" chapter. All of the impact topics are assessed for each alternative. For each impact topic there is a description of the beneficial (positive) and adverse (negative) effects of the alternatives, followed by a brief conclusion.

The No Action Alternative analysis identifies future conditions based on the continuation of current Reserve management strategies. This alternative reflects changes associated with the growth in regional population and increased visitor use that is anticipated during the next 15-20 years. The two action alternatives are compared to the No Action Alternative to identify the incremental changes that would occur as a result of changes in park facilities and management.

At the end of impacts of each alternative is a brief discussion of unavoidable adverse impacts, irreversible and irretrievable commitments of resources, and the relationship of short-term uses of the environment and the maintenance and enhancement of long-term productivity. The impacts of each alternative are briefly summarized in the "Summary of Impacts" chart at the end of the "Alternatives" chapter.

## Definitions

The following section defines the terms used for determining the environmental consequences of the actions in the alternatives. The environmental consequences to each impact topic are defined based on impact type, intensity, and duration, and whether the impact would be direct or indirect. Cumulative effects are also identified.

### Impact Type

The effects that an alternative would have on an impact topic could be either adverse or beneficial. Adverse impacts involve a change that moves the resource away from a desired condition or detracts from its appearance or condition. Beneficial effects are those that involve a positive change in the condition or appearance of a resource or a change that moves the resource toward a desired condition. In some cases, the action could result in both adverse and beneficial effects for the same impact topic.

### Intensity

Defining the intensity or magnitude on an impact is taken directly from *Director's Order 12: Conservation Planning, Environmental Impact Analysis and Decision-making* (National Park Service 2001). Impact intensity is the magnitude or degree to which a resource would be beneficially or adversely affected. Each impact was identified as negligible, minor, moderate, or major in conformance with specific definitions included at the beginning of each impact topic. Due to the broad nature of actions called for in this GMP, most intensities were expressed qualitatively.

### Duration

Duration refers to how long an impact would last. The planning horizon for the GMP is approximately 15-20 years. Within this timeframe, impacts that would occur within five years or less were classified as short-term effects. Long-term effects would last for more than five years.

### Direct Versus Indirect Impacts

Direct effects would be caused by an action and would occur at the same time and place as the action. Indirect effects would be caused by the ac-

tion and would be reasonably foreseeable but would occur later in time, at another place, or to another resource.

### Cumulative Impacts

Impacts on the environment can result from the incremental impact of the action when added to other past, present, and reasonable foreseeable future action, regardless of what agency or person undertakes such other action. Cumulative impacts can result from individually minor, but collectively significant actions taking place over a period of time.

## Projects that Make Up the Cumulative Impact Scenario

To determine potential cumulative impacts, projects in the area surrounding the Reserve were identified. Projects included in this analysis were identified by examining other existing plans and by calls to local governments and to state and federal land managers. Projects identified for the purposes of cumulative impact analyses are past actions, plans or actions that are currently being implemented, and reasonable foreseeable future plans or actions. These projects were considered regardless of what agency, organization, or person undertakes them. Projects included in the cumulative impact analysis do not affect all resources equally.

Cumulative impact analyses are presented in this document by resource topic. The projects that make up the cumulative impact scenario were analyzed in conjunction with the impacts of each alternative to determine if they would have any additive or inactive effects on a particular resource.

### Washington State Department of Transportation State Route 20 Realignment

The Washington State Department of Transportation recently initiated planning on portions of State Route 20 within the Reserve. The WSDOT has been meeting with Reserve staff since 2003 on the design and future construction of the realign-

ment. The first portion of the realignment affecting the Reserve is known as the Libbey Road Vicinity to Sidney Street Vicinity section and will include safety and design features including widening of State Route 20, providing enhanced road shoulders, adding turning lanes, closing or redesigning odd angled streets intersecting with State Route 20, and designing for speed limits of 50 miles an hour.

The Reserve staff and NPS have resource and visual concerns about many of these proposed changes. The increased speed limit, though ideal for people traveling through the Reserve, can be dangerous to Reserve visitors who travel at a more leisurely pace and stop on many occasions. Most of the roads throughout the Reserve follow the historic alignment and any changes to the alignment impact the historical integrity that the Reserve seeks to protect. Any widening of the road, along with the associated large cut and fill areas, impacts the cultural landscape and introduces more modern elements into a national park unit that serves to promote, protect, and preserve the rural landscape. The Reserve and NPS staff would continue to work with WSDOT with an emphasis on those actions that promote safety and are in harmony with the purpose of the Reserve.

### **Washington State Department of Transportation Keystone-Port Townsend Ferry Terminal Improvement Project**

In November 2003, the WSDOT initiated planning for the relocation of the Port Townsend-Keystone Ferry Terminal located at the southern boundary of the Reserve, adjacent to Fort Casey State Park. The need for the action was multifold: to improve public safety and minimize conflicts with other marine activities, accommodate replacement vessels, create operational reliability, provide adequate vehicle holding areas, improve vehicle ingress and egress, and maintain the current schedule. A series of meetings were held with other government agencies, non-governmental interested parties, and the general public in December 2003. Three potential alternatives were identified: reconstruct the existing terminal at Admiralty Head; construct a new terminal at the end of Key-

stone Road, at the eastern boundary of the Reserve (Driftwood Park); or construct a new terminal outside the Reserve, east of the development known as Admiral's Cove. In all alternatives, the existing ferry terminal at Port Townsend would be modified to accept the larger Issaquah class of ferry vessels. The replacement of the old ferries with the newer Issaquah class of vessels was the overriding impetus for relocating the terminal, as was the frequent dredging required of the harbor, and the relatively frequent cancellations of the run due to low tides or landings due to poor visibility caused by fog

The NPS and Reserve staff provided comment on the three alternatives, citing resource management concerns and visual impacts to historic Fort Casey features and patterns of development (including Seattle Pacific University's historic Casey Conference Center campus), and natural and cultural resource management and visual impact concerns for the Driftwood Park alternative with new, modern structures being built on the open, undeveloped spit of land. Close to 250 people submitted comments to Washington State Ferries. After intervention by State Senator Mary Margaret Haugen in February 2004, the focus of the project was shifted to only considering the existing site for improvements. A citizen's advisory group was established and has been meeting on the project to ensure resources are protected and user needs are met.

## **Analysis Assumptions and Guidelines**

This chapter assesses the environmental impacts associated with the management actions proposed for adoption into a general management plan. The following assumptions and guidelines were used to guide and direct the analysis of environmental consequences:

- The NPS and other Reserve partners would have the ability to request funding and personnel to implement any one of the alternatives.
- The planning period for the analysis is for the next 15-20 years.
- The planning area for the environmental

analysis at the minimum is the existing Reserve boundary. The area for impact analysis may change depending upon the topic and information available.

- Specific actions to protect human life would be taken regardless of the management criteria in the plan alternatives.
- Recreational use in the planning area would continue to be similar to use in the past.
- The “Purpose and Need for the Plan” chapter contains a summary of the list of regulations, laws, and policies that can limit the range of actions.
- Applicable Island County and Coupeville zoning regulations would continue to apply to private lands within the Reserve.
- Visitors to central Whidbey Island and the Reserve will continue to increase.

## Information Sources and Gaps

The impact analysis and conclusions were based on information available in the literature, data from park studies and records, and information provided by experts within the NPS, other agencies, and nonprofit organizations. In addition, relevant laws, regulations, and NPS management policies were used in development of impacts.

Data for many resource areas are limited. For example, since the land within the Reserve is mostly privately owned, most of the Reserve has not been surveyed for natural and archaeological resources. Similarly, information on activities at Naval Air Station – Whidbey is not readily available for cumulative impact analysis due to homeland security concerns.

Much of the cultural resource data was obtained by the consulting firm of Jones & Jones in analyzing landscape change from when the Reserve was established in 1978 until 2000. The NPS also contracted with David Nemens and Associates to analyze Island County zoning and its impact upon the Reserve’s rural landscape character. Estimates of the number, type, and significance of archaeological and historic sites were based on cultural resource inventories conducted by the SHPO and the NPS for a small percentage of the Reserve.

With the exception of two structures (sheep barn and machine shed at the West Ridge property), all of the Reserve has been inventoried for above-ground resources that may be potentially eligible for listing in the National Register of Historic Places. This effort first occurred in 1972-1973, followed by a more thorough consideration of the cultural landscape in an NPS Building and Landscape Inventory in 1983, and subsequently updated in 1995. Archaeological resources were not included in any of these efforts and thus have not been adequately surveyed. This lack of inventory data is due, in large part, to private ownership issues. A Reserve-wide inventory of archaeological sites would require the NPS to obtain permission from private property owners. A high potential exists for additional archaeological sites to be uncovered in the prairies and along shorelines throughout the Reserve.

Ongoing vascular plant surveys are being conducted within the Reserve by the NPS and partners, including The Nature Conservancy, botanists from the University of Washington, and volunteers from Whidbey Audubon and the local chapter of the Native Plant Society. At this time the inventory is incomplete. Available information largely based on public land survey, historic specimens, and literature searches is well documented, but there is considerable field work remaining. Most of the Reserve has not been systematically surveyed or mapped for noxious weeds.

While significant progress has been made in assessing and modeling groundwater issues, there are surface flow and aquifer recharge questions that remain unanswered. Most of the analysis for the GMP was based on the *Island County Groundwater Management Program* and its Technical Memorandum, Appendix A on “Hydrogeologic Characterization and Background Data Collection relating to Ground Water Protection and Management” (1991).

Comprehensive wildlife surveys have not been conducted and small mammal data is incomplete.

Air quality data is extrapolative from nearby stations in Skagit and Island counties, but detailed wet/dry deposition data is unavailable for the Re-



serve. Many of the natural resource needs were developed from an NPS workshop for the Reserve on Long Term Ecological Monitoring of Vital Signs. Staff and volunteers representing both government and non-government organizations participated in the Vital Signs Workshop held in 2001.

## Mitigation Measures

The NPS assumes that the mitigating measures would be applied at the time the alternative was implemented in order to minimize or avoid impacts.

- New construction would follow NPS guidelines and management policies for lightscape, energy conservation, greenbuilding, sustainability principles, protection of important resources, and replanting with native plant species. It would also take into account measures to minimize the amount of air pollution produced.
- Residents are dependent upon the sole source aquifer (protected under state and federal law) for domestic water and irrigation. All federally funded construction projects, depending upon project size, location, and proximity to drinking water sources, must be reviewed by the U.S. Environmental Protection Agency. The Reserve staff would contact the Sole Source Aquifer Program at EPA Region 10 and coordinate with the agency for any projects within the Reserve meeting these criteria.
- Trails maintenance is performed regularly and effectively to prevent erosion, eliminate and prevent social trails, and reduce hardening of trail surfaces.
- Manure lagoons will be managed in a manner that will reduce groundwater contamination.
- Any installation of monitoring and research equipment would be sensitively sited and camouflaged to minimize visual disturbance to the cultural landscape and other resources.
- Waysides, interpretive exhibits, and signage of recreational resources would be sensitively sited to minimize visual disturbance to the cultural landscape and viewsheds and reduce “visual clutter” on roads.
- To offset the increase in motor vehicle transportation that is expected within the Reserve, Reserve staff would take measures to try to increase pedestrian, bicycle, and carsharing options to offset the expected increase.
- The NPS and Trust Board would continue to protect cultural resources to the greatest extent possible with available funding and staff, through direct action on lands owned in fee and by encouraging other landowners to practice good stewardship. Disturbing significant resources would be avoided wherever possible. Where avoidance or preservation cannot be achieved, mitigation would be carried out under the guidance of the procedures of the Advisory Council on Historic Preservation (36 CFR 800) on lands owned in fee and encouraged on other lands in the Reserve.
- Before any land-modifying activity on lands owned in fee in the Reserve, a professional archaeologist would inspect the present ground surface of the proposed development site and the immediate vicinity for the presence of cultural remains, both prehistoric and historic. Should newly discovered or previously unrecorded cultural remains be located, additional investigations would be accomplished prior to earth disturbing activities.
- All preservation, rehabilitation, and restoration efforts for historic structures would be carried out in accordance with the Secretary of the Interior’s Standards for the Treatment of Historic Properties, with Guidelines for Preserving, Rehabilitation, Restoring and Reconstructing Historic Buildings.
- Should NAGPRA materials be inadvertently discovered within the Reserve, agencies would follow the tribal consultation procedures outlined in the NAGPRA of 1990.

## Impairment of Resources

In addition to determining the environmental consequences of the alternatives, NPS policies require that potential effects be analyzed to determine whether or not proposed actions would impair the resources or values of the Reserve. Since most of the land within the Reserve is private, the following impairment discussion and application would apply only to those lands that are federally owned in fee title or lands with less than fee title, such as conservation easements.

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 resources and values. NPS managers must seek ways to avoid or minimize adverse impacts on the resources and values to the greatest degree practicable. However, laws do give the NPS management discretion to allow impacts on the resources and values when necessary and appropriate to fulfill the purposes of a unit, as long as the impact does not constitute impairment of the affected resources and values. Although Congress has given the NPS this management discretion, it is limited by the statutory requirement that the NPS must leave the resources and values unimpaired unless a particular law directly and specifically provides otherwise.

Impairment is an impact that in the professional judgment of the Reserve Trust Board and NPS would harm the integrity of the resources and values, including the opportunities that otherwise would be present for the enjoyment of those resources or values. An impact on any resource or value may constitute impairment. An impact would be most likely to constitute an impairment if 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 unit or to opportunities for enjoyment of the unit; or
- identified as a goal in the general management plan or other relevant NPS planning documents.

Impairment might result from NPS activities in managing a unit (in this case the Reserve), visitor activities, or activities undertaken by concessioner, contractors, and others operating in the Reserve. In determining whether impairment would occur, park managers examine the duration, severity and magnitude of the impact; the resources and values affected; and direct, indirect, and cumulative effects of the action. An impact is less likely to constitute an impairment if it is an unavoidable result, which cannot be further mitigated, of an action necessary to preserve or restore the integrity of park resources or values.

In this chapter, a determination about impairment is presented in the conclusion section for each impact topic.

## Effects Common to All Alternatives

The following section describes specific effects from actions that are common to all alternatives presented in the GMP.

### Reserve Management and Operations

- Agricultural representative for Trust Board—Designating a representative from the agricultural community to one of the Trust Board positions could have a beneficial minor and long-term impact on Trust Board operations. One of the goals of the Trust Board is to encourage preservation of the open space and rural landscape of the Reserve. One way to achieve this goal is to keep agriculture viable in central Whidbey. Having an active or retired farmer on the Trust Board would help ensure that working farm issues and concerns are being addressed. The agricultural representative would, in turn, help educate other Trust Board members who are not knowledgeable about farming and agricultural issues. However, given the small community in central Whidbey and the time commitment, it may be difficult to involve an active farmer.
- Adoption of GMP by local governments—The recommendation for the town and county to adopt the GMP as part of their own comprehensive planning process would help coordinate and guide future land use decisions within the Reserve. Adoption of the plan would provide a beneficial effect in that all land use plans would be coordinated in their vision for the Reserve. This action would also help to foster communication and a consolidated approach between all levels of government. In addition, land owners would benefit from more coordination on land use issues within the varying levels of government within the Reserve. The first and only Reserve comprehensive plan was adopted by the town and county after it was finalized and approved in 1980.

### Natural Resources

- Integrated pest management program—The Reserve has an approved IPM plan. Implement-

ing an integrated pest management program in cooperation with landowners and other partners is consistent with NPS management policies (4.4.5 Integrated Pest Management Program). Implementing a consolidated program would ensure that all lands within the Reserve, not just federally owned lands or interests in lands, would benefit. The effect of using a coordinated approach to pest management is beneficial, long-term by reducing risks to the public and protecting the Reserve's resources and the environment from pests and pest-related management strategies (especially the risk of pesticides and herbicides entering into water sources). A minor short-term minor impact could result from landowners, especially existing farmers who actively use pesticides, not wanting additional regulations if the program is mandatory rather than voluntary. (See discussion in "Natural Resources" under "Water Resources" section.)

## Agricultural Resources

- Continued presence of successful agricultural production – Actively working with Island County, the Natural Resources Conservation Service and other partners to encourage the continued presence of successful agricultural operations would be a major, long-term benefit in fulfilling the mission of the Reserve. Family farms and agriculture constitute the fabric of the cultural landscape of the Reserve with tilled fields, pastures and farmsteads which define the core areas of Ebey's, Crockett, and Smith prairies. Keeping family farms and other agricultural practices viable would help maintain a productive agricultural economy within the Reserve. Promoting a viable farming economy would have a major long-term benefit by retaining the historic land use patterns and sites that are integral to the story and integrity of the Reserve.

## Visitor Experience

- Interpretation of Native Americans, early Euro-American settlers, Chinese immigrants, and other peoples—Interpreting other cultures that lived in the Reserve and helped shape and influence the history and landscape seen today would have long term benefits by telling a more complete, inclusive and comprehensive story of the Reserve. Visitors would experience beneficial effects from this broader interpretation and education.

# Effects on Cultural Resources

## Methodology and Assumptions

The following discussion of cultural resources includes analyses of potential impacts to the cultural landscape, historic buildings and structures, archaeological resources, and collections management. These physical components of the cultural resources at the Reserve were described separately in Chapter 3. However they are discussed together here, because the distinctions between these resources at the Reserve are often blurred. For example, the historic structures, vistas, and historic vegetation obviously contribute to the cultural landscape, and the full extent of the archeological resources, many of which also contribute to the cultural landscape, are not known. Cultural resources in all areas of the Reserve are composed of all these elements which also contribute to the cultural landscape as a whole. In addition, many of the management actions proposed in the alternatives affect a combination of two and sometimes all three of these resources. Thus, the effects of each alternative on all three types of cultural resources are discussed below.

Information used in this assessment was obtained from relevant literature and documentation, maps, and consultation with cultural landscape preservation experts, as well as from interdisciplinary team meetings, field trips and site visits.

The National Historic Preservation Act (NHPA) requires agencies to take into account the effects of their actions on properties listed or eligible for listing on the National Register of Historic Places (NRHP). The process begins with identification and evaluation of cultural resources for NRHP eligibility, followed by an assessment of effects on eligible resources. In Washington, this process includes consultation with the State Historic Preservation Officer (SHPO). If an action could change in any way the characteristics that qualify the resource for inclusion on the NRHP, it is considered to have an effect. No adverse effect



means there could be an effect, but the effect would not be harmful to the characteristics that qualify the resource for inclusion on the NRHP. Adverse effect means the action could diminish the integrity of the characteristics that qualify the resource for the NRHP. For the purposes of this analysis under NEPA and Section 106, the intensity of impacts on cultural resources was defined as follows:

Actions were identified with the best use of professional judgment and assessed according to impact intensity criteria listed below:

- Negligible: The effects on cultural resources would be at the lowest levels of detection-barely measurable without any perceptible consequences, either beneficial or adverse to cultural landscape resources, historic buildings or structures, archaeological resources or museum collections. For the purposes of Section 106 and the NHPA, the determination of effect would be *no adverse effect*.
- Minor: The effects on cultural resources would be perceptible or measurable, but would be slight and localized within a relatively small area. The action would not affect the character or diminish the features of a NRHP eligible or listed cultural landscape, historic structure, or archaeological site and it would not have a permanent effect on the integrity of any such resources. For the purposes of Section 106 and the NHPA, the determination of effect would be *no adverse effect*.
- Moderate: The effects would be perceptible and measurable. The action would change one or more character-defining features of a cultural resource, but would not diminish the integrity of the resource to the extent that its NRHP eligibility would be entirely lost. For the purposes of Section 106 and the NHPA, the cultural resources' NRHP eligibility would be threatened and the deter-

mination of effect would be *adverse effect*.

Major:

The effects on cultural resources would be substantial, discernible, measurable, and permanent. For NRHP eligible or listed cultural landscapes, historic structures, or archaeological sites, the action would change one or more character-defining features, diminishing the integrity of the resource to the extent that it would no longer be eligible for listing in the NRHP. For purposes of Section 106, NRHP eligibility would be lost and the determination of effect would be *adverse effect*.

The relationships between definitions of effects, including beneficial effects, and treatments of cultural resources are analyzed in the impact analysis for each of the alternatives. Levels of beneficial effect are not directly linked to specific types of treatments, rather they depend on the particular treatment of given cultural resources. All treatments proposed under all of the alternatives would be in accordance with the Secretary of Interior's standards for the treatment of historic properties. All treatments proposed under all of the alternatives would have no adverse effect to known cultural resources.

The area of analysis for cumulative impacts was defined as Whidbey Island.

## Impacts from Alternative A Analysis

Cultural resource management in the Reserve would continue under current laws, policies, and regulations under Alternative A as they relate to NPS property and authority. Since the NPS and Trust Board do not have authority over non-NPS lands in the Reserve, actions and subsequent impacts under Alternative A are limited to NPS-owned lands only, or limited to the interests in private lands purchased by the NPS as measures of protection (scenic and conservation easements).

## Cultural Landscape

Though the cultural landscape within the Reserve still retains its agricultural and historic integrity, increased development would continue to convert open space, agricultural lands, and woodlots to (primarily) residential uses. Key indicators of this trend are the additions of new structures (1000 new structures or 44 percent increase) and new roads (24 miles or 23 percent increase) within the last two decades since the Reserve was created (Rottle 2003: p. 7, 12). Without intervention, this trend is expected to continue due to population growth and housing demands adjacent to the Seattle metropolitan area. Population estimates for Island County for the year 2025 range from a low of 83,137 to a high of 119,000 (Island County Planning and Community Development 2004). This population trend could result in additional development pressures on areas in and around the Reserve, potentially resulting in moderate to major adverse impacts to the cultural landscape.

In addition, the predominate Island County Rural zoning designation within the Reserve allows for the subdivision of land into lots as small as five acres. This development pattern, if it were to occur in an uncontrolled manner, would not be consistent with the existing visual character of the Reserve (Nemens 2001: p.1). Without a system for tracking, evaluating, and monitoring changes to the cultural landscape within the Reserve, incremental changes may not be noticed in time to identify the impact on the Reserve potentially causing major, long-term, adverse damage to the cultural landscape.

Infrastructure in the Reserve including roads, trails, vegetation, viewsheds, small-scale features, and archaeological sites belonging to the town, county, Washington State Parks and private property owners would be maintained or impacted by these entities or individuals according to their needs and desires within the allowable development regulations. The NPS and Trust Board influence and technical assistance may help prevent or mitigate adverse impacts that could result from actions taken by these entities and foster good stewardship of Reserve resources.

Historic vegetation would be cared for through

ongoing cyclical maintenance by willing property owners and the NPS. Historic land use patterns would continue with a private-sector farmer leasing the NPS-owned farm lands to grow crops, providing a major benefit to the cultural landscape.

## Historic Buildings and Structures

The historic buildings and structures and patterns of historic land use representing Pacific Northwest history, juxtaposed with the Reserve's natural setting, make the Reserve unique and worthy of national significance. The context for these properties is continually threatened as development encroaches onto former open space and agricultural lands. The Reserve currently consists of 90 percent non-historic structures (less than 50 years old) and 10 percent historic structures (at least 50 years old). The number of non-historic structures has increased by 44 percent over the last two decades (Rottle 2003). (Refer to "Structures 2000" and "Structures, Gains 1983 to 2000" maps, Volume II of this GMP).

NPS staff would continue to conduct research and stabilization necessary to preserve and protect all NPS-owned historic properties. However, some privately owned historic properties would continue to be lost as evidenced by the recorded loss of 14 historic structures within the Reserve over the last two decades (Rottle 2003: p.7). The lack of an adequate demolition ordinance in the county will result in additional losses of historic properties. Continued loss of historic structures through demolition, neglect or inappropriate alterations could have a major, long-term, adverse impact on historic resources and threaten the integrity of the Reserve. The NPS can only prevent the loss of historic structures that are owned in fee or owned in partial interest (easements) by the federal government.

Stabilization of historic structures on NPS-owned lands or using federal funds would continue to follow the Secretary of the Interior's Standards. Any undertaking of restoration, preservation, and rehabilitation would comply with NPS management policies (5.3.5 Treatment of Cultural Resources) (National Park Service 2001). Although maintenance and rehabilitation projects on historic

buildings and structures may result in negligible or minor impacts to those resources, the net result would be a beneficial long-term impact, as these resources are critical elements of the overall cultural landscape and story of the Reserve.

The NPS, in conjunction with the Trust Board staff, would continue to complete compliance documentation required by the NHPA for activities on NPS-owned lands, or when NPS is undertaking activities on non-NPS lands to ensure resources are adequately protected (Section 106). NPS staff would continue to seek preservation funds for the stabilization, preservation and long-term maintenance of NPS-owned historic buildings and structures. These activities would have long-term, moderate to major beneficial impacts by demonstrating sound stewardship of historic resources in the Reserve. However, it is possible that the continued ownership of buildings by a federal agency could be perceived as a negative impact by those who feel these properties should be returned to private ownership and protected through easements.

Reserve staff, in conjunction with the Trust Board, would also continue to expand the knowledge of the park unit by conducting historical research on various cultural and historical topics (Section 110), and distributing this research information through studies, interpretive programs and via other media. This research and information sharing could have a long-term beneficial impact by providing other owners of historic buildings and structures with a model for preserving such resources and contributing to the broader preservation and continuum of Pacific Northwest history in the Reserve.

Island County is moving towards implementing improved guidelines and standards for its Historical Advisory Committee, which would work towards better protection of the remaining open space in the Reserve (Island County Planning Commission hearing, August 10, 2004, recommended approval of draft guidelines). Without strengthened design guidelines, local zoning regulations and permitting reviews, the Reserve would continue to see potential incompatible construction and infill development. Coupeville is com-

pleting a historic preservation plan for the town, which has the potential to expand the area of design review to the entire town, thus protecting more resources (Sheridan, 2004). Some private property owners would continue to care for their historic structures while others would allow them to deteriorate despite the permitting process and design review.

## **Archaeological Resources and Collections Management**

No adverse effects on archaeological resources would be expected to result from the No-Action Alternative. Archaeological work within the Reserve has been limited since the majority of land is in private ownership; however, the possibility of finding additional sites does remain high. Thirty-five sites have been documented. Additional reconnaissance and subsurface testing would be likely to increase the number of recorded sites (Thomson, 2004). Moderate levels of adverse impacts could occur to the Reserve on private property without the NPS or Trust Board being able to influence a decision or action affecting archaeological resources.

NPS would continue established resource protection measures for the identification and treatment of archaeological resources as required by NPS management policies (5.3.5.1 Archaeological Resources). Where potential impacts would be identified, possible mitigation could include, but would not be limited to, avoidance and protection, data recovery (evaluated as an adverse impact that would be undertaken as a last resort), and educational outreach programs such as informative onsite tours and presentations.

Collections management activities would continue to occur at North Cascades National Park Service Complex, where a professional curator maintains the current collection and assesses, evaluates, and catalogs (as appropriate) objects resulting from NPS-funded maintenance and/or research projects. Maintaining collections at North Cascades National Park would be a minor to moderate adverse impact in that collections would be removed from their historic setting and not be locally available for visitors, staff, or researchers. However, this management strategy would also

provide some long-term benefits in that collections would be adequately stored, preserved, and displayed according to NPS standards. Adequate storage and protection of these resources would ensure their preservation for any possible future display and research opportunities.

## **Cumulative Impacts**

Continuing growth in the County and the subsequent development that occurs with that growth may have negative long-term impacts on the cultural landscape of the Reserve. Current zoning and development regulations at the county level are not adequate to maintain a sense of open space or encourage the perpetuation of farming, the historic land use in the Reserve. Under-used historic buildings and structures are threatened with demolition if the owners cannot find them to be value-added to their property or operation. Farm buildings are particularly vulnerable as changing technology alters equipment size and historic buildings and structures often cannot be easily adapted to meet today's farmer's needs. Farmers are faced with continued pressures from housing developments and the rural/urban interface issues, including smells from agricultural activities and farm equipment on roads.

## **Conclusion**

The actions called for in Alternative A would cause negligible to minor adverse impacts on the integrity of the cultural landscape in the Reserve and be of minor beneficial effect to the overall Reserve. There would be no major adverse impacts to the cultural landscape caused by the NPS's actions. The actions called for would promote the legislation establishing the Reserve and promote its fulfillment, while residents and visitors alike would see improvements to NPS-owned historic buildings. New research on historic and natural resources would be conducted to better understand, and appreciate, the significance of this non-traditional park unit.

However, there is the potential for moderate to major adverse impacts to occur through the actions of local and state governments, due to the existing zoning and development regulations that are currently in place that do not adequately pro-

tect historic land use and significant features of the cultural landscape. The realization of the build-out potential to five acre minimum size lots could lead to intrusions into cultural landscapes or other adverse effects on lands not owned by the National Park Service but located in or near the Reserve's boundaries.

The effects of proposed actions under this topic heading would not result in an impairment of Reserve resources or values.

## **Impacts from Alternative B**

### **Analysis**

Cultural resource management under Alternative B includes all those actions noted in Alternative A with additional attention paid to design review and technical assistance, research and historic preservation practices, and collections management.

### **Cultural Landscape**

Developing a tracking system for cultural landscape changes would have a positive, long-term effect on helping to identify scenic, natural and cultural impacts that might occur from changing land uses, such as conversion of woodland or agriculture to residential uses.

Working with Island County to develop an overlay zone for the Reserve would also be beneficial in maintaining the rural landscape character through stronger design guidelines, larger minimum zoning, stricter permitting and other actions. The overlay zone could offset the potential for adverse effects to the cultural landscape under the current five-acre minimum zoning. However, some landowners may view this action as an adverse impact if tighter zoning or other regulations are implemented which may restrict an owner's ability to subdivide their land, convert its use, or build something requiring a conditional use.

In taking a stronger advocacy role in historic preservation throughout the Reserve (including interpretation, special events, and outreach programs), Reserve partners would help to maintain the historic character of the Reserve which would have a long-term beneficial effect. Having the Trust



Board identify other significant cultural resources within the Reserve for additional protection would be beneficial and proactive in the long-term protection of the historic character. This benefit would be augmented by expanding the technical library and archives related to Reserve history, along with historic preservation techniques and practices.

## Historic Buildings and Structures

The impacts on historic structures would be the same as in Alternative A.

The NPS would adaptively reuse and interpret some NPS-owned structures, which would help in preserving the structures by using and caring for them. They would be adaptively reused following the Secretary of the Interior's Standards for Rehabilitation and could be used as demonstration or training facilities for historic preservation, serving as role models for the Reserve and greater Island County community (Jones & Jones, *Farmland Preservation Recommendations for Ebey's Landing National Historical Reserve* 2003; NPS Management Policies, 2001, Section 5.1, 5.3). This reuse would have long-term benefits by maintaining historic properties and would also be fiscally advantageous, in that the NPS would not have to seek use of and pay for structures elsewhere.

As historic preservation efforts increase, the NPS would serve as a role model and steward of historic properties. A technical library, research program and archives would be established to ensure that up-to-date information is distributed to the residents of the Reserve and others interested in Reserve history. This action would expand efforts to reach out to the community and visitors through interpretation, special events, and other educational opportunities in order to heighten awareness of the Reserve and its unique resources. A 1995 visitor survey conducted by the University of Washington at the Reserve noted that visitors would have liked more information about what to do while at the Reserve (Pergola et al. 1995). Specifically, visitors suggested that maps and brochures be made more readily available throughout the Reserve. These actions would have moderate to major beneficial impacts by heightening awareness of the Reserve and providing a role model in

the community for historic preservation.

Additional actions under Alternative B would involve Section 110 of the NHPA, with the addition of lands in Smith Prairie. This addition would require inventory, evaluation and documentation of properties within the newly designated area to determine how any resources may contribute to the history of the resource and therefore be eligible for listing in the National Register of Historic Places. This action would require staff or funds to hire professionals to conduct the determinations of eligibility. However, this addition of lands would provide added benefits over Alternative A by including other structures that contribute to the cultural landscape and the history of the Reserve.

## Archaeological Resources and Collections Management

The impacts on archaeological resources would be the same as in Alternative A.

Collections management under Alternative B would call for Reserve collections (artifacts and archives) to be primarily cared for by the North Cascades National Park Service Complex curator. However, Alternative B also calls for a museum management plan that would provide for a local museum to potentially house and display limited artifacts provided NPS storage requirements are met. Storing collections at two locations would have both minor benefits by bringing some material back to its historical context to be enjoyed locally by visitors and residents and minor adverse impacts by removing objects from the direct care of an NPS professional curator.

A plan for collections management at the Reserve is contained within the North Cascades National Park Service Complex and Ebey's Landing National Historical Reserve Museum Management Plan (2004). A museum management plan would allow NPS staff to properly catalog and maintain collections. Developing and implementing this plan would be a minor to moderate impact on staff time and resources. However, this plan would have a minor long-term beneficial effect by providing guidance and eventually display artifacts, manuscripts and other items from the Reserve.



## Cumulative Impacts

The cumulative impacts under Alternative B would be similar to those described under Alternative A. In addition, the Reserve would increase in size to encompass the historic 1850s donation land claims of Joseph Smith and John Kineth in Smith Prairie and the potential for many more archaeological sites to fall within the boundaries of the Reserve.

Additional historic properties might be added to the National Register of Historic Places as a result of determinations of eligibility. Through the establishment of a historic overlay zone in the County for the Reserve, and increased boundaries of the historic overlay zone within the Town of Coupeville, additional protection may be realized for historic properties, open space, woodlands, and agricultural lands.

With NPS-owned historic buildings and structures undergoing preservation and rehabilitation work, the NPS would continue to be a role model for historic preservation stewardship. Increased attention on conducting historical research in both natural and cultural resources will provide important information for making land protection and resource management decisions as well as enhance interpretive programs. Increased interpretation and outreach to the community, partners and visitors will result in more people being knowledgeable about the Reserve and the various ways to protect its significant natural and cultural resources. This increased outreach has the potential to result in more visitors coming to the Reserve, and the unintentional degradation of resources due to visitor impacts (excessive impacts on trails, parking lots, people encroaching on historic scenes, trespassing, vandalism, etc.)

Development trends and loss of agriculture in the Pacific Northwest place additional pressure on the preservation efforts at the Reserve. No other cultural landscape preserves in its entirety the settlement history and continued agricultural land use and production history in the Pacific Northwest. As the loss of historic buildings related to settlement of the Pacific Northwest continues due to development and population pressures, the protection of historic buildings within the Reserve and the continuation of the living history of agri-

culture becomes even more paramount and relevant. These trends result in moderate to major adverse impacts due to the loss of some historical buildings, and the return of others to the private sector, where the lack of adequate funding to repair, maintain, or rehabilitate existing historical buildings results in their deterioration and eventual demise.

## Conclusion

Collectively, the actions proposed in Alternative B would result in beneficial minor impacts to the Reserve. However, as in Alternative A, the NPS must rely on partners to implement zoning and other development regulations that work towards protecting the nationally significant cultural landscape of the Reserve. The lack of action by partners in implementing adequate land use and historic property protection measures may result in moderate to major adverse effects on the various features that comprise the cultural landscape of the Reserve. The actions proposed for the NPS to complete will not result in adverse impacts.

The effects of proposed actions for the NPS to undertake under this topic heading would not result in an impairment of Reserve resources or values.

## Impacts from Alternative C

### Analysis

Cultural resource management under Alternative C includes all those actions noted in Alternatives A and B, with additional attention paid to the management entity of the Reserve, expanded partnerships and land protection.

### Cultural Landscape

Under Alternative C, the current management entity of the Reserve (the Trust Board) would be replaced with a Reserve Commission. Elevating the status of Reserve management from volunteer Trust Board to paid Commission could potentially have moderate to major beneficial impacts by heightening awareness of preservation in the Reserve. This Commission would include other decision makers in key posts and could interact on the same level with other management entities in central Whidbey. The potential for this Commis-

sion to implement ordinances and incentives for preservation could provide moderate to major benefits for the long-term preservation of the cultural landscape.

The NPS-owned historic farms protected by conservation easements would be exchanged or auctioned off to the highest bidder in order to have the lands returned to the private sector with the exception of a five acre parcel at Farm II. This action would require subsequent and ongoing monitoring of those easements to ensure the terms of the protective easement are being adhered to. This action would result in productive farmland being protected and farmed through the efforts of local farmers instead of the federal government. The selling or exchanging of the historic Rockwell House would also require extensive staff time to ensure that preservation or rehabilitation of that structure is done in accordance with the Secretary of the Interior's Standards for Rehabilitation.

Alternative C calls for the retention of the Reuble Farmstead, including buildings and approximately five acres of land. This action would have beneficial minor to moderate effects as formerly abandoned historic buildings would be adaptively reused, maintained and ultimately preserved for use by the NPS, Commission, and partner organizations.

## **Historic Buildings and Structures**

The effects on historic structures would be the same as in Alternative B.

In addition, an historic building would be restored to the Secretary of the Interior's Standards, with other partners and used as a visitor center/contact station, administrative offices and curatorial storage. The Reserve Commission and staff would work with local town and county officials to use local tax and other incentives to assist property owners in restoring or rehabilitating historic properties within the Reserve. Both of these actions would be beneficial, long-term, direct effects on the historic setting and character of the Reserve. In addition, using NPS-owned properties for historic preservation demonstration purposes and training sites not only would be beneficial to teach property owners within the Reserve how to preserve

their structures, but would benefit the larger preservation community by providing technical assistance. This action would have a long-term beneficial effect on keeping historic properties within the Reserve viable.

## **Archaeological Resources and Collections Management**

The effects on archaeological resources and collections would be the same as in Alternative B.

Collections storage would also be possible at the local Island County Historical Museum if adequate space existed there. Local availability of these collections would provide some moderate benefits over Alternative A by providing local access to artifacts. The need for on-site staff to be trained in collection management to ensure adequate protection measures were in place for these artifacts would be a moderate short-term adverse impact on park funding and staffing.

## **Cumulative Impacts**

The cumulative impacts on the cultural landscape of the Reserve under Alternative C would be similar to those described for Alternatives A and B. As more information about the Reserve and its resources is distributed, more visitors may come to visit and more residents will better understand and appreciate the value and significance of the Reserve. This increased visitation could potentially lead to some degradation of trails, parking areas, and the overall historic scene if it is not managed properly. However, the more people who understand the significance of the Reserve and its role in preserving a vital cultural landscape in the Pacific Northwest, the greater the chance of individuals within the county and beyond taking on the role of stewardship and thus having positive, long-term benefits.

## **Conclusion**

Alternative C, with its emphasis on establishing a Reserve Commission, including elected officials, boundary expansion, and increased opportunities for property owners to obtain financial assistance in preserving their historic properties, would, overall, result in long-term beneficial minor effects on the cultural landscape of the Reserve. As with

the other two alternatives, the lack of action by partners in implementing adequate land use and historic property protection measures may result in moderate to major adverse effects on the various features that comprise the cultural landscape of the Reserve.

The effects of proposed actions for the NPS to undertake under this topic heading would not result in an impairment of Reserve resources or values.

## Effects on Natural Resources

### Methodology and Assumptions

#### Geology, Soils, and Air Resources

Information used in this assessment of effects on geologic, soil, and air resources was obtained from relevant literature, maps, and consultation with geologists, soil scientists, and interagency cooperators, as well as from interdisciplinary team meetings, field trips, and site visits. Actions were identified with the best use of professional judgment and assessed according to impact intensity criteria listed below:

Negligible:	Impacts would not be detectable through standard observation.
Minor:	Impacts could result in local, transitory, or small change to geologic, soil, or air resources; total disturbance would be nearly indiscernible. Monitoring might or might not detect changes. Loss of associated contextual information would be minimal. Small effects on soil fertility would require simple mitigation to correct. No air quality mitigation required.
Moderate:	Impacts would result in measurable change to geologic, soil, or air resources that would be consequential. Total volume of disturbance could be small, but quite noticeable in a local area, or involving unique or rare features. Monitoring would identify the most affected resources, but some features or contextual in-

formation would be lost. Soil productivity or fertility would be adversely affected over a relatively wide area, requiring larger-scale mitigation with the expectation of success. Measurable changes in air quality would have appreciable local consequences and could trigger need for monitoring of wider suite of air quality parameters. Mitigating measure might be required and they would be successful.

Major:	Impacts would result in dramatic changes to geologic, soil, or air resources. The change would be measurable, and the level of disturbance would be large. Even with monitoring, multiple valuable features would be significantly altered, and/or associated contextual information would be lost. Soil productivity and fertility would be obviously degraded, long-term, over a large area within and outside Reserve boundaries; substantial change to the character of the soils would occur. Extensive mitigation might not be successful. Changes in air quality would be measurable and have substantial health-related consequences. Mitigation measures would be necessary and their success would be uncertain.
--------	--

#### Soundscape

Negligible:	Impacts would not be detectable and would have no effect on ambient noise environment.
Minor:	Impacts would be slightly detectable in close proximity to the source, but are not expected to have an appreciable effect on ambient noise levels.
Moderate:	Impacts would be clearly detectable and could have an appreciable effect on ambient noise levels; moderate adverse impacts may include introduction

of noise associated with an activity or facility into an area with little or no ambient noise.

**Major:** Impacts would be clearly audible against ambient noise levels; or would have a substantial, highly noticeable effect on ambient noise levels.

## **Water Resources (including Wetlands)**

**Negligible:** Chemical, physical, or biological effects would not be detectable, and would meet historical or desired water quality standards.

**Minor:** Chemical, physical, or biological effects would be detectable, but would meet historical or desired water quality standards.

**Moderate:** Chemical, physical, or biological effects would be detectable, but would be at or below water quality standards or criteria; historical baseline or desired water quality conditions would be altered on a short-term (1-2 days) basis.

**Major:** Chemical, physical, or biological effects would be detectable and frequently altered from the historical baseline or desired water quality conditions and/or chemical, physical, or biological water quality standards or criteria would be slightly and singularly exceeded on a short-term (1-2 days) basis.

## **Vegetation, including Special Status Plants**

**Negligible:** No effect on native plant communities. Few individual and no native plants would be affected. Any effects would be small-scale. No special status plants would be affected.

**Minor:** Some individual plants would be affected; a relatively minor portion of the plant community would be affected. Standard operating procedures to offset adverse impacts, in-

cluding special measures to avoid affecting special status plants, would be required and effective.

**Moderate:** Numerous individual native plants and a sizable portion of the native plant community over a relatively large area would be affected. The use of standard operating procedures to offset adverse impacts could be extensive, but likely to succeed. Special status plants could be affected.

**Major:** Considerable effect on native plant populations, including special status plants.

Effects would cover a relatively large area inside and outside the Reserve. The extensive use of standard operating procedures to offset adverse effects would be necessary, but not guaranteed successful.

## **Wildlife**

**Negligible:** Wildlife would not be affected, or the effects would be undetectable, and the changes would be so slight that they would not be of measurable or perceptible consequence to the population of any wildlife species.

**Minor:** The effects on wildlife would be detectable but localized, involving individuals, and of little consequence to the population of any species. Mitigating measures, if needed to offset adverse impacts, would be simple and successful.

**Moderate:** The effects on wildlife would be readily detectable and localized, with consequences at the population level. Mitigating measures, if needed to offset adverse effects, would be extensive and probably successful.

**Major:** The effects on wildlife would be obvious and would result in substantial consequences to the popula-

tions in the region. Extensive mitigating measures would be needed to offset adverse effects and their success would not be guaranteed.

## **Impacts from Alternative A**

### **Analysis**

#### **Geology, Soils, and Air Resources**

##### *Geology*

Geologic resources within the Reserve are primarily large-scale features associated with glacial processes, such as outwash prairies, kettle ponds, glacial erratics, ancient stream and lake beds, and numerous other ice and water formed remnants. Actions identified in alternative A would have negligible impacts on geologic features.

##### *Soils*

The Reserve staff would continue to encourage Island County and other governmental and private agencies, organizations and landowners in the support and preservation of prime and unique farmland soils. The highest value for these soils is for agricultural purposes. Once this declining resource is developed for other uses, such as residential or commercial construction, soils are lost to production. Paving destroys many of the organisms that make the soil viable; paving also causes major adverse impacts to soils.

Direct adverse impacts on soils from road maintenance and use could include road edge disturbance, isolated erosion, and compaction. The effects on soils from soil displacement and dust production would be local and minor. Recreational use would involve some soil loss, compaction, and erosion resulting in site-specific negligible to minor long-term adverse impacts on soils. However, if trails maintenance is performed regularly and effectively, the effects would be long-term beneficial, due to prevention of erosion, elimination of social trails, and hardening of trail surfaces where necessary to accommodate heavy pedestrian traffic.

In the No Action Alternative, the protection of land, open space, cultural landscapes and scenic values would continue to be accomplished pre-

dominately through the land protection measures at the county and municipal level. Island County allows one home per five acres in the Rural Zoning District, the largest zoning district in the Reserve. Depending upon future build-out of this density, this type of development pattern would have minor to major adverse impacts on soils where development occurs.

Under this alternative no new trails would be constructed and maintenance of existing trails would continue at current standards. This maintenance would result in minor adverse impacts resulting from occasional berm removal along trail edges-to improve outflow of surface water-and damage to individual plants at random locations. Long-term negligible to minor adverse impacts could result from soil compaction and erosion caused by the development of social hiking trails on the bluff, and from illegal bicycle use on trails.

##### *Air Resources*

The Reserve would continue to reduce the impact from night lighting in developing language in NPS conservation easements with landowners. This action is consistent with NPS management policies (4.10 Lightscape Management), and the county and town's night sky ordinances. This action is a positive, minor, long-term effect in helping to preserve the night sky and the rural landscape setting. However, this alternative would not seek to encourage activities and programs that promote natural quiet and night sky.

In addition, the Reserve staff would not coordinate with other state and federal agencies in gathering needed baseline air quality data and developing a monitoring program. Though presently in attainment for all pollution criteria, without a way to evaluate potential pollutants and their sources, this lack of coordination could have direct and indirect, major, and long-term negative impacts on future air quality.

#### **Cumulative Impacts**

Within the Reserve, air quality is dependent upon the rate, composition, and volume of emissions from polluting sources within the greater Puget Sound and to a lesser extent, the Vancouver, British Columbia, Canada airshed. Point source pol-



luters within these areas are identified by the Northwest Air Pollution Authority and the Greater Vancouver Regional District. While there are no point source polluters within the Reserve, the airways do not acknowledge boundaries, and airborne pollutants from outside the Reserve can adversely impact Reserve resources, negligible to minor and locally, of short duration and intensity, particularly during inversions.

Soil loss and movement resulting from the effects of land management activities including tilling and the development of homes, roads, and businesses, combined with periodic drought and frequent winds is local and possibly minor to moderate. Effects on soil fertility due to eolian processes are not known. Geologic features are negligibly impacted by this alternative.

## Conclusion

Actions identified in Alternative A would have negligible impacts on air quality or geologic resources. On federally owned lands within the Reserve, soil disturbance, erosion, and compaction would be the primary adverse impacts associated with the management actions under Alternative A. Habitat restoration activities, road and trail maintenance, and fence maintenance would likely affect soils. Continuation of sustainable, best-use practices farming on the former Engle Farms would have beneficial effects on the soil. Overall, short and long-term adverse impacts on soils would be negligible to minor in intensity and duration, and have long-term beneficial effects due to reduced trampling, erosion, and introduction of exotic plants.

The effects of proposed actions under this heading would not result in an impairment of park resources or values.

## Soundscape

Actions proposed in Alternative A would have negligible to minor impacts on the soundscape. Continuing to advocate for agricultural activities in the Reserve would provide benefits, perpetuating those sounds that are associated with viable agriculture in a rural community and consistent with the purpose of the Reserve. Opportunities

for natural quiet would also prevail. However, if the five-acre minimum build-out occurred, there could be short-term moderate adverse impacts from the construction sounds in areas that previously had experienced sounds associated with rural agricultural operations or a quiet setting. Furthermore, there would be moderate adverse long-term impacts from increasing the concentration of sounds associated with residential development into the soundscape.

## Cumulative Impacts

The Reserve experiences cumulative impacts to soundscape from four primary sources: NAS Whidbey use of the Outlying Landing Field (OLF), general road traffic along State Route 20 including roads accessing the Keystone-Port Townsend Ferry, the occasional use of jet skis, and general aircraft overflights. All these noise sources are on non-NPS owned land and outside of NPS control. Impacts to the soundscape from use of the OLF are short-term, highly variable in frequency, and range from minor to moderate in their intensity. The NPS and Reserve staff have no influence over these NAS Whidbey practice sessions. Part of the State Route 20 corridor runs through the Reserve and there is a minor adverse impact attributed to highway traffic. Approximately 3 million vehicles per year travel through the Reserve on this highway; traffic is regulated by WSDOT. Personal watercraft usage in Penn Cove generates minor short-term adverse impacts to the soundscape. The town of Coupeville is working on regulations that would help manage this noise. Commercial airplanes, commuter planes and scenic flights along the Whidbey Island coastline all generate noise resulting in minor short-term impacts to the Reserve soundscape.

## Conclusion

The natural soundscape at the Reserve, consisting of both natural quiet and sounds associated with rural agricultural operations, would experience short-term minor adverse impacts from Alternative A, primarily through cumulative impacts generated outside the Reserve. However, short-term moderate adverse impacts from construction noise could occur if the five-acre minimum build out potential is realized.

## Water Resources

### *Aquifer*

Water has been, and will continue to be, a limiting resource on central Whidbey Island unless alternative sources are developed. Island County is a “sole source” aquifer which means that it is a finite source of water and therefore a critically important water supply. Residents are dependent upon this aquifer (protected under state and federal law) for domestic water and irrigation. All federally funded construction projects, depending upon project size, location, and proximity to drinking water sources, must be reviewed by the U.S. Environmental Protection Agency. The Reserve staff would contact the Sole Source Aquifer Program at EPA Region 10 and coordinate with the agency for any projects within the Reserve meeting these criteria.

Groundwater pumping exceeds recharge in the vicinity of the Reserve causing salt water intrusion in some areas. Salt water intrusion is the induced flow of salt water into fresh water aquifers caused by groundwater development. Once this intrusion happens, drinking and irrigation water can become undrinkable and contaminated.

### *Groundwater*

By encouraging farming and actively buying conservation easements on key farm parcels, the Reserve staff, to a limited degree, is promoting water conservation. In 1983, approximately 84 percent of groundwater demand was for residential, industrial, and commercial uses and only 16 percent was for agricultural irrigation purposes (Island County 1991, Sapik 1988). Keeping the land within the Reserve in agricultural use has a positive and long-term impact on freshwater resources. In addition, irrigation water used to grow crops is available for aquifer recharge and does not have to be treated. A positive, indirect effect of limited fresh water resources is that it slows residential development by slowing or limiting the number of parcels that could be permitted and developed. This would, in general, be beneficial to wildlife as well by encouraging a more rural and less developed environment. (For a discussion on wetlands, see “Effects on Wetlands, Floodplains, and Threatened and Endangered Species.”)

Though there exists the possibility of groundwater contamination from agricultural operations, there is very little data available on the occurrence of agricultural chemicals in groundwater. This includes potential contamination from nitrates from excessive fertilizer applications, and poorly designed high-density animal confinement operations (Island County 1991). Actively encouraging Island County staff and officials, and others to minimize the application of pesticides and associated runoff contamination of surface and groundwater resources would be a positive long-term impact on groundwater resources. Correct manure lagoon management would also prevent groundwater contamination.

As a result of population growth in the region, groundwater demand is expected to rise sharply in the future. Based on population and usage estimates, the total groundwater demand is projected to increase by 181 percent over the next 50 years (Island County 1991: II-4). This growth would have a moderate impact to groundwater resources.

### *Penn Cove*

The relative scarcity of surface water in the Reserve means the effects of management actions would usually be localized to individual water bodies. Penn Cove is a valuable water source for fishing, aquaculture, and recreation. Leaking fluids from recreational vehicles, motor homes, boats, and other motorized vehicles used by visitors can pollute and degrade the water quality in and around Penn Cove. This water body is not under NPS jurisdiction, but is under both town and county jurisdiction. The NPS would encourage the town and county to determine impacts from sewage discharge and whether pump out stations are needed.

## Cumulative Impacts

Management actions described in Alternative A are essentially administrative. The Reserve staff would continue to work cooperatively with conservation-oriented partners and the public in the implementation of protective measures regarding wetlands, aquifer recharge areas, and riparian areas. Minor trail maintenance projects and facilities improvements, such as the repair or installa-

tion of drainfields would have either negligible impacts or minor beneficial impacts. Enhanced support and funding for conservation initiatives would yield minor to moderate beneficial impacts, both short and long-term in duration and intensity. Educational outreach regarding the fragility of nearshore and upland aquatic resources would have beneficial impacts on the management of same. Conscientious and professional management of the manure lagoons at the former Engle Farms would be impact-neutral. Given that past, present, and future actions relating to water diversions, grazing, and agricultural uses have and will continue to impact water quality in the Reserve, the actions in Alternative A would contribute long-term negligible adverse cumulative impacts.

## Conclusion

The Reserve staff and Trust Board would continue to advocate the protection of wetlands through application of local, state, and federal laws and regulations, and provide the protection where the federal land interests permits direct land management and resource protection. The Trust Board would continue to support and encourage existing water quality programs for the littoral and aquifer recharge areas of the Reserve. Alternative A represents a continuation of most existing management activities that could affect water resources. Maintaining access and facilities in the current condition would not substantially increase recreational use or its effects on water resources beyond current levels, and current maintenance project proposals would include limited measures to limit erosion and protect water quality where appropriate, on federally-owned lands.

Depending upon the effectiveness of partnerships and funding sources for projects of mutual interest, implementing Alternative A would continue current long-term effects on water quality at levels ranging from negligible to minor beneficial, with these measurable effects most likely limited to small, localized areas.

The effects of proposed actions under this heading would not result in an impairment of park resources or values.

## Vegetation

### *Woodlands*

Most of the forest remaining in central Whidbey is second and third growth forest. Only two large, densely wooded areas remain that comprise over 4,500 acres. Old growth is limited to a few remnant individuals along the bluffs above Ebey's Landing. Since 1983, woodlands have declined by 111 acres or 2 percent within the Reserve (Rottle 2003). (Refer to "Land Use, Agriculture" map in Volume II of this GMP.)

The Reserve would continue to protect these woodlots that are already in NPS ownership or by conservation partners such as The Nature Conservancy. This protection would be a long-term beneficial effect to wildlife and birds such as eagles, hawks, owls, woodpeckers, flycatchers, vireos, thrushes, and sparrows that depend on this habitat. It is also beneficial to Reserve staff to be able to interpret the role of the forest in the character, use and history of the Reserve.

### *Prairies*

Native Puget Lowland grasslands are one of the most endangered types of ecosystems in Washington State. The three large prairies, Crockett, Smith, and Ebey's, cover over 5,000 acres or 42 percent of the Reserve's land area. They are defined by rich farmland and separated by major ridges. These prairie soils, called molisols are a particularly valuable resource, and may have been farmed for thousands of years. These prairies comprise the heart of the Reserve and are most sensitive to development due to their open character and proximity to water. Reserve staff identifying areas to establish prairie species would provide a major opportunity to preserve an endangered ecosystem and associated plant life. In addition, animals that depend upon this type of habitat would benefit as it would help to ensure species survival.

Of the three prairies within the Reserve, the five and one-half acre prairie remnant in Smith Prairie is the most likely site where large scale restoration is still possible. It is the only known glacial outwash prairie site in the region where the prairie grass, *Festuca idahoensis* variety *roemeri* achieves dominance. In addition, Smith Prairie hosts an

“element occurrence” of the Idaho fescue-field chickweed community listed in the Washington Natural Heritage Plan as a “priority 3” for protection. A total of four plant associations representing Puget Lowland dry grasslands have been identified, and are included or proposed for addition to the National Vegetation Classification by Frosty Hollow Ecological Restoration. All four of these associations are considered globally, critically impaired.

Trust Board and NPS advocacy of native plant community preservation and selected restoration sites for native prairie species would have minor to moderate short and long-term beneficial impacts on preserving and enhancing the pool of genetic material associated with native prairies on central Whidbey Island. Restoration work would involve a combination of IPM techniques to prepare restoration sites, including tilling, application of herbicides, hand planting, and hydroseeding or broadcast seeding. If necessary, herbicides would be selected for specific target species and applied in clearly defined areas by state licensed applicators. Tilling and site preparation could lead to minor short-term adverse impacts due to eolian erosion.

In addition, there are about 200 species of butterflies in Washington and 50 can be linked to prairie environments. Of these, nine depend upon prairie environments for food and nesting habitat. In 1999, the Washington Department of Fish and Wildlife designated four of those nine prairie dependent butterflies as candidates for listing as threatened or endangered. These four are the mardon skipper, the Puget blue, the Wulge checkerspot and valley silverspot Reserve (Mapes 1999). Field investigations by the Washington Department of Natural Resources have been initiated to confirm the presence or absence of these and other species. Reserve staff would promote protection of these species by identifying critical foraging and breeding habitat and working closely with other federal and state agencies to protect this habitat, yielding moderate, beneficial long-term benefits to both the prairies and the species that depend on them for habitat.

#### *Native and Exotic Plant Species*

Under Alternative A, the staff would encourage

education about the valuable role of native plants within the Reserve. This would have minor to moderate beneficial effects on public awareness. Routine maintenance of historic structures and maintenance facilities would involve negligible to minor adverse impacts on vegetation at specific sites. Encouragement of road shoulder planting of low-growing native species would have negligible to minor beneficial effects on native populations.

The Reserve would also continue to control exotic species as required by NPS management policies (4.4.4 Management of Exotic Species). Removing exotics would have a long-term direct and indirect beneficial impact in the Reserve. Exotics can easily replace non-natives by out-competing them for basic biological requirements such as light and water. However, non-native plant material could be used and controlled in limited cases for defining the cultural resource feature of a cultural site.

Vegetation management would be coordinated with the Reserve’s 2001 IPM plan and fire management plan. The use of partnerships in the removal and eradication of selected noxious weed species on a site by site basis would have minor to moderate beneficial impacts on native plant species, and numerous wildlife species. Continued project funding for protection and recovery of the threatened golden paintbrush would have minor to moderate beneficial impacts on this rare plant’s status. Continued vascular plant inventory work would yield more baseline information that could be used to the benefit of native plant preservation efforts. Depending upon funding, research and monitoring needs as identified and prioritized in the 2001 Vital Signs Workshop would be implemented.

Trail use and maintenance work could spread noxious weeds, with minor to moderate short and long-term adverse impacts on native plant communities.

#### *Hedgerows*

Under Alternative A, Reserve staff would continue to support retention and establishment of hedgerows. Hedgerows are an important cultural feature in the Reserve. Some original Donation Land Claim properties are still defined by



hedgerows. Though the locations of some of the hedgerows have changed, the number of linear miles of hedgerows has slightly increased by two-tenths of a mile. Windbreaks increased by 1.8 linear miles (Rottle 2003). (Refer to “Boundaries, Hedgerows and Windbreaks, Changes” map, Volume II of this GMP.)

In addition, hedgerows contribute to associated natural resource benefits. Continuing to educate and inform the public about the positive benefits of hedgerows would have a positive long-term effect in the Reserve. A hedgerow can provide many diverse benefits to the land immediately adjacent to it. Hedgerows slow down water run-off, allowing more time for it to filter into the soil and the aquifer. They reduce soil loss by wind and water action. Hedges break up wind motion near the ground and help maintain soil moisture. Local soil fertility is enhanced due to the activities of associated hedgerow animal communities. Hedgerow plant species draw minerals from deep within the soil and deposit them near the surface. The insect eating mammals, amphibians, birds, and invertebrates which make hedgerows their home assist in pest control. Many mammals and migratory birds are attracted to hedgerows for shelter, feeding, and nesting. In the Reserve at least 22 species of birds depend upon the hedgerows for breeding, nesting, feeding, or shelter from predators (NPS “Hedgerows: Dirty Fences or Farmers’ Best Friends?” brochure—no date). (For a discussion on the native golden paintbrush, see “Effects on Wetlands, Floodplains, and Threatened and Endangered Species.”)

## Cumulative Impacts

Activities affecting vegetation outside the Reserve could negatively affect vegetation resources both in and outside the Reserve. Many noxious weed species occur in well-established populations in and out of the Reserve. These species include Scotch broom, poison hemlock, Canada thistle, and Himalayan blackberry. Increased visitor use could increase the migration of noxious and invasive weeds into the Reserve, necessitating extensive cooperation with the Island County Noxious Weed Board, Island County Public Works, and affected landowners, as well as educating the public

about managing noxious weeds. Aggressive weed management throughout Island County, in addition to the actions described in Alternative A would result in long-term minor to moderate beneficial effects on native vegetation by controlling the spread of invasive exotics.

Agricultural lands in and around the Reserve are affected by the drift of exotic weeds and the movement of soil by the wind. Alternative A describes actions which would have negligible to minor adverse impacts of short duration and minor intensity. The restoration actions described in Alternative A could result in short-term negligible to moderate adverse effects from herbicide application, tilling, and seeding. This would result in the loss of primarily non-native vegetation, but some native plants would be lost as well. There would be increased opportunity for erosion, both from wind and rain, yielding short-term negligible to minor adverse impacts. Successful restoration projects strategically placed within the Reserve to protect and enhance native plant communities would result in a healthier, more resilient ecosystem, constituting long-term, minor to major beneficial effects. Encouragement of road shoulder planting of low-growing native species would have negligible to minor beneficial effects on native populations, and would lengthen or eliminate the mowing cycle.

## Conclusion

Alternative A would result in both short and long-term negligible to minor adverse impacts on vegetation from continued use of trails, plus off-trail trampling and the spread of noxious weeds. Native plant community restoration activities and facilities maintenance activities would cause short-term negligible to minor adverse impacts, but they would result in long-term indirect minor to major beneficial effects as a result of vegetation restoration and public education.

The effects of proposed actions under this heading would not result in an impairment of park resources or values.

## Wildlife

Under this alternative, the Reserve staff would



continue to seek additional information on various species both on public and private land through survey and inventory work (when and where appropriate), volunteer projects and restoration projects. Voucher specimen collections of non-listed small mammal species, for identification and reference, would be curated at the North Cascades National Park Service Complex curatorial facility in Marblemount, Washington. This survey and inventory could have a minor adverse impact on individuals of the species, but would be of little consequence to the population. Overall, having sound baseline surveys would be beneficial in determining wildlife management needs and to account for change in status over time.

Continued advocacy for, and expansion of hedgerows within the Reserve would have beneficial effects for the numerous bird, mammal, insect, reptile, and amphibian populations residing within hedgerows. Restoration of native plant communities would have short-term negligible adverse effects on some animal species, which would be offset by the long-term minor to major beneficial effects on other native species, such as pollinators, including butterflies. The idle manure lagoon (now used as an irrigation reservoir) at the former Engle Farm property would continue to provide valuable foraging and resting habitat for waterfowl, a moderate beneficial impact.

Current trail, grounds, and facilities maintenance activities would have negligible adverse effects on wildlife. Cutting or spraying of noxious weeds such as poison hemlock, depending upon the time of year, might have minor short-term adverse effects on nesting birds within individual localized stands of weeds. Restoration of near-natural conditions at Crockett Lake would have major beneficial effects on large numbers of native species.

### **Cumulative Impacts**

Further development of private lands within the Reserve for residential, commercial, or agricultural uses could alter wildlife habitat and habits and cause a loss of wildlife. Increased traffic and road development could lead to greater road mortality for small mammals, large mammals, and birds. Animals regarded as pests within the Reserve, such as coyotes, have been displaced or killed, and

for some small mammals and birds, the remaining hedgerow habitat is critical to their survival. Further damage to hedgerow habitat could cause minor to moderate adverse short-term and long term impacts for hedgerow-dependent species. Restoration of native plant communities would have short term minor adverse effects on some species due to impacts of herbicides, prescribed fire, and seeding treatments, but would, in the long-term, result in a healthier and more resilient ecosystem, constituting long-term beneficial effects on the habitat for numerous wildlife species.

### **Conclusion**

Under Alternative A, which would continue current conditions, the effects on wildlife would continue to result primarily from conflicts with human uses of the Reserve, including disturbances by people and vehicles, and conflicts and competition with livestock use, pets, and agricultural practices. Access and roads and visitor recreation would result in minor long-term adverse impacts on some species in high use areas. Small-scale prairie plant community restoration efforts would cause some short-term minor impacts, with minor to moderate beneficial impacts over the long term, depending upon the species involved. Bald eagles, common within the Reserve, would experience current impacts, which are negligible to minor.

The effects of proposed actions under this topic heading would not result in an impairment of Reserve resources or values.

## **Impacts from Alternative B**

### **Analysis**

#### **Geology, Soils, and Air Resources**

##### *Geology*

The impacts identified in Alternative B are the same as described in Alternative A.

##### *Soils*

In addition to the actions described in Alternative A, using a variety of land protection measures, including the purchase of conservation, scenic, and/or development easements, fee purchase, and land swaps, the Reserve staff would work with partners to prevent the loss of prime and locally important

agricultural soils through their conversion to development or other incompatible uses, and to preserve economically viable farm units and open space. In order to assist farmers in minimizing adverse eolian (wind erosion, transport, and deposition) processes during severe wind events, technical support from the NRCS would be sought. The active support of agency partnerships to advance research on the area's agricultural history, crop management, farm operations, and other topics that support private, sustained, and viable agriculture within the Reserve would be beneficial to understanding and preservation of soils and soil quality. Funding would be solicited for following geologic processes monitoring such as status and trends of soil fertility, shoreline bluff stability, and prairie soil erosion.

Monitoring would provide useful data in assessing conditions and trends and identifying additional research needs. The impacts of monitoring would be negligible, and would provide beneficial information to be used in expanded soil protection and enhancement programs. Also, research funding would be sought in order to address questions relating to land use change; soil quality change related to land uses; and effects of agriculture and recreation on soil erosion. Research impacts, and other research needs identified in a comprehensive monitoring program, would have long-term benefits deriving from increased local knowledge and the application of scientific recommendations to the correction of any soils degradation identified.

All of the above monitoring and research project work would be non-intrusive, and of short-to-long term, with negligible impacts.

#### *Air Resources*

In addition to actions described in Alternative A, the Reserve staff would seek funding to shield fugitive light from fixtures within key night viewscapes, such as the prairies; additionally, the NPS and the Reserve Staff would join existing air quality networks within state and federal agencies including the Washington Department of Ecology, the U.S. Forest Service, the Northwest Air Pollution Authority and others to gather baseline data on air quality sampling and seek funding to estab-

lish a monitoring program for the Reserve, addressing key monitoring questions regarding spatial and temporal air quality components such as meteorology, climatology, visibility, deposition, and lightscape. Monitoring would provide useful data in assessing conditions and trends and identifying additional research needs. The impacts of monitoring would be negligible, and could provide beneficial information.

Under Alternative B, new funding would be sought to address important research questions chemical influences of sea spray, deposition effects of Port Townsend pulp mill plume, tropospheric ozone reference values, and toxicity testing for airborne substances in aquatics, soils, and biota.

The impacts of such research, and other research needs identified in a comprehensive monitoring program, would have long-term benefits deriving from increased local knowledge and the application of scientific recommendations to possible pollution mitigation or abatement measures.

### **Cumulative Impacts**

Similar to Alternative A, within the Reserve, air quality is dependent upon external forces beyond the control of local citizens and governments. Airborne pollutants from outside the Reserve can adversely impact Reserve resources, negligible to minor and locally, of short duration and intensity, particularly during inversions. No actions identified in Alternative B would have measurable long-term impacts on air, soils, or geologic resources, although soil loss and movement resulting from the effects of land management activities including tilling and the development of homes, roads, and businesses, combined with periodic drought and frequent winds is local and possibly minor to moderate. Effects on soil fertility due to eolian processes are not known. Geologic features are negligibly impacted by this alternative.

### **Conclusion**

As in Alternative A, actions identified in Alternative B would have negligible impacts on air quality or geologic resources; similarly, on federally owned lands within the Reserve, soil disturbance,

erosion, and compaction would be the primary adverse impacts associated with the management actions under Alternative B. Habitat restoration activities, road and trail maintenance, and fence maintenance would likely affect soils, and be short-term and of minor intensity. Restoration of drought-tolerant native prairie plant communities at selected sites would lead to reduced need for herbicides to control invasive exotics and the benefits of reduced herbicide impacts on soils. Continuation of sustainable, best-use practices farming on the former Engle Farms would have beneficial effects on the soil, minimizing soil loss, compaction and over fertilizing. Overall, short and long-term adverse impacts on soils would be negligible to minor in intensity and duration, and have long-term beneficial effects due to reduced trampling, erosion, and introduction of exotic plants.

The effects of proposed actions under this heading would not result in an impairment of Reserve resources or values.

## **Soundscape**

Actions identified in Alternative B would have moderate beneficial impacts to soundscape. Implementing a tracking system for documenting changes in the cultural landscape would also allow the Reserve to identify potential changes to soundscape, such as use of new agricultural tools or technology that differ from those traditionally associated with rural agriculture. In addition, encouraging Island County to adopt an overlay zone would have moderate benefits by preventing the intrusion of short- and long-term sounds associated with the five-acre residential build-out into a the soundscape.

## **Cumulative Impacts**

Cumulative impacts in Alternative B are the same as Alternative A.

## **Conclusion**

Actions in Alternative B provide moderate benefits to the Reserve by enabling the Reserve to track changes that may impact the natural soundscape containing sounds traditionally associated with rural agriculture and natural quiet. Encouraging

Island County to adopt an overlay zone would provide added benefits by maintaining the traditional soundscape and preventing intrusion of sounds associated with higher density residential development.

The effects of proposed actions under this heading would not result in an impairment to park resources or values.

## **Water Resources**

### **Analysis**

Effects on water resources would be the same as in Alternative A. In addition, promoting wetland mitigation (when possible and where appropriate), encouraging protection of the shoreline, and enhancing riparian habitats would all have positive long-term effects on the natural environment. The Reserve staff would be able to pursue these actions on NPS-owned properties, but could only take an advocacy role on other properties within the Reserve. Even if voluntary, some landowners may feel that this is advocating how they should use their land which may have limited negative effects.

Alternative B also describes a comprehensive research and monitoring agenda for a variety of freshwater and marine resource issues. All proposed work would be performed in collaboration with landowners and agencies responsible for managing lands involved in research and monitoring activities. Most of the research would be non-intrusive; however, in some instances, voucher specimens would be collected for identification, reference, and natural history archives. No specimens of state or federally listed threatened or endangered species would be collected. This research would have a negligible impact on local populations. Any installation of short-term/long-term monitoring equipment would be sensitively sited and camouflaged to minimize visual disturbance. Recommendations derived from research and monitoring of water resource issues would lead to a wide variety of potential projects that would be designed to maintain or improve aquifer recharge purity and improve surface water management and nearshore marine habitat.

The active management of the manure lagoons at the former Engle Farms would have a beneficial effect on groundwater. The knowledge derived from extensive research and monitoring would have minor to moderate beneficial impacts on planning for riparian zone protection and enhancement, Crockett Lake/marsh restoration, and aquifer protection. Restoration of riparian corridors in pre-contact settings would provide minor to major beneficial effects for a wide variety of wildlife. Construction of impoundments in abandoned or altered riparian areas would provide short-term minor adverse impacts related to soil disturbance and vegetation manipulation, and minor to major beneficial, long-term impacts on wildlife and agricultural irrigation.

Reduction of pesticide runoff might have negligible to moderate beneficial impacts on soil biota, nearshore invertebrates, and the water quality of impoundments and seeps.

### *Aquifer*

Working with farmers in the protection of the aquifer to minimize contamination would be long-term and beneficial in restoring and maintaining water quality. Once an aquifer is polluted, it becomes difficult and expensive to clean up. Nitrates are a problem getting into groundwater with agricultural use. The source of the aquifers on Whidbey Island is limited and is mainly from precipitation. As such, they are not high producers and recharge happens slowly. Over withdrawal can cause saltwater intrusion which has happened at some places within central Whidbey. (Herman 2004, Island County Ground Water Management Program 1991).

### *Penn Cove*

The impacts to Penn Cove under Alternative B are the same as Alternative A.

## **Cumulative Impacts**

Dependent upon research findings and recommendation of prioritized sites, cooperative efforts involving restoration of riparian corridors and wetlands would create short-term minor to moderate disturbance impacts on localized habitat in limited areas, potentially including IPM practices for weed containment, control, and elimination;

soil manipulation, and replanting. Short-term minor to moderate adverse effects on water turbidity would be associated with soil manipulation at localized sites.

The proposed actions in Alternative B would contribute slightly more to the cumulative impacts on water resources than would the no-action alternative (Alternative A) due to potentially increased visitation and researcher traffic, but this would be considered a minuscule increment to the overall adverse impacts.

## **Conclusion**

Implementing Alternative B would improve the local long-term beneficial effects on water resources at intensity levels generally ranging from negligible to potentially major. Adverse impacts would range from negligible to potentially moderate, short-term, and long-term negligible to minor.

Creation of impoundments or riparian corridors could create minor to moderate seasonal changes in nutrient concentrations, bacteria levels, and turbidity. These effects would be localized within the small watersheds the new features would occupy.

The effects of proposed actions under this heading would not result in an impairment of Reserve resources or values.

## **Vegetation**

### *Woodlands*

In addition to the actions described in Alternative A, the Reserve staff would use multiple partnerships (including universities and university extension offices) to expand and preserve the woodlands and prairie ecotones within the Reserve. These actions could include such measures as brush clearing, selective thinning, creating fire-breaks around facilities, snag habitat management, and the selective use of prescribed fire. These forest management actions would result in short-term minor adverse impacts on the removed vegetation and in the case of thinning, on the insects, mammals, and birds using the removed trees. Woodlot management would be prescribed toward restoring old-growth conditions, which would involve multi-age stands of timber species



and the preservation of snags for primary and secondary cavity nesters, bats, and insects, and leaving some larger diameter fallen timber for insect, small mammal, reptile, and amphibian habitat. Actions taken to improve upon this habitat would have short-term and long term minor to major beneficial effects for a wide variety of wildlife species. These actions would also serve to open up the canopy to boost growth for remaining trees, and to provide slow release nutrients, both actions being long-term minor to moderate beneficial impacts.

The encouragement of voluntary involvement of private land owners would have a positive benefit on the resources, if those efforts are successful. Again, some landowners may view this as property rights interference.

### *Prairies*

Since prairies are a threatened ecosystem in Puget Sound (as mentioned in Alternative A) developing a prairie restoration plan that would be expanded to include local and regional partnerships would have a positive, long-term benefit to both the native plant and animal species that inhabit it. Individual restoration projects would have minor to moderate short and long-term beneficial impacts on preserving and enhancing the pool of genetic material associated with native prairies on central Whidbey Island. As in Alternative A, restoration work would involve a combination of IPM techniques to prepare restoration sites, including tilling, application of herbicides, hand planting, and hydroseeding or broadcast seeding. If necessary, herbicides would be selected for specific target species and applied in clearly defined areas by state licensed applicators. Tilling and site preparation could lead to minor short-term adverse impacts due to eolian erosion. Alternative B differs from the no action alternative only in scale: the potential for localized short term wind and rain-caused erosion would be increased somewhat due to a larger number of restoration sites, but the adverse impacts would still be minor short-term and beneficial long-term.

Under Alternative B, expanded pedestrian trails would cause short-term minor to moderate adverse impacts on localized vegetation and minor

short-term erosion impacts due to exposed soil on new tread. Short-term minor adverse impacts would also be associated with the increased risk of importing exotic weeds. Careful trail design and construction would minimize the above impacts, and impacts would be long-term minor, associated with routine maintenance.

### *Native and Exotic Plant Species*

The effects mentioned in Alternative A would be the same in Alternative B. In addition, Whidbey Island has many unique plants due to both the island ecology and the limited development that has occurred. The Whidbey Environmental Action Network (WEAN) has identified 33 rare local plants unique to Whidbey Island. Only one was recently given protection by the county, the blue flag iris (Douthitt, December 23, 2000). Most of these plants are not protected by federal, state, or local laws, but are locally important and their preservation helps protect genetic diversity. Many are found on land that is public or protected by conservation easements (Douthitt, December 16, 2000). The Reserve staff would identify and protect these populations where possible from management activities, visitor impacts, exotic and plant encroachment, providing a localized long-term benefit to native plants.

Working with partners to create a roadside vegetation program for the Reserve would promote native plants and educate the public about exotic plants. This program would have positive effects and is consistent with NPS management policies for using native plants (4.4.2 Management of Native Plants and Animals) and preventing exotics (4.4.4 Management of Exotic Species). This action has the potential to provide more protection and a greater benefit than that afforded in Alternative A.

Under Alternative B, the use of expanded partnerships and multiple funding sources, including cost-sharing initiatives in the removal and eradication of selected noxious weed species on a site-by-site basis would have minor to moderate beneficial impacts on native plant species and numerous wildlife species. Continued project funding for protection and recovery of the threatened golden paintbrush would have minor to moderate beneficial impacts on this rare plant's status. Continued

vascular plant inventory work would yield more baseline information that could be used to the benefit of native plant preservation efforts.

Under Alternative B, the Reserve would also take a more active role in supporting landscaping strategies promoting the propagation and wide use of drought-tolerant native wildflowers (xeriscaping), ground cover, hedgerow species, and wildlife-friendly cover species. These actions would have short and long-term beneficial impacts on wildlife habitat, prevention of exotic plant invasion, and water usage.

The Reserve staff would seek continued funding for the *Recovery Plan for the Golden Paintbrush* (USFWS 2000). This would include funding numerous research questions associated with long-term successful population protection and augmentation. Some of these actions would have short-term adverse effects on native and nonnative species within the golden paintbrush sites—numerous invasive plants would be removed to reduce overstory encroachment on the threatened plants. In addition, removal of encroaching vegetation would have short-term adverse impacts on the protective cover for browsing small mammals. All of these actions, however, would have short and long-term moderate to major beneficial effects on the health of the golden paintbrush populations.

Under Alternative B, the Reserve staff would continue writing grant proposals for funding numerous research questions associated with long-term successful golden paintbrush protection and augmentation. Some of these actions would have short-term adverse effects on native and nonnative species within the golden paintbrush sites. Removal of encroaching vegetation would have short-term adverse impacts on the protective cover for browsing small mammals. All of these actions, however, would have short and long term moderate to major beneficial effects on the health of the golden paintbrush populations.

The weed management plan for the Reserve focusing on the control and elimination of poison hemlock (*Conium maculatum*) would be a prominent, multi-partner project.

Funding would also be sought to revegetate the

area following removal of the poison hemlock. This work would involve a combination of IPM techniques to prepare restoration sites, including tilling, application of herbicides, hand planting, and hydroseeding or broadcast seeding. If necessary, herbicides would be selected for specific target species and applied in clearly defined areas by state licensed applicators. Tilling and site preparation could lead to minor short-term adverse impacts due to eolian erosion. Alternative B differs from the no action alternative only in scale: the potential for localized short term wind and rain-caused erosion would be increased somewhat due to a larger number of restoration sites, but the adverse impacts would still be minor short-term and beneficial long-term.

Funding would be sought to address monitoring and research issues on topics addressed in the Vital Signs workshop.

### *Hedgerows*

Impacts to hedgerows are the same as Alternative A.

## **Cumulative Impacts**

As in Alternative A, activities affecting vegetation outside the Reserve could negatively affect vegetation resources both in and outside the Reserve. Many noxious weed species occur in well-established populations in and out of the Reserve. Increased visitor use could increase the migration of noxious and invasive weeds into the Reserve. Aggressive weed management throughout Island County, as described in Alternative B, would result in long-term minor to moderate beneficial effects on native vegetation, by controlling the spread of invasive exotics, and restoring native vegetation to areas where weeds are removed. The cumulative impacts of expanded multi-agency and private organizational emphasis on weed control would be long-term moderate to major beneficial for a wide suite of native species. Additionally, sensitive trail design and construction would provide a moderate beneficial template for multi-agency use.

Agricultural lands in and around the Reserve are affected by the drift of exotic weeds and the movement of soil by the wind. Alternative B describes actions which would have negligible to

moderate adverse impacts of short duration and minor to moderate intensity. The more expansive restoration actions described in Alternative B could result in short-term negligible to moderate adverse effects from herbicide application, tilling, and seeding. During restoration actions, there would be increased opportunity for erosion, both from wind and rain, yielding short-term negligible to minor adverse impacts. As in Alternative A, successful restoration projects strategically placed within the Reserve to protect and enhance native plant communities would result in a healthier, more resilient ecosystem, constituting long-term, minor to major beneficial effects. Encouragement of road shoulder planting of low-growing native species would have negligible to moderate beneficial effects on native populations, and would lengthen or eliminate the mowing cycle: this course of action might serve as a valuable beneficial example for other areas in Island County.

Active forest management actions would result in short-term minor adverse impacts on the removed vegetation and, in the case of thinning, on the insects, mammals, and birds using the cut trees. Actions taken to improve upon this habitat would have short-term and long term minor to major beneficial effects for a wide variety of wildlife species. These actions would also serve to open up the canopy to boost growth for remaining trees, and to provide slow release nutrients, both actions being long-term minor to moderate beneficial impacts, and of value to private landowners as transportable management techniques.

Under Alternative B, the Reserve would take a more active role in supporting landscaping strategies promoting the propagation and wide use of drought-tolerant native wildflowers (xeriscaping), ground cover, hedgerow species, and wildlife-friendly cover species. These actions would have short and long-term beneficial impacts on wildlife habitat, prevention of exotic plant invasion, and water usage. Again, these actions could be “leading by example” for the rest of the county.

## Conclusion

Forest management actions, which would focus on improving habitat by opening up the canopy, would result in long-term moderate beneficial im-

pacts to forest health and wildlife species despite the short-term minor adverse impacts on the removed vegetation.

Native plant community restoration activities and facilities maintenance activities would cause short-term negligible to minor adverse impacts, but they would result in long-term indirect minor to major beneficial effects as a result of vegetation restoration and public education. Continued project funding for protection and recovery of the threatened golden paintbrush would have minor to moderate beneficial impacts on this rare plant’s status.

Other numerous research and monitoring issues would be prioritized for seeking funding. If implemented, this research would involve negligible to minor impacts on vegetation, such as individual plant removal for collections or archives; small prescribed fires, where the impacts would be short-term minor to moderate (small mammal displacement, burning of nonnative and native shrubs, forbs and grasses); negligible to minor beneficial short-term changes in nutrient balance; and the potential for short-term negligible adverse impacts due to localized trampling during field work. However, research outcomes, such as vascular plant inventory work, would yield more baseline information that could be used to the benefit of native plant preservation efforts.

Under this alternative, implementation of prairie restoration would be expanded. Alternative B differs from the No Action Alternative only in scale: the potential for localized short term wind and rain-caused erosion would be increased somewhat due to a larger number of restoration sites, but the adverse impacts would still be minor short-term and beneficial long-term.

The effects of proposed actions under this heading would not result in an impairment of Reserve resources or values.

## Wildlife

In addition to actions described in Alternative A, the expanded trails network called for in Alternative B would cause negligible to minor adverse impacts on localized individuals of numerous species

during construction work, and to a lesser extent during maintenance work. Increased use of trails by dogs off-leash would have minor to moderate short-term adverse impacts on a wider suite of species. Larger scale native plant community restoration would have minor short-term adverse impacts on some species, and long-term minor to moderate beneficial impacts on many others, providing preferred forage, cover, and breeding habitat.

Larger scale and aggressive multi-partner weed management practices would have minor to moderate short-term adverse impacts on some species, keeping in mind that dense stands of exotic plants are not favored by most native wildlife species, and minor to major beneficial effects on a larger suite of species.

Expanded trails, grounds, and routine facilities maintenance activities would have negligible to minor adverse effects on wildlife. Under Alternative B, woodlands and prairie ecotone management within the Reserve could include such measures as brush clearing, selective thinning, creating firebreaks around facilities, snag habitat management, and the selective use of prescribed fire. These forest management actions would result in short-term minor adverse impacts on the removed vegetation and, in the case of thinning, the insects, mammals, and birds using the removed trees. Woodlot management would be prescribed toward restoring old-growth conditions, which would involve multi-age stands of timber species and the preservation of snags for primary and secondary cavity nesters, bats, and insects, and leaving some larger diameter fallen timber for insect, small mammal, reptile, and amphibian habitat. Actions taken to improve upon this habitat would have short-term and long term minor to major beneficial effects for a very wide variety of wildlife species. These actions would also serve to open up the canopy to boost growth for remaining trees, and to provide slow nutrient release for the forest species, both effects being moderate to major benefits.

Under Alternative B, the Reserve would take a more active role in supporting landscaping strategies that promote the propagation and wide use of

drought-tolerant native wildflowers (xeriscaping), ground cover, hedgerow species, and wildlife-friendly cover species. These actions would have short and long-term beneficial impacts on wildlife habitat, prevention of exotic plant invasion, and water conservation.

Continued projects that assist the recovery of the threatened golden paintbrush would have short-term minor adverse effects on some encroaching native and non-native individual plants, but the long-term benefits to the paintbrush and its companion native prairie species would be moderate to major.

Enhanced public outreach would have minor to moderate beneficial effects on local knowledge, awareness, and participation in natural resource projects within the Reserve. Aggressive efforts to secure funding for a wide array of research and monitoring issues would lead to numerous wildlife resource benefits.

## **Cumulative Impacts**

As in Alternative A, further development of private lands within the Reserve for residential, commercial, or agricultural uses could alter wildlife habitat and habits and cause a loss of wildlife. Increased traffic and road development could lead to greater roadkill mortality for small mammals, large mammals, and birds, a minor to moderate long-term and short-term adverse impact. Animals regarded as pests within the Reserve, such as coyotes, have been displaced or killed, and for some small mammals and birds, the remaining hedgerow habitat is critical to their survival. Increased attention to the value of hedgerows and their protection would have minor to moderate positive short-term and long-term impacts for hedgerow-dependent species. Expanded restoration of native plant communities would have short-term minor adverse effects on some species due to impacts of herbicides, prescribed fire, and seeding treatments, but would, in the long-term, result in a healthier and more resilient ecosystem, constituting long-term beneficial effects on the habitat for numerous wildlife species. Recovery of the golden paintbrush populations within the Reserve would have long-term major beneficial impacts throughout the region.



## Conclusion

As in Alternative A, the effects on wildlife would continue to result primarily from conflicts with human uses of the Reserve, including disturbances by people and vehicles, and conflicts and competition with livestock use, pets, and agricultural practices. Access and roads and visitor recreation would result in minor long-term adverse impacts on some species in high use areas. Prairie plant community restoration efforts would cause some short-term minor impacts, with minor to moderate beneficial impacts over the long term, depending upon the species involved. Bald eagles, common within the Reserve, would experience current impacts, which are negligible to minor. A large scale restoration project such as Crockett Lake would have major long-term beneficial effects on native flora and migratory waterfowl.

Conservation of hedgerow habitat would have long-term beneficial impacts on numerous wildlife species dependent upon this plant community.

The effects of proposed actions under this heading would not result in an impairment of park resources or values.

## Impacts from Alternative C

### Geology, Soils, and Air Resources

The effects on air and geological resources would be the same as in Alternative B.

### Soundscape

The effects on soundscape would be the same as in Alternative B.

### Water Resources

The effects on water resources would be the same as in Alternative B.

### Vegetation

The effects on vegetation would be the same as in Alternative B.

### Wildlife

The effects on wildlife would be the same as in Alternative B.

## Effects on Agricultural Resources

### Methodology and Assumptions

Available information was obtained through relevant literature, best management practices, monitoring, consultation with the public and interdisciplinary teams. Impacts were assessed using best professional judgment and the following criteria to define impact intensities:

Negligible:	Agricultural operations would not be appreciably affected.
Minor:	The effect would be perceptible, and the action would result in a slight change in agricultural operations, but the change would be localized.
Moderate:	The effects would be apparent, and the action would result in a limited change in agricultural operations.
Major:	The effects would be readily apparent or widespread, and the action would result in a substantial change in agricultural operations.

The area of analysis for cumulative impacts was defined as the Puget Sound region.

## Impacts from Alternative A

### Analysis

#### Protection of Agricultural Lands

The retention of agriculture is integral to the preservation of the Reserve and its national significance. According to a 1997 American Farmland Trust study, every state is losing agricultural resources to urban sprawl at approximately one million acres each year (American Farmland Trust 1997: p.3). In general, developed land has more adverse environmental impacts than agricultural land. Water pollution is caused by urban runoff. Water from roofs and paved areas pass into drains instead of naturally filtering into the soil and recharging the groundwater. Septic systems for low density subdivisions can add untreated wastes into groundwater and septic fields can add more nutri-

ent loads than livestock operations. Land development can produce more sediment and heavy metal contaminations than farming and cause non-point pollution and groundwater contamination (American Farmland Trust 1997: p.6).

As noted by Congress, the purpose of the Reserve is to preserve and protect the cultural landscape and to commemorate the history of a rural community significant in Pacific Northwest history. Analysis of land use maps between 1983 and 2000 show a net loss in agriculture of 158 acres or 4 percent during that time (Rottle 2003). (Refer to “Land Use, Agriculture” map, Volume II of this GMP.) This trend is expected to worsen as demand for homes and pressure for subdivision increases.

Continuing to purchase scenic easements to protect valuable agricultural land would create moderate beneficial impacts on agriculture in the Reserve. The approximately 2023 acres of agricultural land protected through acquisition of conservation easements provide a permanent, stable base of farmland for local agriculture. Continuing to purchase scenic easements on valuable farmland would create moderate benefits by further stabilizing the land base of agriculture in the Reserve and on Whidbey Island. However, it is unclear if the rate of protection in Alternative A will be fast enough to counteract the pressure of conversion of surrounding agricultural land to incompatible uses. Often, the high cost of purchasing easements on farmland results in a slow pace of protection (American Farmland Trust 1997: p.18).

Furthermore, continuing current strategies assumes that the emphasis would still be on the acquisition of conservation easements as money is made available from the Land and Water Conservation Funds. The fact that acquisition of easements are tied directly to the availability of these funds may be beneficial (if money is forthcoming) or adverse (if money with less than expected or withheld) and could be short-term to long-term. However, even when funding is available, easements often can't be negotiated fast enough to effectively preserve agricultural lands.

Under this alternative, through easement language

and enforcement, the limits of acceptable change on key agricultural parcels would be defined. These limits of acceptable change would include defining various types of crops and agricultural uses that help maintain the landscape and preserve the landscape character while providing the necessary flexibility to allow agriculture in the Reserve to adapt to change and remain economically viable. Revising easement language is important as new information is learned from previous easement management and would be beneficial for future easement management.

Maintaining the former Engle Farms in agricultural use would have direct beneficial impacts on preservation of agricultural land as well as soil health, the reduction of exotic weeds and erosion. Expert input from governmental and private farming specialists would have direct beneficial impacts on soil retention and fertility.

Best agricultural practices include the use of cover crops. Eolian processes (wind erosion, transport, and deposition) would continue to seasonally affect plowed fields, road cuts, eroding bluffs, trails exposed to prevailing winter winds, and unpaved farm roads. These impacts would range from negligible to minor, depending upon such factors as soil moisture, wind intensity and duration, and precipitation.

## Prime and Unique Soils

In August 1980, the Council of Environmental Quality directed federal agencies to assess the effects of their actions on farmland soils classified as prime or unique by the Natural Resource Conservation Service of the U.S. Department of Agriculture. Prime and Unique Soils, including State Important soils, make up 74 percent of soils within the Reserve: prime (unconditionally) – 15.95%, prime (conditionally) – 42.53%, statewide importance – 15.21%. The fertile soils in the Reserve have been farmed for hundreds of years and manipulated for perhaps a thousand years or more. The emphasis in the Reserve on the retention of agriculture and on acquiring conservation easements on farms would be a long-term, direct benefit.

However, the slow but steady trend in central Whidbey to convert farmland to residential use would be expected to continue. Without addi-

tional measures to protect agriculture, limit development densities, and cluster development to preserve farms, prime and unique soils would continue to be lost. In addition, the federal government owns very little in either fee or in easement, which also limits the amount of control of development within the Reserve.

For additional detail, see “Effects on Natural Resources: Geology, Soils and Air Resources.”

## **NPS-Owned Farms**

Alternative A will promote the active use of prime farmland through leasing and other means after the ultimate disposition of Farm I and Farm II. Being federally owned, the land would be managed consistent with NPS requirement for IPM, green management practices, and other best practices. Before exchanging the former Engle Farm properties, the NPS would encumber the properties with conservation easements that would provide long-term, direct benefits to the Reserve. These beneficial impacts include protecting the significant cultural landscape features on the sites; protecting the land from subdivision and uses that are incompatible with sound agricultural practices; protecting the exterior facades of contributing structures, as possible on both Farm I and Farm II; and where appropriate, provide pedestrian trail corridors that allow future expansion of a Reserve-wide trail system. These properties would be traded to a private party in exchange for similar easement protections on sites within the Reserve preferably identified as high priority lands, furthering land protection in the Reserve.

Once exchanged, the farmsteads would provide a major positive impact by making available two functional farms containing prime farm land and farmsteads, at farmland prices rather than at development prices. Depending on the terms of the exchange agreement, an exchange could promote innovative farming activities and farm processing which would have a long-term positive impact on the agricultural community.

There would also be short-term moderate adverse effects of retaining ownership and management of the former Engle Farm. These adverse impacts would include using staff time and money to

maintain the buildings and residences. Farms and property owned by the NPS do not generate tax income to the county, which could be perceived as an adverse impact. There are also safety and environmental issues to be addressed such as managing the manure lagoons.

The NPS would continue to retain the West Ridge property in federal ownership, while leasing a 60 acre tract for farming. Making the 60 acres available for farming would provide a moderate positive benefit to the Reserve by continuing the land's agricultural productivity. The NPS would continue to use the Jacob Ebey House and Blockhouse for exterior interpretive exhibits and the Cottage for Reserve administrative function. These different uses of the property could conflict and result in some moderate adverse effects. Active farming practices such as pesticide application could result in some visitor and employee safety issues.

## **Cumulative Impacts**

Agriculture in the Reserve, on Whidbey Island and in the Pacific Northwest is struggling to meet the challenges of rising property values, encroaching and often incompatible suburban land use, rising operating costs (especially housing for farm employees), and fast-changing global markets. Agricultural support businesses such as processing plants and milling operations are in decline and also affect the viability of agriculture in the Reserve. The long distance between farms in the Reserve and processing and support systems, such as farm implement repair facilities, constitutes an additional challenge. Most municipalities lack the power and resources to protect the large areas of land needed to support entire agricultural industries (American Farmland Trust 1997: p. 16).

As agriculture loses ground, farmers become more of a minority and often lose influence in their communities, weakening their political voice especially in local planning and zoning decisions (American Farmland Trust 1997: p. 13). These zoning decisions may be made and implemented without attention to the needs of sustaining viable agriculture.

## Conclusion

Protection of agricultural lands in Alternative A continues to rely on conservation easements which result in moderate benefits by stabilizing the land base of agriculture. However, the high cost and pace of purchasing easements may not be fast enough to counteract the pressure to convert agricultural land which could be a moderate to major adverse impact. Prime and unique soils would continue to be lost if land is converted out of agriculture, a moderate to major adverse impact. Leasing NPS owned farms for agricultural purposes until their ultimate disposition provides a short-term, moderate benefit by retaining land in agricultural production. Disposing of these properties protected by scenic easements in exchange for additional easement protection on lands elsewhere in the Reserve is a long-term major benefit.

The effects of proposed actions under this topic heading would not result in an impairment of Reserve resources or values.

## Impacts from Alternative B Analysis

### Protection of Agricultural Lands

The effects on the overall protection of agricultural lands would be the same as in Alternative A.

In addition, this alternative seeks to develop more active programs and techniques. Establishing a technical assistance program involving all levels of government and other partners would help identify grant programs and tax assistance which both aid farmers and provide short-term, minor to moderate benefits. Establishing a “friends group” would be another long-term benefit to assist farmland preservation efforts.

The Reserve staff would explore and encourage the use of innovative agricultural product development techniques that would have beneficial, short to long-term effects (See *Farmland Preservation Case Studies* and *Farmland Preservation Recommendations* reports by Jones and Jones in Volume II of this GMP/EIS). The only adverse impact would stem from having farmers risk new tech-

niques that may not be as successful or as financially rewarding as earlier efforts.

### Prime and Unique Soils

Reserve staff would take a greater role working with other partners to prevent the loss of prime and unique agricultural soils. Having greater visibility on this issue would be an indirect benefit to prime and unique soils by educating the public about loss of important agricultural soils and a direct benefit by helping farmers retain important agricultural lands.

For additional detail, see “Effects on Natural Resources: Geology, Soils and Air Resources.”

### NPS-Owned Farms

Impacts from short-term leasing and ultimate disposition of NPS-owned farms are the same as Alternative A.

Providing limited maintenance work to the historic structures (Rockwell House and Reuble Farmstead) by NPS following the Secretary of the Interior’s Standards, would result in a short-term financial impact to the federal government but long-term moderate benefits to important cultural resources.

Retaining approximately one acre at Farm I for a kiosk, trail connection, and limited parking would have moderate benefits by providing a trail connection for visitors and additional information about the agricultural heritage of the Reserve.

### Cumulative Impacts

In addition to the impacts outlined in Alternative A, Alternative B has greater emphasis on promoting agriculture, agricultural processing and innovative marketing strategies that could benefit a wider range of farm types over an area larger than the Reserve. New markets and stronger partnerships with agriculture-related industries could form as a result of this effort and would have a positive impact on the broader Whidbey Island community.

## Conclusion

Alternative B’s additional emphasis on promoting



agriculture, agricultural process and innovative marketing would provide additional benefits to agricultural resources in the Reserve. Retaining one acre at Farm I would benefit the Reserve by providing an opportunity for increased trail connections.

The effects of proposed actions under this topic heading would not result in an impairment of Reserve resources or values.

## **Impacts from Alternative C**

### **Protection of Agricultural Lands**

The effects on overall protection of agricultural land are the same as Alternative B.

### **Prime and Unique Soils**

The effects on prime and unique agricultural soils would be the same as in Alternative B.

### **NPS-Owned Farms**

Alternative C calls for the NPS to retain the Reuble Farmstead and approximately five acres surrounding the structures for Reserve use. While the remaining land would be available for exchange as in Alternative B, the structures on approximately five acres specified at Farm II would be excluded from any lease or disposition. Retaining this portion of the property would be a moderate to major benefit by providing existing facilities that meet the space needs for Reserve administration, maintenance, storage, and other operational functions. Adaptively re-using the structures would also benefit the Reserve by eliminating the need to find facility space elsewhere in the Reserve and would avoid potential impacts at another location. As the buildings are restored to Secretary of the Interior's Standards, the restoration projects could provide a preservation training opportunity for other Reserve partners, parks, students, and the general public. These educational opportunities would have an indirect benefit to the Reserve by enhancing awareness of preservation and rehabilitation techniques.

A moderate, long-term impact would result from this action in that retaining the structures for Reserve functions removes a farmstead from its tra-

ditional use. However, the surrounding acreage would still be available for exchange to a private farm operator.

## **Cumulative Impacts**

Cumulative impacts would be the same as Alternative B. Partnerships and general agricultural preservation are strengthened. While the conversion of the Reuble farmstead from family farm to Reserve use does add to the trend of conversion of farming structures to other uses, the property would be protected from neglect and removal.

## **Conclusion**

Impacts related to the general protection of agriculture are the same as Alternative B. Retaining the Reuble Farmstead and five acres for Reserve functions provides several moderate, long-term benefits. Some buildings would be rehabilitated to Secretary of the Interior's Standards, and the projects could be used as training opportunities to enhance awareness and technical abilities related to historic preservation. Adaptively re-using these buildings also has long-term benefits by providing for the space needs of Reserve administration, maintenance and operations while maintaining the cultural landscape. However, while this adaptive re-use does contribute to the conversion of farming structures to other uses, it is not an incompatible action in the Reserve where properties are not "frozen in time."

The effects of proposed actions under this topic heading would not result in an impairment of Reserve resources or values.

## **Effects on Visitor Experience**

The following discussions on the visitor experience cover the effects on visitor understanding of the Reserve's resources (interpretation, education, and outreach), recreational resources and scenic resources.

## **Methodology and Assumptions**

To evaluate the potential impacts on the visitor experience from each alternative, information gath-

ered from the Reserve's 1995 visitor survey was used, along with relevant data from Washington State Parks, Island County, town of Coupeville, and public comment during the planning process. For analysis purposes, impact intensities for all visitor experience topics were defined as follows:

Negligible:	Impacts would be barely detectable, affecting the experience of few visitors in the applicable setting.
Minor:	Impacts would be detectable, affecting the experience of many visitors in the applicable setting.
Moderate:	Impacts would be readily apparent, affecting the experience of the majority of visitors in the applicable setting.
Major:	Impacts would be severely adverse or exceptionally beneficial, affecting the experience of nearly all visitors in the applicable setting.

The area of analysis for cumulative impacts on visitor experience is the greater Seattle metropolitan area, including Whidbey Island.

## Impacts from Alternative A

### Analysis

#### Interpretation and Education

Many visitors stopping at waysides, the primary interpretive sites, are educated about the Reserve. Waysides would continue to be maintained to NPS standards and others would be created in the future, based on need and funding availability. This expansion would add to the interpretive capabilities to educate the visitor about the Reserve and have a beneficial effect. However, the ability to expand the waysides and present new interpretation has limitations.

The nonprofit Island County Historical Museum would continue to be used as the "de-facto" Reserve visitor center. The advantages of partnering with the museum allow the Reserve to use a small rent-free space (100 square feet). Visitors who may not know about the Reserve would be able to pay a fee and learn about it through this exhibit and by

viewing two available videos. The fee requirement may cause a minor, adverse impact. However, visitors can receive free information on request about the Reserve without paying to enter. The museum does not have any signing showing that the Reserve does, in fact, maintain an exhibit there which could be confusing for some visitors.

### Cumulative Impacts

In the greater Seattle metropolitan area, the Reserve offers a unique opportunity for visitors to experience and learn about the significance of natural, cultural, and agricultural resources and their importance in Pacific Northwest history. Interpretive facilities are also available on Whidbey Island at Deception Pass State Park; however, these programs generally focus on the Civilian Conservation Corps (CCC) era activities. In contrast, the Reserve addresses a broader theme of the continuum of exploration, settlement and agriculture in Pacific Northwest history, and the value of this cultural landscape today. Reduction of either program could result in moderate adverse impacts to visitors seeking interpretive and educational opportunities in the area.

### Conclusion

The maintenance and expansion of waysides, depending on funding availability, has a minor beneficial effect. Using the Island County Historical Museum has minor adverse impacts that result from an entrance fee and the lack of any signs advertising the Reserve's exhibit.

The effects of proposed actions under this topic heading would not result in an impairment of Reserve resources or values.

### Recreational Resources

The Reserve staff would continue to work with partners to maintain the existing hiking, biking, and horse trails within the Reserve. One of the most challenging issues for the recreational user in the Reserve are the differing and sometimes contradictory policies on allowable uses and activities, depending upon the land management agency or organization. For example, within the same trail system, a trail segment may allow dogs on leashes, while other segments may exclude them outright.

Paragliding is allowed at one of the state parks, but not the others within the Reserve.

In the No Action Alternative, Reserve staff would work with partners to develop standards and locations for uses within the Reserve, such as mountain biking, paragliding/parasailing, personal watercraft, model airplane flying, among others that have the potential to adversely impact the historic, scenic and natural resources (including natural quiet) that currently exist in the Reserve. These actions would have long-term, minor to moderate, direct beneficial effects for the recreational user. However, they may appear to be long-term adverse effects by some users who will be restricted by what activities they can participate in and where those activities can occur.

Alternative A would also implement a sign plan for trails, for use by all partners with trail linkages to a greater Reserve-wide trail system. This action would provide consistency and continuity for trail users throughout the Reserve. The implementation of a sign plan adopted by all the partners would have short-term minor impacts resulting from the cost of making signage consistent, but overall the action would be considered beneficial to the Reserve.

Though recreational personal watercraft (PWC) use within Penn Cove is infrequent at this time, the Trust Board would encourage appropriate guidelines and enforcement of town speed limits to be addressed for future use. PWCs can negatively impact the natural quiet of an area. Machines can travel up to 50 miles per hour and be a source of pollution. Unburned fuel is usually emptied into the water from two-stroke engines which could affect the quality of water in Penn Cove. In some populated areas, reported accidents have tripled (Kelly 1997).

Coupeville's Comprehensive Plan for Parks, Recreation and Open Space states a goal (PR 1.5) to "develop an ordinance to protect the serenity and safety of Penn Cove by establishing a speed limit in Coupeville waters." Creating guidelines and/or passing an ordinance would be a beneficial, long-term effect for helping limit noise, potential pollution, and boating conflicts. Regulating use may cause some short-term, minor impacts to current

users who may find the regulations limit their use and enjoyment.

Under this alternative, the NPS would continue to print, distribute and revise as necessary all of the interpretive brochures that enhance a visitor's understanding and enjoyment of the Reserve, including the driving/bicycling tour, the walking tour of Coupeville, and the naturalist's brochures, among others. These tours would be promoted by the partners and others to better distribute the information to Reserve visitors. This contribution would enhance efforts by all the partners and other organizations interested in visitor services and opportunities in the Reserve and be a long-term benefit of negligible impact overall. There is a potential that some individuals or organizations, hoping to create fee-for-service tours throughout the Reserve, would view the promotion of self-guided materials as a threat to their business opportunity. They might view the availability of free walking tours and driving/bicycling tours to the public as a loss of potential business. However, as tourism grows in central Whidbey, so too will the need for a variety of personal and non-personal services and activities available for the diverse visitors to the Reserve.

The Trust Board would also continue to support opportunities for passive and leisure activities in the Reserve, including photography, antique shopping, painting, and other pursuits. This action has no impacts on the Reserve's recreational resources and conforms with the town's residents' desires to promote tourism.

## **Cumulative Impacts**

Continuing growth in the county and increasing numbers of visitors to the Reserve will continue to demand more recreational opportunities, some of which are unknown to park management at this time. The town's and county's surveys indicate that as the population increases, so will the demand on recreational resources and the need for opportunities; 56% of Coupeville residents think that as growth occurs, the town will become a less desirable place to live. These demands have the potential to adversely impact the Reserve if not undertaken in a consistent and cohesive manner amongst the partners, all of whom have different

missions and visions for the Reserve. Trends in recreation require new activities to be considered while maintaining availability for the tried and true, such as waterborne activities (such as paddling and boating), passive activities (such as photography, painting, and shopping), walking and hiking, beachcombing, bicycle riding, car touring, and fishing, among others. The Reserve does not know what will be requested in the future and for how long certain activities will be popular, as activities now popular (such as geo-caching) may become a passing fad.

The Reserve also offers a few opportunities for camping on Whidbey Island which is generally very limited. Overnight camping facilities are also available at Deception Pass State Park, South Whidbey State Park, and some recreational vehicle (RV) access is available in Oak Harbor. Reduction of any of these camping opportunities could result in moderate adverse impacts to visitors seeking an overnight camping experience.

## **Conclusion**

The actions called for in Alternative A, including maintaining existing trails, implementing a sign plan for trails, and printing and distributing interpretive brochures would result in long-term beneficial impacts for visitors to the Reserve enjoying recreational resources and opportunities. Encouraging appropriate guidelines and enforcement of town speed limits for personal watercraft use would have long-term benefits by promoting safe recreation opportunities, however, these watercraft can be a point source of pollution and have minor adverse impacts to natural quiet. Regulations of personal watercraft use may be viewed as an adverse impact by current users.

The effects of proposed actions under this topic heading would not result in an impairment of Reserve resources or values.

## **Scenic Resources**

Many of the scenic views in the Reserve are also historic views. Historic views contribute to the significance of the landscape. These views can be treated as tangible resources and are identified using the historical record and are based on charac-

ter-defining features of the cultural landscape. Fifteen contributing views have been identified in the National Register nomination that documents the contributing resources of the historic district.

The Trust Board would continue to encourage others to maintain historic views, protect scenery and open space, and minimize visual impact of new development. This would be accomplished mainly by education of landowners and working with the Reserve partners. Since these actions are voluntary, there would be no adverse impact to the property owners. If measures are not implemented, there could be moderate to major adverse impacts to the historic views. The NPS would continue the acquisition of conservation easements by willing sellers to the NPS and include easement language that would address the scenic quality of the landscape as funds became available. Keeping the historic and rural character of the Reserve as mandated by Congress would be a long-term, direct, beneficial effect.

## **Cumulative Impacts**

Continued development on Whidbey Island and throughout the Seattle metropolitan area, coupled with zoning regulations of five acre parcels, could cumulatively impact the scenic resources of the Reserve. The introduction of more modern elements to the Reserve (such as new homes and additional traffic) could adversely affect the Reserve's ability to speak to another time and place in Pacific Northwest history. One of the key messages of the Reserve is that it has not changed very much in the past 150 years, unlike the rest of Whidbey Island and the Pacific Northwest. The addition of modern homes and other developments could potentially threaten the integrity of the scenic resources in the Reserve.

## **Conclusion**

Relying on voluntary landowner action to maintain historic views, protect scenery and open space, and minimize visual impact of new development could result in moderate to major adverse impacts to scenic resources if measures are not implemented. The NPS would continue to acquire conservation easements by willing sellers that include provisions to address scenic resources pro-



viding long-term, direct benefits.

The effects of proposed actions under this topic heading would not result in an impairment of Reserve resources or values.

## **Impacts from Alternative B**

### **Analysis**

#### **Interpretation and Education**

As mentioned in Alternative A, limited visibility of the Reserve is an issue that the GMP seeks to address. In Alternative B, facilities and other actions are developed which serve to promote the Reserve through interpretation, education and outreach. For example, the development of a long range interpretive plan by NPS staff would have beneficial effects by coordinating overall interpretive planning for the Reserve. New waysides could be added if it is determined they are needed. When implemented, detailed compliance work would need to be undertaken.

Updating the Reserve's exhibit at the Port Townsend Ferry Landing would be beneficial in the short and long-term. Visitors already have difficulty knowing and finding information about the Reserve. This exhibit would provide another opportunity to reach visitors before they arrive on Whidbey Island. Constructing three gateway contact facilities within the Reserve at the major entry points would also be beneficial in "capturing" visitors who might otherwise drive through the Reserve without realizing it. This would allow an opportunity to provide literature, maps, and if staffed (dependent upon availability of funding), personal contact to visitors. Use of volunteers would offset finances that would otherwise be needed to staff the facilities.

A Reserve visitor center/contact station would provide more space than is now available in the Island County Historical Museum. Classroom space would be provided including an area for showing films about the Reserve. All of these actions would be beneficial. The center could also incorporate administrative space, in which case the offices in the current administration building may be relinquished or put to some other use. A centrally lo-

cated visitor center and administrative offices, preferably in a historic building, would be beneficial in that it would be in close proximity to most visitors and other government offices and services. Rehabilitating the Jacob Ebey House for visitor use would also create additional interpretive opportunities for the visitor to understand the early history and settlement of Washington State.

Providing a Reserve volunteer coordinator and education specialist would be beneficial in fostering long and short-term volunteers and support for the Reserve, and at times, providing financial help for projects. The development of field schools, interpretive exhibits, workshops or programs with Reserve partners would be beneficial in providing the community and visitors with much needed educational opportunities, information about the Reserve, historic preservation and the importance of agriculture.

Developing a new handbook with real estate companies would be beneficial in letting perspective buyers know that properties are within a unit of the National Park System. It would be beneficial in educating owners early on about the responsibilities and opportunities that this represents. In addition, it would alert homeowners to the importance of agriculture and agricultural practices that may impact their lives on a daily or seasonal basis (such as noise, odors, etc).

### **Cumulative Impacts**

The addition of a visitor center/contact station and expansion of educational programs would have positive cumulative impacts to interpretation and education opportunities on Whidbey Island. The visitor center/contact station would provide visitors with a focused destination to receive information on programs offered not just in the Reserve but at other locations, strengthening public awareness and understanding of all opportunities on Whidbey Island and beyond.

### **Conclusion**

Development of facilities, waysides, and updating the Reserve wayside at the Port Townsend Ferry Landing provide direct benefits. Providing a centrally located visitor center/contact station in a

historic building also has direct benefits. The increased emphasis on expanding outreach for interpretation and education provides long-term indirect benefits by improving understanding on the significance of the Reserve.

The effects of proposed actions under this topic heading would not result in an impairment of Reserve resources or values.

## **Recreational Resources**

Alternative B calls for the same actions as Alternative A, with enhanced cooperation among other organizations for recreational opportunities and pursuits on those privately owned lands in the Reserve. Private groups including AuSable Institute, The Nature Conservancy, Seattle Pacific University (Camp Casey), and Whidbey Camano Land Trust, to name a few, would be contacted to pursue public, self-guided nature and walking trails on their lands. Reserve staff would partner with Island County and others to develop a water trail around Whidbey Island and link to existing Puget Sound and Washington State marine trails. This trail is consistent with the desire for County residents to gain more access to shorelines around Whidbey Island. Most of these actions would involve privately owned, non-NPS lands in order to make important connections throughout the Reserve. Property owners may perceive this action as a threat to their shoreline property and consider it a long-term adverse impact. If the goal was to create a marine trail without impacting privately-owned lands, then this action would have moderate long-term beneficial impacts to the Reserve.

Under Alternative B, a system of monitoring recreational use would be developed by Reserve staff in conjunction with partners to continually evaluate the impacts of certain recreational activities on visitor experience, safety, environmental quality, and community character. If adverse effects on a visitor's experience are identified, this monitoring system would develop measures to mitigate these negative effects and consider safety, environmental quality, and community character within the context of visitor experience. Monitoring trail use would enable managers to determine if certain trails should be repaired or closed. If there are

conflicts between recreational uses, guidelines for uses would be established which would be a long-term, moderate, beneficial effect. This monitoring system would have long-term beneficial impacts on recreational resources, but may be considered by some to be negative if their activities in the Reserve are curtailed or limited in any manner.

The driving/bicycling tour would be expanded into the northern portion of the Reserve, requiring revisions to the existing tour route and additional signage. This expansion would enhance a visitor's experience in the Reserve as they would expand their knowledge of the area and see areas they might not have explored on their own. Safety and signage would be of concern in expanding the route, and the addition of signage delineating tour routes might be considered by some to be a minor, adverse impact to the cultural landscape because it could result in what some call "visual clutter" along the roads.

Reserve staff would help to provide or enable interpretive training for volunteers and private tour operators about the recreational, historical and natural resources of the Reserve. The 1995 NPS visitor survey prepared by University of Washington informed management that people most enjoyed exploring the forts in the Reserve's two state parks, followed by beach activities. Nearly three-quarters of those surveyed said they visited historic Coupeville, nearly half visited Fort Casey State Park, followed by the Coupeville Wharf, Fort Ebey State Park, the lighthouse, and Camp Casey. These are all non-NPS owned properties and it is expected that these sites would continue to be the most popular attractions. In addition to providing training on activities, Reserve staff should update the socio-economic study first undertaken in 1995 to determine how much money visitors spend in the Reserve and on what activities. Both actions noted above would have long-term beneficial impacts on a visitor's recreational experience and provide the data needed to approach partners in sharing more of the operational costs of managing the Reserve (University of Washington 1995).

## **Cumulative Impacts**

Continuing growth in the county and increasing numbers of visitors to the Reserve will fuel the de-

mand for more recreational opportunities, some of which are unknown to park management at this time. These demands have the potential to adversely impact the Reserve if not undertaken in a consistent and cohesive manner amongst the partners, all of whom have different missions and visions for the Reserve. There will always remain potential threats from unregulated private business operators who lead tours or other activities through the Reserve and may misinform visitors. Some of these operators, not very knowledgeable about the Reserve, arrive in oversized or inappropriate vehicles to tour the Reserve and can adversely impact the local community. As time passes, the cultural landscape of the Reserve will become even more significant to the nation, and may result in the community having the perception they live in a fishbowl, a place where others visit to observe “how people live” in this historic community.

## Conclusion

Establishing a recreational monitoring system would have long-term beneficial impacts on recreational resources. Enhancing cooperation among partners to develop a water trail around Whidbey Island with linkages to existing marine trails would be a moderate, long-term benefit. Some private property owners may view the trail as a threat if proposals suggest traversing their land. Overall, the actions proposed in Alternative B will have beneficial effects and minor impacts on the recreational resources of the Reserve.

The effects of proposed actions under this topic heading would not result in an impairment of Reserve resources or values.

## Scenic Resources

The effects on scenic resources would be the same as in Alternative A. In addition, the Reserve staff would develop a design guidelines handbook for property owners to help guide site development that is in harmony with the landscape. Implementing these guidelines would be voluntary but could provide a direct, moderate, beneficial impact by educating homeowners on basic design and general siting principles. Reserve staff would also work with the town and county in developing a

viewshed map from Coupeville across Penn Cove which could be used to acquire voluntary conservation easements from willing sellers. This action could be viewed by some homeowners as threatening to their private property land ethic.

The Reserve staff would also partner with town and county officials to enhance the roadside areas within the Reserve. This partnership would have a beneficial scenic impact on beautifying the roadways along which visitors view the Reserve. Reserve staff would use native plants. The areas would first need to be surveyed to be sure that important existing native species would not be adversely impacted.

Clustering provisions and the development of an overlay zone would be encouraged in Island County’s zoning codes so that more open space is available for viewing. This potential open space would also be beneficial for plant and animal habitat.

## Cumulative Impacts

The expanded partnerships would be an added benefit to the cumulative impacts identified in Alternative A by elevating visibility of the Reserve and protecting scenic resources critical to the preservation of the cultural landscape.

## Conclusion

Creating a design guidelines handbook for property owners in the Reserve would provide a moderate, long-term benefit by educating existing and new homeowners on design and siting principles. Developing a viewshed map would also be a minor to moderate benefit and could be a useful tool to acquire voluntary conservation easements from willing sellers. Development of clustering provisions and an county overlay zone would be helpful inguiding future development to preserve open space. Some minor adverse impacts could result if property owners view these actions as potential threats to their private property.

The effects of proposed actions under this topic heading would not result in an impairment of Reserve resources or values.

## Impacts from Alternative C

### Analysis

#### Interpretation, Education, and Outreach

The effects on interpretation, education, and outreach would be the same as in Alternative B. In addition, having a historic facility serve as a northern gateway contact facility in the San de Fuca area would provide additional visitor interpretation and education and maintain a historic building. This additional site would be an added beneficial effect on the visitor experience and a place to serve as a formal entry into the Reserve.

Interpretation would also be expanded through a co-managed visitor center with partners in historic Coupeville and the jointly managed visitor contact facility at a proposed marine science center. The visitor center in Coupeville could also provide space for curatorial storage. The partner would manage and operate the center and develop educational curricula and programming. The Commission could support the center by helping to develop exhibits related to Reserve ecology and marine environments. These three facilities dedicated to visitor contact and education would be a moderate long-term benefit by attracting more visitors into the Reserve and enhancing the potential to tell the Reserve stories and associated natural science. Programs could be expanded and enhanced which would be a positive effect on interpretation.

Securing space for visiting researchers and lectures, and sponsoring “artists in residence” programs would allow the Reserve to attract interesting and important people with expertise on the Reserve, providing additional programs for the community at large.

In Alternative C, all staff are employees of a paid Commission, rather than maintaining some NPS staff. With this staffing change, there would be no presence of NPS uniformed employees. The lack of NPS uniforms may affect visitor’s understanding of the Reserve’s place as a unit of the national park system and its national significance which would be a moderate adverse effect.

## Cumulative Impacts

The cumulative impacts are the same as Alternative B.

### Conclusion

The addition of a gateway contact facility in a historic building, participation in development of a marine science center with others, and securing a visitor center/contact station in Coupeville would be a moderate benefit by providing an additional opportunity for visitor interpretation and education and maintain a historic building. Securing space for visiting researchers and lectures would provide benefits through additional programs for Reserve visitors and the community at large. The lack of any uniformed NPS employees serving the Reserve under Commission management may affect understanding of the Reserve as a unit of national significance within the national park system. The NPS uniform is a powerful interpretive tool, and loss of NPS uniformed rangers would be a moderate adverse impact.

The effects of proposed actions under this topic heading would not result in an impairment of Reserve resources or values.

### Recreational Resources

The impacts on Recreational Resources would be the same as in Alternative B.

The effects of proposed actions under this topic heading would not result in an impairment of Reserve resources or values.

### Scenic Resources

The impacts on Scenic Resources would be the same as in Alternative B.

The effects of proposed actions under this topic heading would not result in an impairment of Reserve resources or values.

## Effects on Reserve Facilities

### Methodology and Assumptions

To analyze the effects on the alternatives on facili-



ties, all information on facilities in the Reserve was compiled.

Negligible:	The effect would be barely detectable, and/or the public would not be affected.
Minor:	The effect would be slight, but detectable, and/or the public might be affected.
Moderate:	The effect would be readily apparent and/or the public would be affected.
Major:	The effect would be severely adverse or exceptionally beneficial and/or the public would be affected.

The area of analysis for cumulative impacts is defined as the Reserve boundary and Whidbey Island.

## Impacts from Alternative A

### Analysis

#### Visitor Facilities

The Island County Historical Museum would continue to serve as the Reserve's visitor center. No new facilities would be proposed, therefore, there would be no facility impacts.

#### Administrative Facilities

Keeping the administrative headquarters in the Cottage at the edge of Ebey's Prairie would be positive in the short-term in that the space is adequate. The location is close to Coupeville's town center but does not allow for a visible "town presence". The natural resources management office would remain at the former Engle Farm. Maintaining two office locations is a minor adverse impact in that it may not be as efficient as having a single location. The physical presence of Reserve staff at Engle Farm is a moderate benefit to both the public and partners by providing communication and overseeing building security. Lack of toilets or portable water is a minor short-term adverse effect.

#### Maintenance Facilities

The Reserve would continue to use the Reuble

Farmstead cluster at Farm II for a maintenance facility until the farm is exchanged. In the short-term, there would be no impacts as the structures exist and adequately meet the needs of the maintenance program. Depending on the terms of the farm disposition, the farmstead cluster could be retained to continue the maintenance operation yielding a moderate to major long-term benefit. However, if the site is no longer available, an alternative site would need to be located that would adequately meet the needs of the maintenance operation (Belcher and Holmquist 2004).

Impacts related to locating an alternative maintenance facility would depend on the site selected and would need to be assessed at that time. Locating in an existing facility would be the most beneficial in that less construction with accompanying noise, dust, and disruption impacts would occur. However, there would be more cost associated with providing some type of maintenance facility, which would be a negative financial impact.

Locating in a new facility or an undisturbed site would cause environmental effects such as clearing of vegetation, site grading, and construction. These actions would be a minor, short-term adverse impact on both flora and fauna. New construction would follow NPS guidelines and management policies for lightscape, energy conservation, greenbuilding, sustainability principles, protection of important resources, and re-planting with native plants.

### Conclusion

No impacts are related to visitor facilities. The current administrative facilities outside of Coupeville limit the "visibility" of the Reserve and the multiple locations create some inefficiency and a minor adverse impact. The Reuble farmstead cluster at Farm II currently in use as a maintenance facility is adequate for the operation, creating no short-term impacts but potential moderate impacts in the long-term if the facility was relocated.

The effects of proposed actions under this topic heading would not result in an impairment of Reserve resources or values.

## Impacts from Alternative B

### Analysis

#### Visitor Facilities

A Reserve visitor center/contact station would be developed in partnership with others such as the Chamber of Commerce in Coupeville. An existing historic building would be sought in a centrally located place for visitors to get information about the Reserve. This location selection would be in accordance with Executive Order 13066 which encourages the location of Federal facilities within historic districts and historic buildings. Locating the Reserve's visitor center/contact station in a historic building in Coupeville would be beneficial in the long-term in that a historic structure would be maintained to the Secretary of the Interior's Standards. Furthermore, using an existing building would have fewer impacts than constructing a new building. Depending on the building selected, some alterations or renovation could be required, resulting in some minor short-term noise and dust impacts. Staging for construction may limit available visitor parking spaces for the short-term depending upon where the visitor center is located.

Three gateway contact facilities would be developed at important entry spots within the Reserve. The effects of this development would be minor during clearing and construction of kiosks. Construction would clear approximately one acre of land, which would be a minor short-term impact on both animals and plants. An area with federal, state, or locally important plants would be avoided, or the impacts minimized by boardwalks or fencing. There would be some short-term noise and dust impacts during construction. Bathrooms may be constructed at the south entry which would be a moderate long-term benefit to visitors stopping for information. Detailed compliance with site-specific impact analysis would need to be completed prior to the construction of these gateway contact facilities.

#### Administrative Facilities

Administrative space in the short term would be the same as in Alternative A.

Long term administrative facility needs would be

addressed by securing administrative space in Coupeville, preferably in an historic building and in conjunction with a visitor center/contact station if possible. Centrally located administrative offices would be beneficial in that the offices would be in close proximity to most visitors and other government offices and services. This action would be in accordance with Executive Order 13066 which encourages the location of Federal facilities within historic districts and historic buildings. Furthermore, locating a facility that could accommodate both a visitor center/contact station and administrative offices would be a long-term moderate benefit by concentrating impacts and building maintenance in one location.

#### Maintenance Facilities

Impacts to maintenance facilities are the same as Alternative A.

### Conclusion

Re-locating the visitor center/contact station and constructing three new gateway facilities would have minor short-term adverse impacts to resources during construction but would provide moderate long-term benefits to Reserve visitors. Locating the visitor center/contact station in a historic building would be a long-term moderate benefit by providing maintenance to the Secretary of the Interior's Standards to an additional historic structure. While the short-term impacts to administrative facilities are the same as Alternative A, the long-term relocation of administrative facilities to an existing location in Coupeville offers moderate benefits by providing a central location that is more visible to both the public and Reserve partners.

The effects of proposed actions under this topic heading would not result in an impairment of Reserve resources or values.

## Impacts from Alternative C

### Analysis

#### Visitor Facilities

Impacts to visitor facilities are the same as Alternative B, plus the Reserve Commission and staff

would encourage a partner (such as Au Sable Institute, or Seattle Pacific University's Camp Casey) to develop a marine center at a suitable location, such as the Coupeville Wharf. Co-managing with partners would be a long-term benefit and enable all partners to share the cost of operating and maintaining the center.

If a marine center was to be developed at any location, the appropriate environmental compliance document would be produced in accordance with the National Environmental Policy Act. This document would examine site specific impacts related to development of a marine center. These impacts would be mitigated depending upon the nature and extent of the impacts. Development of a marine science center at a location like the Coupeville Wharf would not be expected to cause adverse impacts since it would be developed on an existing pier. However, if changes were needed in that structure or to the docks associated with it, additional compliance would be needed. This additional compliance would be with the Washington Coastal Zone Management Act, Section 404 of the Clean Water Act for permitting in coastal waters, and other permits as required by Coupeville or Washington State.

### **Administrative Facilities**

The short-term impacts from administrative facilities are the same as Alternative A.

Long term administrative facility needs will be achieved through adaptive reuse of the Reubel farmstead located on an NPS retained five acre tract at Farm II. Concentrating both administrative and maintenance facilities in one location would be a moderate benefit to the Reserve staff. Additional efficiency and cost-saving could result, although the Cottage would continue to support additional resource staff. Locating administrative facilities at Farm II could be a minor to moderate adverse impact in that it does not provide the same level of visibility and public accessibility as finding a site in Coupeville.

### **Maintenance Facilities**

Long-term maintenance facility needs will be achieved through adaptive reuse of the Reubel

farmstead and five acre tract at Farm II. This utilization of the structures at Farm II would provide the Reserve a long-term base of operations for maintenance at little start-up cost and afford the opportunity for highly skilled professionals to teach preservation principles in the Reserve. Additionally, the constant presence of workers and employees would enhance security and reduce liabilities associated with trespass.

This action would have a long-term beneficial effect on the maintenance operations in that it would provide a long-term solution to securing space for the maintenance operation needed space for the Commission's maintenance foreman.

### **Conclusion**

Impacts from visitor facilities are the same as Alternative B, plus impacts from partnering to develop a marine science center would be addressed in a separate compliance document. Retaining the five acre tract and buildings at Farm II for both administrative and maintenance facilities provides moderate to major benefits by offering a long-term solution to the space needs for these Reserve operations. However, the location of the administrative facilities at Farm II could be a minor adverse impact by decreasing visibility and accessibility to the public and partners.

The effects of proposed actions under this topic heading would not result in an impairment of Reserve resources or values.

## **Effects on Reserve Management, Operations and Staffing**

### **Methodology and Assumptions**

Park management and operations refers to the current management structure of the Reserve to provide policy direction for the protection, public use and appreciation of the Reserve. Reserve operations refer to the current staff available to adequately protect and preserve vital resources and provide for an effective visitor experience. The discussion of impacts to Reserve management, operations and staffing focuses on: the type of man-

agement structure, the amount of staff available to ensure visitor and resident safety, and the ability of Reserve staff to protect and preserve resources given current funding and staffing levels. Reserve staff knowledge and examples of management structures in other parks was used to evaluate the impacts of each alternative, and the evaluation is based on the current description of management and operations above. Definitions of impact levels are as follows:

Negligible:	Reserve management and operations would not be affected or the effect would be at low levels of detection.
Minor:	The effect would be detectable, but would be of a magnitude that it would not have an appreciable adverse or beneficial effect on Reserve management and operations.
Moderate:	Impacts would be readily apparent and would result in a substantial adverse or beneficial change in Reserve management and operations in a manner noticeable to staff and the public.
Major:	Impacts would be readily apparent and would result in a substantial adverse or beneficial change in Reserve management and operations in a manner noticeable to staff and the public and would be markedly different from existing operations.

## Impacts from Alternative A Analysis

### Reserve Management

The Reserve would continue to have an appointed, nine-member, volunteer Trust Board for the management structure. There would be no monetary incentive for members and the volunteer nature of the Trust Board may make it difficult to recruit some potential candidates, resulting in a moderate adverse impact. The varied composition of the Trust Board, which includes representatives from the town, county, state, and federal levels of government, is a moderate to major ben-

efit in that the interests of all levels of government are represented. However, in some instances membership by appointment may be driven by personal issues instead of qualifications, a moderate adverse impact. The NPS Cultural Resource Specialist/Trust Board position would remain as one position which could cause minor adverse effects due to the demands required of each position.

### Reserve Operations and Staffing

Funding for staffing levels would continue to be inadequate to meet the increased interpretation, administration and resource management needs of the Reserve. Some existing program needs at the Reserve would continue to go unmet by Reserve staff. Other than staffing, there would be no adverse impacts on the Reserve's operations.

Some public meetings regarding land use proposals will continue to occur without comment and/or feedback from the Trust Board and could result in minor to major adverse impacts to the Reserve.

Diminishing funding and staff from the Land and Water Conservation Fund (LWCF) and NPS Lands Division would reduce the Reserve's ability to obtain easements in a timely manner to protect key areas of the Reserve from the pressure of encroaching development. This lack of ability to continue obtaining easements would result in a significant long term adverse impact on the Reserve's values.

### Conclusion

Under this alternative, the inability of the NPS to obtain easements to protect key areas from encroaching development pressures in a timely manner due to inadequate staff and LWCF funding could result in a major long-term adverse impact on Reserve values.

The effects of proposed actions under this topic heading would not result in an impairment of Reserve resources or values.



## Impacts from Alternative B

### Analysis

#### Reserve Management

The effects on Reserve Management are the same as in Alternative A, except that the NPS Cultural Resource Specialist/Trust Board position would be split into two distinct positions. This would be a minor benefit in that the requirements for each position can be realistically met. Having two positions would require more funding which is a negative impact.

#### Reserve Operations and Staffing

In this alternative, like Alternative A, the Reserve Manager would continue to have daily operational responsibilities for the Reserve and would remain a Trust Board employee.

This alternative increases the number of staff positions. These positions are better defined and responsibilities are divided logically between NPS professional staff and Trust Board staff, a moderate benefit to the Reserve. NPS staff positions are those positions that require understanding of federal laws, regulations, and policies; are responsible for federal reporting requirements (such as the Government Performance and Results Act); and focus on areas where the NPS has specific knowledge and technical expertise. Maintaining these federal positions would be a moderate to major benefit to the Reserve by ensuring a direct line of accountability for federal requirements and compliance with federal regulations. Trust Board staff additions provide moderate benefits by helping Reserve management and staff be more engaged in areas such as assisting with local land use knowledge, increasing opportunities for involvement with local land use planning, recruiting volunteers, and educating the public about the Reserve's agricultural heritage. This management split—five NPS FTE and four Trust Board FTE—is a moderate benefit in that it allows for federal and non-federal employees to work collaboratively, retain technical expertise and maximize operational efficiency.

## Conclusion

The effects of Alternative B, by providing additional staff to pursue opportunities to preserve Reserve lands through protective easements, conduct research and interpretation, and historic building preservation and maintenance would enhance park values. Furthermore, the staffing division between NPS and Trust Board employees is a moderate to major benefit by balancing local and national expertise and responsibilities in the interest of the Reserve.

The effects of proposed actions under this topic heading would not result in an impairment of Reserve resources or values.

## Impacts from Alternative C

### Analysis

#### Reserve Management

Management under Alternative C differs from both Alternative A and B. In Alternative C, the Trust Board would be dissolved and a Commission established that would be financially compensated for their services. This Commission would potentially draw members who may be more committed and would be more willing to spend the required time on Reserve issues. Providing compensation may make it financially easier for some to commit time to a position than a volunteer position. Compensated positions may elevate the job in the eyes of the community and provide added credibility yielding indirect, minor, short- and long-term benefits. Compensation may increase the pool of interested persons willing to serve the Reserve. Funding a Commission could also be a benefit by providing leverage to ensure accountability for managing the Reserve.

However, this Commission does present a long-term financial commitment which could adversely affect other aspects of the Reserve. Financially compensating the Commission would result in additional fixed overhead costs and could reduce the amount of funding dedicated to Reserve operations and programs. Further, the sustained fixed costs would reduce flexibility in managing the Reserve during budget cycles. In addition, the funding for the Commission's stipend would come

from the NPS. It may be difficult to guarantee a match of in-kind services from other partners which could result in an adverse effect to the Commission if all partners do not contribute equally. Another minor to moderate adverse impact could result from the Commission being viewed negatively by those who have volunteered and continue to volunteer their time to serve the Reserve and the public.

The time and expense required to educate and train Commission members on NPS regulations and procedures would have moderate adverse effects. This impact would be ongoing and long-term as turnover on the Commission occurs every four years. Establishing a contact at the NPS Pacific West Region to deal with legal or policy issues would take more time than it would in either Alternative A or B with dedicated NPS staff.

## **Reserve Operations and Staffing**

The Reserve Manager would continue to have daily operation responsibilities, but would become an employee of the Commission rather than the Trust Board. The Reserve Manager would supervise the Commission staff and be annually evaluated by the Commission. Eliminating the NPS liaison position and all NPS employees would place additional responsibility on the Reserve Manager and staff to secure funding, complete reporting requirements, and ensure compliance with federal environmental regulations. These additional responsibilities would be a major short-term impact to that position, and could become moderate over time.

While technical assistance and guidance would be available through the NPS Pacific West Region, the full operational responsibility of the Reserve, including all administrative and resource management requirements for managing federal land, would fall on the Commission staff. The lack of dedicated NPS staff with specific professional expertise in natural and cultural resource management, knowledge of pertinent laws and policies, and interpretation of resources would be a major, short- to long-term adverse impact. The cost of training Commission staff to a level that would enable them to fulfill their responsibilities would be a major adverse impact to the Reserve. Further-

more, these costs could be long-term and ongoing if Commission staff turnover is not filled from a concentrated pool of trained professionals, as is the case in the NPS. This training would not only include interpretation and resource management, but all administrative functions and the technical systems that support them (such as PMIS, FPPS, FMSS, MAXIMO, PEPC, and AFS). Some of these systems are used to secure NPS and other funding for projects and operations. The responsibility for securing NPS funding and tracking expenditure that use federal funding (including payroll and procurement) would fall on Commission staff, which would be a moderate long-term impact.

Transitioning to a staff employed by the Commission would be a major, short-term adverse impact to staff in the Pacific West Region offices. There would be a significant reliance on the regional office staff to guide Commission employees as they learn the legal, policy, procedural, and technical requirements of managing federal land, fee and easement interest, and various NPS program areas. This impact could become moderate over time if the Commission is able to sustain a workforce with little turnover.

## **Conclusion**

Replacing the Trust Board with a paid Commission would result in moderate benefits to the Reserve by ensuring Commission members dedicate the time necessary to manage the Reserve.

Replacing the shared staff in Alternative B with Commission staff only would result in major short-term adverse impacts that could become moderate adverse impacts in the long-term. If a high level of staff turnover occurs, these impacts would remain major and adverse. In the short-term, there would be major, short-term, adverse impacts from the cost and time required to train non-NPS Commission employees in the systems and procedures required for park operations. The Reserve Manager and Commission staff would be responsible for ensuring all the administrative and operational aspects of the Reserve which would include all the legal, policy and procedural requirements of maintaining federally owned land, including easement and fee interest, and managing federally funding and program areas. Over time,

with a stable work force, some of these impacts would become moderately adverse as Commission staff gained the necessary levels of proficiency. There is also a long-term, moderate adverse impact from the sustained program oversight responsibility of staff in the NPS Pacific West Regional Office.

The effects of proposed actions under this topic heading would not result in an impairment of Reserve resources or values.

## Effects on Transportation, Access, and Circulation

### Methodology and Assumptions

Road system standards and maintenance influence the amount and type of access to a given area. Use generally increases when road conditions improve and decreases as conditions degrade. In the case of the Reserve (except for some drives and farm roads), roads are public and not under the control of NPS standards and maintenance, but rely on WSDOT and county road design and construction standards. Some of the roads within the Reserve are now undergoing improvements from WSDOT that will result in increased traffic, wider lanes, and impacts to adjacent property. These are impacts that will occur in all of the alternatives.

The same situation applies to trails, which may cross NPS owned properties, but are on a variety of public and private lands. In most cases, proposed parking would be on public streets or in cooperation with an existing organization or land owner.

Negligible:	The effects would not be detectable and would have no discernable effect on the condition of roads and trails and/or traffic flow.
Minor:	The effect would be slightly detectable, but there would not be an overall effect on the condition of roads and trails and/or traffic flow.
Moderate:	Impacts would be clearly detectable, and the action could have an appreciable

effect on the condition of roads and trails and/or traffic flow.

Major:	Impacts would be substantial, with a highly noticeable influence, and the condition of roads and trails and/or traffic flow could be permanently altered.
--------	---

The area of analysis for cumulative impacts is Whidbey Island.

## Impacts from Alternative A Analysis

Circulation around the Reserve is comprised of a public road system and boat travel in and around Penn Cove and the Strait of Juan de Fuca. Most travel occurs on the seven major roads constructed by 1870 to link settlers with Coupeville, the county seat, the markets on Penn Cove and with each other. Between 1983 and 2000, the length of secondary roads increased by 0.7 miles and minor roads increased by 23.2 miles (Rottle 2003). (Refer to "Circulation Network, Changes" map, Volume II of this GMP.) This road development is expected to continue as more subdivision occurs.

Because the roads contribute to the historic integrity of the Reserve, it is important for the Reserve staff to be involved with any highway improvements that might impact the Reserve and potentially change its character. These changes would include road realignment, grade changes, large cut and fill areas, and the addition of retaining walls. Having the Reserve staff coordinate with WSDOT on State Route 20 transportation improvements would have a positive long-term effect. Working with WSDOT and Island County would provide long-term direct and indirect benefits to the Reserve by ensuring that cultural landscape concerns are integrated into road project design and implementation.

Encouraging Island Transit to continue the free bus service through the Reserve would be advantageous to those local visitors with limited income and minimize pollution resulting from motor vehicles. This service could also reduce traffic congestion through the reserve and limit the number

of cars that seek alternate routes to Coupeville using back roads.

## **Cumulative Impacts**

As traffic on State Route 20 continues to grow and bring additional vehicles to the Reserve, and the capacity of the ferry service increases, traffic congestion will increase throughout the Reserve. The regional arterial function of State Route 20 will bring more traffic through the Reserve. In addition, population growth in Central Whidbey contributes to increased traffic. As visitation to the Reserve increases, a greater variety of transportation methods could be apparent in the Reserve (such as bicycling and horseback) and conflicts between these various types of traffic will increase. This conflict would be particularly acute on main arterials traversing the Reserve and State Route 20 and during peak summer season visitation.

## **Conclusion**

The expansion of State Route 20 is the predominant influence on transportation and circulation in the Reserve. Reserve staff involvement in transportation project review will help ensure Reserve characteristics are considered in design and implementation as well as help mitigate cumulative impacts of road projects.

The effects of proposed actions under this topic heading would not result in an impairment of Reserve resources or values.

## **Impacts from Alternative B**

### **Analysis**

The effects on transportation, access, and circulation would be the same as in Alternative A. The addition of a visitor center/contact station would create a demand for more parking in an established area in town. However, shared parking opportunities and available street parking may offset some of this demand. A subsequent implementation plan and compliance document would address site-specific impacts after a location is determined. In addition, an expanded network of self-guided tour routes would provide the visitor additional places to see within the Reserve. Ex-

panding routes may spread out visitation within the Reserve and prevent some potential congestion on nice summer days, though it might also cause additional minor inconveniences to some homeowners who find additional traffic on their roads from being included in the expanded area.

A land and water circulation study would be helpful in identifying potential high use visitation patterns, which would be helpful in managing visitors and assisting in public safety. This study could also identify new trailheads and possible marine trail stopovers, which would provide beneficial effects by enhancing recreational opportunities.

## **Cumulative Impacts**

Cumulative impacts are the same as Alternative A. The expanded tour routes and need for parking generated by the visitor center/contact station would have a negligible effect on cumulative impacts.

## **Conclusion**

Expanded tour routes could have a positive impact on spreading out visitation in the Reserve, minimizing some potential congestion. The land and water circulation study could provide new information to help identify patterns useful in managing visitors and assisting in public safety. The effects of proposed actions under this topic heading would not result in an impairment of Reserve resources or values.

## **Impacts from Alternative C**

### **Analysis**

The effects on parking, access, and circulation would be the same as in Alternative B. In addition, Island Transit providing weekend shuttles would necessitate parking for shuttle users, and transit stations and transit stops. These shuttles would have a moderate short- and long-term benefit by providing visitors with an alternative transportation opportunity to navigate the Reserve. They would also benefit circulation by reducing the number of vehicles on the road in the Reserve. Furthermore, if shuttles used existing transit centers, they could benefit the Reserve by reducing the need to construct parking in sensitive areas.



Additional parking needs and circulation for the proposed north gateway and marine science center would need to be assessed in a subsequent compliance document.

## Cumulative Impacts

The cumulative impacts are the same as Alternative B; however, an expansion of Island Transit shuttles could help reduce the potential transportation conflicts in the Reserve. The shuttle would help separate recreational users from the through traffic passing through the Reserve on main arterials.

## Conclusion

Expansion of transit shuttle service will provide an additional means for traveling through the Reserve and could help reduce potential conflict among visitors in and travelers passing through the Reserve.

The effects of proposed actions under this topic heading would not result in an impairment of Reserve resources or values.

## Effects on Socioeconomics

This section identifies the potential impacts on the population, housing, social condition, employment, and regional economy that might result from implementing each alternative.

## Methodology and Assumptions

To assess socioeconomic impacts of each alternative, the following methods and assumptions were used:

- Estimates of Reserve visitor spending were taken from the 1995 NPS visitor survey and updated assuming an inflation rate of three percent over ten years.
- For the baseline condition, it was assumed that the Reserve's annual operating budget and number of employees would not increase more than ten percent over the next ten years.
- Available information was obtained from relevant literature, consultation with the public, interdisciplinary teams, local organizations and government staff. Impacts were assessed using best professional judgment and the following

criteria to define impact intensities

The following thresholds were defined for analyzing impacts to socioeconomic conditions.

Negligible:	No changes would occur, or changes to socioeconomic indicators (population, employment/unemployment rate, per-capita income, property, values; poverty level, crime rates, characteristics, quality and satisfaction of visitors' experience, or effects on the rural character within the Reserve) would be below or at the level of statistical error (about three percent) and, if detected, the effects would be considered slight and short term.
Minor:	There would be increases in the number of visitors to the Reserve or changes in socioeconomic indicators between four and ten percent.
Moderate:	There would be increases in the number of visitors to the Reserve or changes in socioeconomic indicators by 10-20 percent.
Major:	There would be increases in the number of visitors to the Reserve or changes in socioeconomic indicators by more than 20 percent.

The area of analysis for cumulative impacts on socioeconomics is Whidbey Island.

## Impacts from Alternative A

### Analysis

The total economic impact of dollars spent by visitors at the Reserve in 1995 was 16.4 million (Pergola et al. 1995). Projected to 2005 dollars (assuming an inflation rate of three percent over ten years), the total estimated amount that visitors now spend in the Reserve is approximately \$21.3 million. This figure does not take into account the population growth in the metropolitan region since 1995 when the study was completed and the increase in visitation that is likely to have occurred. Reserve visitation provides an economic benefit to the local and regional economy.

The continued presence of agricultural farm uses within the Reserve and central Whidbey Island area would be a positive benefit to the economy of the area. These farms produce various agricultural products, which benefit populations within the greater Puget Sound area and beyond. The farms contribute to the property tax revenues of Island County and to the tax revenues of Washington State. A number of direct farm jobs are provided through farm income. Indirect jobs are also provided through the purchase of seed and fertilizers, expenditures for capital equipment purchases for the operation and maintenance of farm implements and equipment, and the sale of farm products into the public food supply.

The farms also have a net tax benefit to Island County in that as farm businesses, they contribute property tax income to the County. In addition, farmland offers a hedge against fragmented suburban development while supporting a diversified economic base (American Farmland Trust, 1997). Farms contribute less to demands for schools, roads, social services and other county services. If these agricultural lands converted to residential subdivisions of five acre lots or less, as permitted under current County zoning and subdivision regulations, the increase in population density would likely yield a higher demand for these services and contribute to a moderate adverse impact to socioeconomics. Protecting key farmland through the purchase of scenic easements will assist the town of Coupeville and Island County to deliver services and utilities in a more efficient manner by reducing the amount of sprawling, hard to serve, low density development that would otherwise occur in the Reserve.

As the Reserve continues slow progress to protect agricultural land and key historic views through the purchase of scenic easements with Land and Water Conservation funds, incremental growth and infill development will continue to place pressure on Reserve resources. It is anticipated that blocks of agricultural land will become more isolated from each other as surrounding rural land and existing acreage lots are converted to low density residential uses. This isolation would have a permanent negative impact on the economic viability of remaining farmland.

## Cumulative Impacts

While the amount of land devoted to agriculture has declined moderately, changes in farming practices and the trend toward fewer but larger farms has reduced the number of agriculture related jobs in the Reserve. The reduction in the number of farm related workers and the recent in-migration of non-agriculture workers has changed the character of the population of the Reserve.

The Reserve has experienced moderate growth in small tourism related business such as bed and breakfasts, restaurants, galleries and retail sales. No large-scale destination tourism related projects have been proposed. Over the past three years, Seattle Pacific University proposed expansion of its Camp Casey Conference Center, which is located in the south west side area of the Reserve. This proposal would have more than doubled the capacity of the facility. The expansion idea is currently inactive, pending a determination of its compliance with the Growth Management Act, and a determination as to the availability water and sewer capacity to serve the proposal. The slow increase in development of new tourism opportunities will have a moderately positive socio-economic impact.

Due to the quality of life offered in the Reserve, the area has experienced an in-migration of retirees and families. The current estimate of population within the reserve, base on the 2000 US census, is approximately 5,200. New jobs in the area are generally the result of small owner-run service businesses or are made possible by telecommuting and flexible workweek arrangements with larger off-island employers. A steady population increase due to in migration will continue to place pressure on Reserve resources.

Much of the population growth in the Reserve is accommodated by the large number of existing rural acreage parcels and a few existing subdivisions throughout the reserve. Additional residential growth and most non-residential growth will occur within the Urban Growth Boundary of Coupeville, in conformance with the Growth Management Act.

As agriculture provides fewer jobs, the local popu-

lation will contain fewer people who work the landscape to make a living and more people who consider the cultural landscape as an amenity or recreational opportunity. This trend could have a moderate negative effect on the remaining farms due to increased operating costs and conflicts resulting from a lack of community understanding and support of the needs of agriculture.

## **Conclusion**

The continued presence of farms and agricultural land uses within the Reserve, which generate agricultural products, farm jobs, and property tax revenues contribute positive socioeconomic benefits to central Whidbey Island. The slow increase in development of new tourism opportunities will have a moderately positive socioeconomic impact.

However, the reduction in the number of farm related workers and the recent in-migration of non-agriculture workers has changed the character of the population of the Reserve. As agriculture provides fewer jobs, the local population will contain fewer people who work the landscape to make a living and more people who consider the cultural landscape as an amenity or recreational opportunity. This trend could have a moderate negative effect on the remaining farms due to increased operating costs and conflicts resulting from a lack of community understanding and support of the needs of agriculture.

The effects of proposed actions under this topic heading would not result in an impairment of Reserve resources or values.

## **Impacts from Alternative B**

### **Analysis**

The total economic impact of dollars spent at the Reserve may have a greater beneficial impact in Alternative B than in Alternative A. More emphasis on informing the public about the Reserve and Reserve's programs may increase visitation. Having a visitor center/contact station would be a major attraction to the Reserve and may draw more visitors into the town limits where these facilities currently exist. The three gateway contact stations would also be points of contact to the public trav-

eling through the Reserve. An expanded network of waysides, driving tours, and trails could result in increased numbers of visitors and the resulting need for facilities, including parking and restrooms, to accommodate them. These actions and others mentioned in Alternative B would serve to attract more visitors, which in turn, would beneficially influence spending in the area.

In Alternative B, the Reserve would collaborate with other land protection programs to widen the range of protected areas, and protection methods used, in the Reserve. An emphasis on collaborating with partners to encourage innovation in agricultural research, production, and marketing (see Jones & Jones report on Farmland Preservation Strategies in Volume II of this GMP/EIS) could result in new agricultural products and employment.

Working with the town of Coupeville and Island County to improve zoning and design review programs to protect farmland and key historic sites would inform the public of the importance of these resources to the economic and social well being of a community. This effort could result in more support for right to farm initiatives and other measures to protect the viability of local agriculture.

### **Cumulative Impacts**

Enhanced programs of land protection, as proposed in Alternative B, would result in protection of more agricultural and key scenic land in the Reserve and further reduce large acreage parcels that are available for subdivision and sale. These programs, in concert with growth management efforts of Island County and the town of Coupeville, could result in a pattern of more concentrated land development in and adjacent to the Town of Coupeville.

### **Conclusion**

Alternative B presents a greater socioeconomic benefit than Alternative A with increased emphasis on informing the public about the Reserve and Reserve's programs. The inclusion of a visitor center/contact station, the three gateway contact stations, and an expanded network of waysides, driving tours, and trails could result in increased

numbers of visitors and would beneficially influence spending in the area.

Enhanced programs of land protection in concert with growth management efforts of Island County and the town of Coupeville, could result in a pattern of more concentrated land development in and adjacent to Coupeville.

The effects of proposed actions under this topic heading would not result in an impairment of Reserve resources or values.

## **Impacts from Alternative C**

### **Analysis**

The effects on socioeconomics under Alternative C would have a greater long-term, direct and indirect, beneficial impact on the local community over both Alternatives A and B. The development of a marine science center and a Coupeville visitor center/contact station would potentially bring more visibility to the Reserve and in time, more visitors. As the Seattle-Tacoma metropolitan population continues to grow, there will be more urban visitors wanting to visit national park units and experience and enjoy a scenic and rural community. This increase in visitation would result in more spending which in turn would financially benefit the local economy.

### **Cumulative Impacts**

A greater emphasis on developing visitor facilities would result in a moderate increase in visitation and subsequent tourist revenue to the local community. However, given that visitor opportunities at the Reserve would, with a few exceptions, still be oriented to the self-guided visitor, and because facilities would be dispersed throughout the Reserve, it is unlikely that major impacts to the tourism industry would result from the actions described in Alternative C.

### **Conclusion**

Effects on socioeconomics under Alternative C would have a greater long-term, direct and indirect, beneficial impact on the local community over both Alternatives A and B with the development of a marine science center and a Coupeville

visitor center/contact station potentially bringing more visibility to the Reserve and in time, more visitors.

The effects of proposed actions under this topic heading would not result in an impairment of Reserve resources or values.

## **Effects on Reserve Boundary and Land Protection**

### **Methodology and Assumptions**

As one of the provisions of Public Law 95-625, the National Parks and Recreation Act of 1978, Congress directed that the National Park Service consider, as part of a planning process, what modifications or external boundaries might be necessary to carry out park purposes. A full discussion of the methodology and assumptions used to evaluate changes to the Reserve boundary as it relates to land protection is contained in Appendix B, "Analysis of Boundary Adjustment and Land Protection Criteria."

The impact analysis for this assessment considers the effects of boundary changes on land protection in the Reserve.

## **Impacts from Alternative A**

### **Analysis**

In Alternative A, there would be no change to the existing boundary.

Land use protection measures rely largely on measures at the county and municipal level which vary in the degree in which they are supportive of the purpose of the Reserve. The Rural zoning district, the largest zoning district in the Reserve, allows one home per five acres. Depending upon future build-out of this density, this type of development pattern would have an adverse impact on the existing visual character of the Reserve which the enabling legislation for the park seeks to protect. The Growth Hearing Board, which ruled on the zoning change, stated that "additional land division will cause further break up natural landscapes, more fragmentation of wildlife habitat,



degradation of surface and groundwater and make things harder on the county's farmers" (Douthitt, October 21, 2000).

The county has adopted development standards (such as lot coverage limits and building setbacks) for the Rural zoning district; yet the report states that it is doubtful that such standards would mitigate the impact that development at a five-acre density would have on the Reserve's visual resources. Though the county regulations encourage clustering of lots and houses through the use of the Planned Residential Development (PRD) process in the Rural zoning district, the regulations do not require use of the PRD process.

Another significant potential inconsistency with Island County's zoning regulations and the Reserve's objectives are in the area of allowed uses. Many of the permitted and conditional uses allowed in the zoning districts within the Reserve could be incompatible with the Reserve's objectives. Even the County's Commercial Agriculture (CA) district, arguably the most supportive of the Reserve's goal of preserving the farming legacy of the area, allows minor utilities as a permitted use and communications towers as a conditional use.

## Conclusion

Land use protection measures rely heavily on efforts at the county and municipal level. The zoning for the Rural zoning district of one home per five acres would have a major adverse impact on the visual character of the Reserve if future build-out occurred at this density (see Figure 12). County development standards would not likely mitigate the impacts of development at five-acre density. Many permitted and conditional uses allowed in zoning districts within the Reserve could be incompatible with the Reserve's objectives, a moderate adverse impact.

The effects of proposed actions under this topic heading would not result in an impairment of Reserve resources or values.

## Impacts from Alternative B Analysis

The current boundary of the Reserve includes the

parcel boundary of the 1850 Donation Land Claims Act and is the same as the boundaries of the National Register Historic District that was established in 1973. When the NPS conducted the 1980 comprehensive plan as instructed by Congress, it seemed the most logical boundary at this time. However, since this date, as development has proceeded at the one unit per five acres density, the character of the rural landscape has changed. Some large agricultural tracts and scenic open space parcels were left out. This alternative would attempt to retain those whole or partial tracts that add integrity to the Reserve. The impacts of a boundary change would be major and long-term. The benefits would be less development and water demands over the long-term, maintenance of the rural landscape and historic scene, and protected open space for plant and animal habitat.

Including the remaining portion of Smith Prairie would protect the last important prairie remnant. This would be beneficial for prairie restoration efforts and to the plants and animals that inhabit this ecosystem.

Including the remainder of the OLF in the Reserve boundary and its subsequent retention in public ownership would assist in protecting the aquifer recharge area in this portion of Smith Prairie and central Whidbey Island. By precluding potential incompatible development if the U.S. Navy ever disposed of its property.

Including the eastern wetlands of Crockett Lake would provide additional protection to an important wildlife habitat, especially for birds. This area is currently used for bird watching. Seattle Audubon brings tours to the site as well as Whidbey Audubon. Over 200 species have been recorded here (Whidbey Audubon Society, 2004). Measures would need to be adopted to prevent increased visitation from impacting sensitive wetlands. These could include development of raised boardwalks, creation of viewing platforms, and fencing off sensitive areas as needed.

Bringing these areas into the Reserve's existing boundary is in keeping with NPS management policies which allow boundary adjustment recommendations to protect significant resources and values, or to enhance opportunities for public en-

joyment related to park purposes (Management Policies, 3.5 Boundary Adjustments). Once inside the boundary, landowners would be able to sell conservation easements to the federal government, which in turn may help in land conservation and protection of resources.

Encouraging others to protect important agricultural and scenic areas would be beneficial in addition to expanding the boundary. Using other land protection measures such as leaseback, historic property leasing, donation and others would allow more options for conservation than in Alternative A.

Entering into a formal agreement with a local land trust would be beneficial in that many of the land protection tasks and functions, such as easement monitoring, could be undertaken by the land trust. A local group would have developed working relationships within the community which would be beneficial.

Seeking additional funding sources other than Land and Water Conservation Fund monies would be beneficial given the unpredictability of annual appropriations.

Encouraging Island County to adopt an overlay zone over the entire Reserve would be beneficial for maintaining the rural character. Island County would be able to implement a design review that would be favorable to the Reserve's purpose and goals. Land use change proposals would be reviewed taking into consideration the effect on the Reserve as a unit of the National Park System which would have a long-term, direct, beneficial effect. Some landowners living within the Reserve may not want the added layer of regulation and view it as governmental interference.

Finally, recommending partnering with other agencies to protect marine waters through county or state designation would be a beneficial, long-term effect. This recommendation would require coordination with other agencies. This designation would allow for additional protection measures to be considered dealing with protection of water quality and marine wildlife. Some Washington State constituents or coastal property owners may not want this designation or support it based upon

additional government regulations that might come with the designation.

## Conclusion

Boundary changes proposed in Alternative B that attempt to retain Smith prairie, the remainder of the OLF in the Reserve boundary, and the eastern wetlands of Crockett Lake would provide major, long-term benefits to protecting the integrity of the Reserve. Incorporating other land protection measures such as leaseback, historic property leasing, donation and others allow more options for conservation than Alternative A, providing moderate to major benefits. Encouraging Island County to adopt an overlay zone for implementing design review and other land use controls could have moderate to major long-term benefits that aid in rural preservation.

The effects of proposed actions under this topic heading would not result in an impairment of Reserve resources or values.

## Impacts from Alternative C

### Analysis

The effects on the Reserve boundary would be the same as in Alternative B.

Creating a system of transfer of development rights, if successful, would be positive in the long-term in that it would allow farmers to keep land in farming by selling or transferring development rights. It would require the county funding to create the program and provide staff to administer it would be a moderate adverse impact. However, there may be some creative ways to offset the cost of this program, which could be explored.

Encouraging the study for a National Marine Sanctuary that would include the western coast areas of Whidbey Island, managed by the National Marine Fisheries Service, instead of a state or county marine reserve as in Alternative B, would provide greater recognition at the federal or national level. Protection measures would be established when the sanctuary is created that would have a long-term, direct and indirect beneficial effect. Again, as with the state marine reserve, some landowners may object to the creation of a marine

sanctuary because of government regulations and the perception of a “taking” of rights.

## **Conclusion**

In addition to the impacts from Alternative B, the potential to create a system of transfer of development rights would have long-term, moderate benefits by allowing farmers to continue their land in agricultural production. The cost associated with creating and maintaining this system would have a moderate financial adverse impact. The recommendation to study the potential for including the western coast areas of Whidbey Island for a National Marine Sanctuary designation could have moderate to major long-term benefits by protecting marine resources if the designation occurred. However, some landowners may consider designation an adverse impact because of government regulations and the perception of a “taking” of property rights.

The effects of proposed actions under this topic heading would not result in an impairment of Reserve resources or values.

## **Unavoidable Adverse Impacts**

### **Unavoidable Adverse Impacts under Alternative A**

Delaying the timely acquisition of conservation easements on key areas in the Reserve would continue to expose those areas to encroaching development, and result, over the long-term, in a significant adverse impact on Reserve values.

### **Unavoidable Adverse Impacts under Alternative B**

There are no major adverse impacts to the Reserve. There would be short-term, localized impacts, such as noise, dust, and minimal visitor use and wildlife disruption due to construction activities. While the proposed action would have some adverse effects on park resources, these impacts would be site-specific, minor to moderate, and short-term. None of the impacts of this alternative would adversely affect resources or values to a de-

gree that would prevent the NPS from fulfilling the purposes of the Reserve, or threaten the natural or cultural integrity of the site.

## **Unavoidable Adverse Impacts under Alternative C**

As in Alternative B, there are no major adverse impacts to the Reserve. There would be short-term, localized impacts, such as noise, dust, and minimal visitor use and wildlife disruption due to construction activities. While the proposed action would have some adverse effects on park resources, these impacts would be site-specific, minor to moderate, and short-term. None of the impacts of this alternative would adversely affect resources or values to a degree that would prevent the NPS from fulfilling the purposes of the Reserve, or threaten the natural or cultural integrity of the site.

## **Short-term Use vs. Long-term Productivity**

### **Short-term Use vs. Long-term Productivity under Alternative A**

Although inadequate Reserve staff and funding for land protection might have a negligible effect in the short-term, in the long-term, productivity would be adversely affected by the loss of significant areas of the rural cultural landscape to encroaching development and other inappropriate changes to the historic land use. This would degrade the Reserve’s purpose and reduce its value to the public as a historical reserve of national significance.

### **Short-term Use vs. Long-term Productivity under Alternative B**

Under Alternative B, there would be short-term disturbances from constructing gateway contact facilities and waysides. However, these disturbances would be offset by the long term benefits of increasing awareness of the purpose and significance of the Reserve and its rural heritage. Increased public awareness could stimulate efforts to maintain viable agriculture in the Reserve,

which would directly contribute to the long-term productivity of the landscape.

Similar to Alternative A, if funding for land protection is inadequate and/or available funding cannot be spent in a timely manner, the conversion of land to incompatible uses remains a threat to long-term productivity of the Reserve.

## Short-term Use vs. Long-term Productivity under Alternative C

Short-term use vs. long-term productivity is the same as Alternative B.

## Irreversible and Irretrievable Commitments of Resources

### Irreversible or Irretrievable Resource Commitments under Alternative A

#### Wetlands

Executive Order 1990, Protection of Wetlands, directs federal agencies to avoid to the extent possible adverse impacts associated with the destruction or modification of wetlands and to avoid direct or indirect support of new construction in wetlands wherever possible. The National Wetland Inventory identifies riparian wetlands within the Reserve which are shown in Figure 6, Hydrology. Analysis of wetland maps between 1983 and 2000 show no net loss or gain in wetlands. Significant wetlands still exist around Crockett Lake and Perego Lagoon. However, wetland analysis methods and categorization varies between years and actual changes in wetlands cannot be reliably shown. (Rottle 2003) (Refer to “Vegetation Related to Land Use, Wetlands 2000” and “Historic Vegetation” maps in Volume II.)

The Washington State Growth Management Act requires counties to protect critical areas such as streams, lakes, and wetlands from pollution. In the past, Island County has allowed landowners to follow the county’s best management practices (BMPs) instead of the stricter state laws. The

Washington Growth Management Hearings Board rejected this and has required to county to come up with more stringent protection measures (Douthitt, August 23, 2000).

There would be no adverse impacts to wetlands since there are no general management plan actions being proposed in wetland areas. In addition, the Trust Board and Reserve staff would work with partners to encourage the protection of wetlands on non-federal property.

### Threatened and Endangered Species

There would be no adverse impacts to threatened and endangered species. Initial consultation with the U.S. Fish and Wildlife Service, National Marine Fisheries Service, and the Washington State Natural Heritage Inventory disclosed one plant—the golden paintbrush, and one bird—the bald eagle, that are threatened or endangered species within the Reserve. In addition, according to the U.S. Fish and Wildlife Service, the Bull Trout (*Salvelinus confluentus*) and the marbled murrelet (*Brachyramphus marmoratus*), may occur in ocean waters adjacent to the Reserve.

#### Golden Paintbrush

The Golden Paintbrush (*Castilleja levisecta*) is federally listed as threatened under the Endangered Species Act. There are only 13 occurrences remaining on earth, five on Whidbey Island. Of these, three are found within the Reserve, at Fort Casey State Park, the Bocker Environmental Preserve (at the Seattle Pacific University’s Whidbey Island campus), and on The Nature Conservancy’s property south of Ebey’s Landing. A population study was conducted in 1993 at all three sites. At two of the three sites, where similar studies were conducted previously, the populations have dropped significantly.

At Fort Casey, a previous survey in 1989 found more than 400 individuals, and in 1993 only 120 individuals were counted. At the Bocker Environmental Preserve, 1984 and 1985 surveys of a five by five-meter area found over 1200 and 2700 plants respectively. In 1993, 273 plants were counted in the same area. At the occurrence south of Ebey’s Landing, no previous study is known to have occurred. In 1993, a random transect sampling esti-



mated the population at over 4,000 individuals, with a small sub-population of an estimated 120 individuals occurring directly below the main population.

Explanations for the declining population size at Fort Casey have included the pattern and timing of mowing, visitor use, increased cover by shrub and other competitive species, predation by rabbits, deer and voles, and natural succession (overstory) of plant communities. At the Bocker Environmental Preserve, increased tree and shrub cover offer one explanation for decline in species numbers. The Reserve staff and Reserve partners would continue to work with the above agencies on issues related to the golden paintbrush and any other plant species that may become listed in the future. Though none of these populations occur on NPS-owned land, no action would be undertaken on any lands that would have an adverse impact on the golden paintbrush. The Reserve is a partner with the USFWS on the recovery plan for the plant and supports its implementation.

### ***Bald Eagle***

The bald eagle (*Haliaeetus leucocephalus*) is threatened species under the federal Endangered Species Act. There is a total of nine known nesting sites within the Reserve. In addition, there is a bald eagle foraging area near Coupeville with regular large year round concentrations of eagles, with averages up to 25 eagles. These nine nests and the foraging areas are considered Priority Habitat and Species Areas by the Washington Department of Fish and Wildlife.

The Whidbey Audubon Society's 2003 Christmas Bird Count reported 17 Bald Eagles sighted in the Reserve: 14 were adults and 3 were sub-adults. The Reserve staff would continue to work with the above agencies on issues related to the bald eagle and any new species that may become listed. Presently there are no bald eagles nesting on NPS owned lands. No action would be undertaken on any lands that would have an adverse impact on the bald eagle.

### **Conclusion**

The effects of proposed actions under this topic heading would not result in an impairment of Re-

serve resources or values.

## **Irreversible or Irretrievable Resource Commitments under Alternative B**

### **Wetlands**

The effects on wetlands would be the same as in Alternative A. In addition, the significant wetlands on the eastern side of Crockett Lake could be given added protection over time by including them in the Reserve's boundary and encouraging landowner protection. Including the properties in the Reserve's boundary would qualify owners for conservation easement purchases.

Reserve staff would determine how to best protect wetlands from visitor use impacts by the addition of boardwalks, viewing platforms, and signing on NPS-owned lands or by encouraging landowners to protect wetlands on private lands. The Reserve would also include education and information about the importance of wetlands in its interpretation programs. The Reserve staff and Trust Board would not take any actions on NPS-owned lands that would reduce or adversely impact the wetlands within the Reserve.

### **Threatened and Endangered Species**

The effect on threatened and endangered species would be the same as in Alternative A.

### **Conclusion**

The effects of proposed actions under this topic heading would not result in an impairment of Reserve resources or values.

## **Irreversible or Irretrievable Resource Commitments under Alternative C**

### **Wetlands**

The effect on wetlands would be the same as in Alternative B.

### **Threatened and Endangered Species**

The effect on threatened and endangered species

would be the same as in Alternative B.

## Conclusion

The effects of proposed actions under this topic heading would not result in an nm of Reserve resources or values.

## Effects on Low Income and Minority Populations

Executive Order 12898—Federal Actions to Address Environmental Justice in Minority and Low-Income Populations—focuses federal attention on the environment and human health conditions in minority and low-income communities, promotes nondiscrimination in federal programs, provides access to public information, and an opportunity to participate in matters that may affect these populations.

Island County typically has a lower median household income than the state average. In 1989, Island County had an estimated 6.6 percent of its population below the poverty level. The numbers of low and moderate income (80 percent or less of the median) households in unincorporated central Whidbey are projected to grow between the present and the year 2020. The unincorporated area of central Whidbey is projected to grow by 2,700 households through the year 2020. The unincorporated portion of central Whidbey is projected to need 1090 additional households for the sector of the population below the 80 percent median income level through 2020 (Island County *Island County Comprehensive Plan* 1999: p.4-13 to 4-20).

There would continue to be no fees collected for entering the Reserve. However, fees would continue to be charged at the state parks (for parking at both Fort Ebey and Fort Casey state parks) and at the Island County Museum in Coupeville which serves as the Reserve's visitor center. Island Transit would continue to provide free bus service within Whidbey Island. The Trust Board could explore ways to encourage other agencies and business to establish occasional free days at Reserve attractions that would be beneficial for those with low income. There would be no adverse impact on low income and minority populations under Alter-

native A. In addition, in Alternative B there would be no fee for entering the Reserve's proposed visitor center/contact station which would be a short-term, direct, beneficial effect on low income populations. In Alternative C a small entrance fee may be required for the marine science center operated with partners to assist with operating costs which could be a minor direct impact to low income populations.

## Environmentally Preferred Alternative

The environmentally preferred alternative is defined as the alternative that causes the least damage to the biological and physical environment. It is also the alternative which best protects, preserves, and enhances historic, cultural, and natural resources.

In accordance with NPS Director's Order-12, *Conservation Planning, Environmental Impact Analysis, and Decision-making*, the NPS is required to identify the "environmentally preferred alternative" in environmental documents. The environmentally preferred alternative is determined by applying the criteria suggested in the National Environmental Policy Act of 1969, which is guided by the Council on Environmental Quality (CEQ). The CEQ (46 FR 18026 - 46 FR 18038) provides direction that "[t]he environmentally preferable alternative is the alternative that will promote the national environmental policy as expressed in NEPA's Section 101", which considers:

- Fulfilling the responsibilities of each generation as trustee of the environment for succeeding generations;
- Assuring for all generations safe, healthful, productive, and aesthetically and culturally pleasing surroundings;
- Attaining the widest range of beneficial uses of the environment without degradation, risk of health or safety, or other undesirable and unintended consequences;
- Preserving important historic, cultural and natural aspects of our national heritage and maintaining, wherever possible, an environment that supports diversity and variety of individual choice;

- Achieving a balance between population and resource use that will permit high standards of living and a wide sharing of life's amenities; and
- Enhancing the quality of renewable resources and approaching the maximum attainable recycling of depletable resources (NEPA Section 101(b)).

The CEQ states that the environmentally preferable alternative is "the alternative that causes the least damage to the biological and physical environment; it also means the alternative which best protects, preserves, and enhances historic, cultural, and natural resources (46 FR 18026 – 46 FR 18038)." According to NPS NEPA Handbook (DO-12), through identification of the environmentally preferred alternative, the NPS decision-makers and the public are clearly faced with the relative merits of choices and must clearly state through the decision-making process the values and policies used in reaching final decisions.

Alternative A, while accurately describing the current management direction and the best efforts of the staff and the Trust Board, fails to satisfy the NEPA requirements outlined above. Shortage of funding for staff, programs, facilities, and services limits the Trust Board and existing staff to minimal operational effectiveness. The first two bullet statements are barely met, and can be threatened at any time by further development of key land parcels. The third and fourth bullets are unlikely to be attained without new direction, additional funding, and increased public support. Under Alternative A, the fifth provision remains a goal that seems unattainable due to population, development, visitor use, and economic pressures. The final sixth provision can best be met by Alternatives B and C.

The primary distinction between Alternatives B and C is a difference in management structure with the Commission replacing the volunteer Trust Board. Both Alternatives B and C clearly describe an enhanced visitor experience, with a stronger preservation and educational outreach mission. Under these alternatives, agriculture, natural resources, view sheds, aquifer recharge areas, wildlife habitat and the wide range of beneficial uses of the environment referred to in NEPA are addressed, and staff adequate to fulfill the mission is

requested. The establishment of an overlay district in unincorporated areas of the Reserve would be a valuable and powerful tool in addressing NEPA provisions 3-6, above.

Depending upon site selection for NPS maintenance operations as described in Alternative B, and the ground disturbance and/or construction required, the rehabilitation and administrative use of the Reuble farmstead as described in Alternative C may have significantly reduced impacts on the environment.

Unlike Alternatives A and B, the lack of clear federal ownership, protection, stabilization and rehabilitation of the historic Rockwell House as described in Alternative C detracts from NEPA provisions 3 and 4, although any property exchange would protect the building somewhat by means of an easement; however, easements require management.

Under Alternatives B and C, the use of the Jacob Ebey House as a seasonal contact station could have strong public educational impacts and would address the full range of NEPA provisions.

Unlike Alternative B, under Alternative C the Reserve's involvement in a marine science interpretation is addressed in a meaningful and creative way that addresses several of the NEPA provisions above.

After careful review of potential resource and visitor impacts, and assessing proposed mitigation for cultural and natural resource impacts, the environmentally preferred alternative is Alternative C. This alternative clearly surpasses Alternative A in best realizing the six NEPA goals stated above; and while Alternative B is very similar in most respects, Alternative C overall provides a high level of protection of natural and cultural resources while attaining the widest range of neutral and beneficial uses of the environment without degradation, while integrating a wider and appropriate range of visitor uses into resource protection.