National Park Service

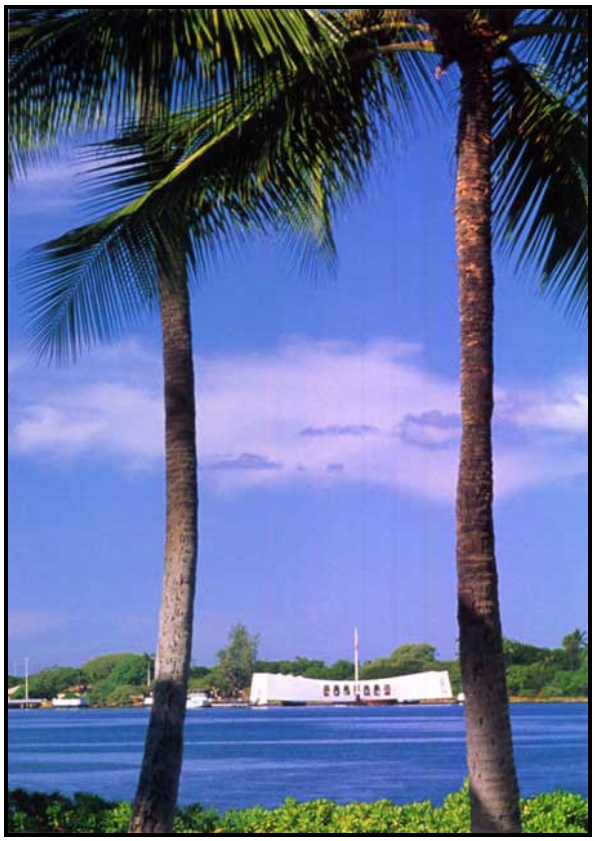
U.S. Department of the Interior

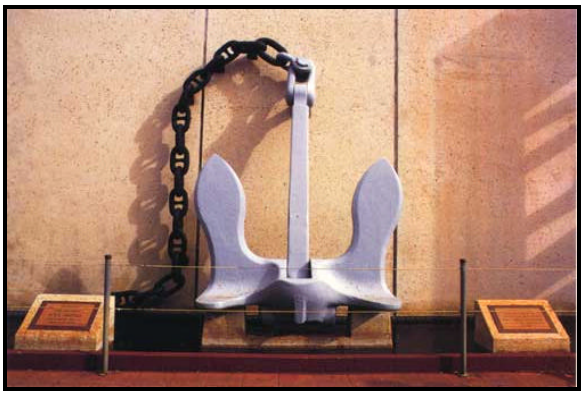
USS *Arizona* Memorial

Hawai'i

Environmental Assessment for the Project to Replace the Failing Visitor Center at the USS *Arizona* Memorial

February 2007





EXECUTIVE SUMMARY

SUMMARY

The National Park Service (NPS) proposes to construct a new shoreside visitor center for the USS *Arizona* Memorial. The purpose of this project is to improve and enhance visitor center facilities by replacing the existing visitor center to protect important cultural resources, and to enhance the visitor experience and park operations, in accordance with the park's legislation, Statement for Management (NPS 1992), and NPS policy. This project covers the park's shoreside facilities only and will not impact the sunken USS *Arizona* or the memorial that rests above it.

The existing visitor center and *Arizona* Memorial Museum Association (AMMA) bookstore have an estimated life expectancy of 3 to 8 years (2009 to 2014) due to weakening structural integrity from an unevenly sinking foundation. In addition, the circa-1978 building now receives double the capacity of visitors it was designed to support. As a result, visitor experience has been impacted by long lines and poor visitor flow throughout the visitor center. Collections are exposed to air, humidity, and temperature fluctuations in the open-air museum, and are displayed in inadequate museum cases.

Three alternatives are analyzed in this environmental assessment:

Alternative A, the No Action Alternative, is the continuation of current management and would leave in place the existing visitor center structures without significant changes to maintenance or operations. No major efforts would be undertaken to stabilize the foundations, improve visitor services, or protect displayed museum collections. Ongoing minor stabilization efforts would continue, although these would not address the critical issues that have reduced the expected lifespan of the structures.

Alternative B, the Preferred Alternative, would construct new visitor center buildings adjacent to the east and north of the existing facility, and would relocate the existing boat launch 100 feet west to improve visitor access after leaving the theaters. The visitor center structures would be placed in a linear, campus-based fashion. This alternative would retain use of the existing theaters, with upgrades to improve accessibility and visitor flow. This option provides for greater visitor control within the visitor center and provides a highly consistent interpretive and educational experience.

Alternative C, Campus Style with Relocated Boat Launch, would move the visitor center structures to the north of the current location. The museum and exhibit area, theaters, and shared arrival plaza structures would be placed in a clustered fashion while the concessions, administrative offices, restrooms and vending areas would be in a linear north-south trending configuration. The boat launch would be moved to the western shore of the site and would be situated adjacent to the new theaters for easy access. This option would provide for a greater range of choices for the visitor and opportunities to have an individual interpretive and educational experience.

None of the alternatives analyzed in this environmental assessment would result in major environmental impacts or impairment to park resources or values.

PUBLIC COMMENT

If you wish to comment on the environmental assessment, you may mail comments to the name and address below or post comments online at http://parkplanning.nps.gov/. Before including your address, phone number, e-mail address, or other personal identifying information in your comment, you should be aware that your entire comment – including your personal identifying information – may be made publicly available at any time. While you can ask us in your comment to withhold your personal identifying information from public review, we cannot guarantee that we will be able to do so.

This document will be on review for 30 days. Please address written comments to:

USS *Arizona* Memorial
Attn: Visitor Center Environmental Assessment
1 *Arizona* Memorial Place
Honolulu, HI 96818

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PURPOSE AND NEED

INTRODUCTION

The National Park Service (NPS) is proposing to replace the existing shoreside visitor center for the USS *Arizona* Memorial located in Honolulu, Hawai'i on Pearl Harbor. The memorial commemorates the lives lost during the December 7, 1941 attack on Pearl Harbor.

The overall goals of this project are to provide a quality visitor center that enhances visitor understanding of and experience at the memorial; to improve operational efficiency and sustainability of the visitor center; and to provide accessible, efficient facilities in the visitor center for operation of the bookstore and concession sales. The existing visitor center and *Arizona* Memorial Museum Association (AMMA) bookstore have an estimated life expectancy of 3 to 8 years (2009 to 2014) due to weakening structural integrity from an unevenly sinking foundation. In addition, the circa-1978 building now receives double the capacity of visitors it was designed to support. As a result, visitor experience has been impacted by poor visitor flow, long lines, and clusters of visitors waiting to visit the memorial. Portions of the park's collection, housed in the open air museum at the visitor center, are exposed to light, air, humidity and temperature fluctuations, and insect infestations resulting from inadequately designed museum cases. This contributes to diminished visitor appreciation of the significant historical artifacts and objects.

This project covers the park's shoreside facilities only and will not impact the sunken USS *Arizona* or the memorial that rests above it. In this environmental assessment, the name "USS *Arizona* Memorial" refers to the entire park (including the shoreside visitor center facilities), while the term "the memorial" is used to identify the commemorative structure that is situated over the sunken USS *Arizona*.

PURPOSE OF AND NEED FOR THE PROPOSED ACTION

The purpose of this project is to improve and enhance the park's visitor center facilities, enhance visitor experience and park operations, and better protect important cultural resources in accordance with the park's legislation, statement for management, and NPS policy. This project is being proposed in order to implement actions identified in the 1999 Development Concept Plan.

The need for the project is defined in the statements that follow and are elaborated on in the "Project Background" section of this document.

- The existing buildings comprising the USS *Arizona* Memorial's shoreside facilities have serious structural problems that are expected to worsen.
- Environmental conditions are accelerating the structural deterioration and as a result, the building's useful life is estimated at 3 to 8 years (2009 to 2014).
- The visitor center is inadequate for the number of visitors that visit the park. It was built for 750,000 visitors, but currently over 1.5 million people visit per year. This results in poor visitor flow in all areas, long lines for tickets, and long wait times for entering the theatres before proceeding to the boat to the memorial.

- Objects from the collection that are on display in the open-air museum are inadequately protected from air, light, humidity, temperature fluctuations, and pests such as termites, and other insects and rodents.
- Most Pearl Harbor survivors are in their eighties or older. Improved interpretation of existing museum collections would ensure that their story continues to be told after they are gone.

OBJECTIVES

Objectives are specific statements of purpose that describe what should be accomplished, to a large degree, for the project to be considered a success. The objectives of this project are to:

- Provide safe, quality space for basic visitor orientation and education/interpretive activities to enhance the visitor experience and instill respect for the quiet, contemplative objectives of the USS *Arizona* Memorial.
- Improve operational efficiency with sustainable, easily maintained, functional, code-compliant facilities.
- Provide facilities that meet the May 8, 2006 Architectural Barriers Act Accessibility Standards (ABAAS) requirements.
- Provide facilities that meet the security requirements for setbacks and "hardening" (S*etback* is the distance a building other structure is set back from a street or road, stream or shoreline, or any other place which needs protection. *Hardening* is the process of securing a site, especially against attackers.)
- Provide for AMMA bookstore and limited food and beverage concession operations.
- Provide space that meets museum standards for display and interpretation of museum collections, including historic objects and archival materials.

PURPOSE AND SIGNIFICANCE OF THE PARK

Description of the Park

The sunken USS *Arizona* is the final resting place for many of the ship's 1,177 crewmen who lost their lives on December 7, 1941. The USS *Arizona* Memorial was established as a result of wartime desire to have a memorial at Pearl Harbor honoring those who died in the attack. Initial recognition came in 1950 when Admiral Arthur Radford, Commander in Chief, Pacific, ordered that a flagpole be erected over the sunken battleship. On the ninth anniversary of the attack, a commemorative plaque was placed at the base of the flagpole. President Dwight D. Eisenhower, who helped achieve Allied victory in Europe during World War II, approved the creation of the memorial in 1958.

The 184-foot-long memorial structure that spans the mid-portion of the sunken battleship was designed by architect Alfred Preis and constructed in 1961 with public funds appropriated by Congress and private donations. It consists of three main sections: the entry and assembly rooms; a central area designed for ceremonies and general observation; and the shrine room, where the names of those killed on the *Arizona* are engraved on the marble wall. The memorial was dedicated in 1962.

The USS *Arizona* Memorial has also come to commemorate all civilians and military personnel other than USS *Arizona* casualties killed in the Pearl Harbor attack. Both Pearl Harbor and the USS *Arizona* Memorial are recognized as National Historic Landmarks.

Currently, the 17.2-acre park consists of the USS *Arizona* and the memorial itself, a boat launch, a maintenance building, and the on-shore visitor center (built in 1978 by the U.S. Navy), which includes a museum/exhibit area, concessions, park headquarters, restrooms, a bookstore, and two theaters. On the grounds are also shoreside interpretive exhibits and the Remembrance Circle (an area of plaques commemorating all civilians and servicemen who perished on December 7, 1941 during the Pearl Harbor attack). Prior to construction of the visitor center in 1978, the U.S. Navy provided a boat service to the memorial, with shade provided by trees and a long narrow shade structure constructed along the shoreline.

Visitors typically arrive at the visitor center, obtain free tickets for a time to visit the memorial, and view the museum and exhibit area in the visitor center before their scheduled visit. Once it is time to visit the memorial, visitors first enter the theaters and view an orientation movie about the attack on Pearl Harbor, background on World War II, and information specific to the USS *Arizona*. Then they board the boat, located on Halawa Stream, and travel out to the memorial, where they can spend time in reflection and observance, and then return on the boat to the visitor center.

The park is situated entirely within the active Pearl Harbor U.S. Naval Reservation boundaries, with a variety of adjacent residential and industrial uses; Ford Island, U.S. Navy recreation facilities, and U.S. Navy dock facilities being among these uses (Figure 1). Nearby, there are also a number of sites in Pearl Harbor where visitors can learn about the attack and visit naval vessels involved. The USS *Arizona* Memorial is located adjacent to WW II era naval vessels, the USS *Bowfin* Submarine and Museum and USS *Missouri*, which is docked nearby at Ford Island.

Purpose of the Park

The purposes for which the National Park Service operates the USS *Arizona* Memorial are:

- To preserve and interpret the tangible historical resources associated with the December 7, 1941 Japanese attack on Pearl Harbor and other military installations on the island of O'ahu. Of primary importance are the sunken hull of the USS *Arizona*, which serves as the final resting place for many of the battleship's sailors and marines killed in the attack, and the memorial structure which straddles the ship and is dedicated to all who lost their lives on December 7, 1941.
- To interpret the historical events which led up to and which were a direct result of the December 7 attack.
- To preserve and interpret the intangible historical values – the memories, attitudes, and traditions of those individuals who were present at or had intimate first-hand knowledge of the historic events which took place on December 7, 1941.

Significance and Legislation

The National Park Service manages and operates the USS *Arizona* Memorial under a long-term lease and use agreement with the U.S. Navy. Public Law 85-344, approved March 15,

1958, authorized construction and maintenance of the USS *Arizona* Memorial and a museum. Amendment No. 1 to the use agreement, dated March 28, 2006, transferred an additional 6.4 acres from the Navy to the NPS for its use. Public Law 87-201, approved September 6, 1961, authorized an appropriation for the construction and maintenance of the USS *Arizona* Memorial and a museum "in honor and in commemoration of the members of the Armed Forces of the United States who gave their lives to their country during the attack on Pearl Harbor, Hawai'i, on December 7, 1941." On March 21, 1980, a use agreement was signed with the U.S. Navy authorizing the National Park Service to operate the USS *Arizona* Memorial shoreside complex. Furthermore, under the use agreement with the U.S. Navy, the National Park Service was given responsibility for the USS *Arizona* Memorial, but not the sunken hull of the USS *Arizona*. The National Park Service has assisted in the preservation and protection of the USS *Arizona*, the focal historic resource of the area. Due to the nature of this park, management is directed by a statement for management (NPS 1992).

The resources at the USS *Arizona* Memorial are nationally significant because:

- At the USS *Arizona* Memorial, the National Park Service honors and commemorates the American servicemen who lost their lives during the December 7, 1941 attack. This attack is one of the most well remembered and significant events in the history of our nation. Many military sites on the island of O'ahu were attacked; 2,388 Americans were killed as a result of the attack; over 320 aircraft were destroyed or damaged, and 21 vessels were sunk or damaged.
- The Pearl Harbor attack acted as a catalyst in bringing the United States fully into World War II and as a rallying cry to unify the country in that cause.
- The USS *Arizona* represents the greatest loss of life in American Naval history. Because the sunken hull of the USS *Arizona* remains in place and its 1,177 casualties accounted for almost half of all the casualties sustained that day, the sunken battleship became a tomb, a symbol of commemoration and place of remembrance for the December 7, 1941 attack.
- The salvage of the Pacific Fleet at Pearl Harbor is considered the greatest maritime salvage operation in history.
- The events of December 7, 1941 and its aftermath profoundly affected the people of Hawai'i.

PROJECT BACKGROUND

The project is the result of a complex relationship between the National Park Service, the U.S. Navy, and several area cultural sites collectively known as the Pearl Harbor Historic Sites partnership. Due to the historic story told at the visitor center, a variety of stakeholders, both groups and individuals, have a vested interest in how the center's information is preserved and presented.

The visitor center at the USS *Arizona* Memorial is operated by the National Park Service, on land that is leased from the U.S. Navy. NAVFAC Pacific, the regional Naval Facilities Engineering Command, is providing project oversight and construction management for the visitor center project. The Arizona Memorial Museum Association (AMMA) operates the

Visitor center bookstore and is providing the majority of funding for construction of the new visitor center through a nation-wide fundraising campaign.

FIGURE 1. MAP OF THE USS *ARIZONA* MEMORIAL

The Pearl Harbor Historic Sites partnership includes various other World War II visitor attractions that relate to the story of Pearl Harbor and, in general, World War II in various ways. The USS *Bowfin* Submarine Museum and Park (operated by the Pacific Fleet Submarine Memorial Association), USS *Missouri* Museum, and the Pacific Aviation Museum (both located on Ford Island) are each offering input and are participating in

discussions about how best to meet visitor needs and expectations at Pearl Harbor and how to provide the most comprehensive visitor experience.

The project area includes the existing visitor center facilities, as well as an additional 6.4 acres recently acquired in a long-term lease agreement from the U.S. Navy (The lease for the NPS assigned lands was signed in 1980. The wording change for this Agreement has been formalized with the additional 6.4 acres, to be assigned to the NPS on May 1, 2007). The total area within the Pearl Harbor Naval Base now under NPS management is 17.2 acres.

In 1978, the Navy constructed the visitor center prior to transfer of the original 11-acre site to NPS management. The facility is 19,325-square-feet in total size and includes two theaters, a museum/exhibit area, a bookstore operated by the Arizona Memorial Museum Association (AMMA), a small refreshment concession space, a ticket counter, two restrooms, and the park headquarters offices. This complex was designed and constructed to accommodate 750,000 visitors per year. However, the USS *Arizona* Memorial currently receives 1.5 million visitors a year. It is the second most visited site in the Pacific.

The existing visitor center facility includes the following functions and space allocations (NPS 2005a):

- 100 square feet for security screening,
- 500 square feet of bookstore space (Arizona Memorial Museum Association),
- 2,600 square feet of exhibit space (not air-conditioned) in the exhibit area/museum,
- Two 5,500 square feet theatres with 150 person capacity each,
- 850 square feet of restrooms,
- 100 square feet of concessions space (refreshments),
- 950 square feet of entrance lobby,
- 2,550 square feet of office space (accessed separately from the visitor areas), and
- Adjacent boat dock located in Halawa Stream.

The visitor center consists of three buildings aligned around a common courtyard: the entrance and lobby building; the bookstore, concession, museum/exhibit space, and office building; and the theatre building. The courtyard is comprised of a series of fountains and plantings. The entrance lobby and ticketing area lead to an open common area. Passing through the entry area, the theatres are on the left hand side and the concession, AMMA bookstore, and museum/exhibit area are on the right. The dock for the boat that takes visitors to the memorial is adjacent to the visitor center in Halawa Stream. Manicured lawns and landscape plantings (comprised mostly of imported exotic varieties) surround the buildings, parking lots, and walkways.

The site upon which the visitor center is located was filled in during World War II. Aerial photos from 1941 show the native shoreline and stream channel to still be in existence, while photos from 1944 show the area filled in and developed, with a boat landing, fuel station, and other Naval facilities. The depth to solid substrate is approximately 150 to 200 feet.

In 2004, an *Existing Structural Condition Evaluation* was prepared for the visitor center by Baldridge and Associates of Honolulu. The following information on the specific conditions of building components are summarized from this report.

The three buildings are of similar design and structure. They are single-story, constructed of reinforced concrete, with a common basement/crawl space beneath. They were designed and constructed using a spread footing and foundation system, to accommodate differential settlement resulting from very poor fill soil conditions. Slip joints were included in the connection between the footings and the building foundation to allow for periodic jacking and adjustment of the height of the connection. These joints can accommodate 8 to 10 inches of upward movement and 6 inches of downward movement. Thus, the total building re-leveling adjustments that can be made using the stub system is approximately 16 inches. The stub columns are raised or lowered by using shims. The shims are a combination of pre-cast concrete blocks, steel plates, and grouting (Baldridge and Associates 2004).

However, some of the footings sunk deeper than expected, and the system no longer is functioning. In various locations, the ability to raise and re-level the stub columns is exhausted. For example, 2.5 feet of settlement has occurred beneath the entrance and lobby area. This greatly exceeds the ability of the shim system to re-level the structure. During the structural engineering analysis, gaps between the stub columns and concrete were seen at several locations. Given the rate of settling, and the maximum re-leveling available, 5 to 10 stub columns beneath the entry lobby are close to or have exceeded their leveling limit (Baldridge and Associates 2004).

Re-leveling of the structure using the hydraulic system has resulted in cracks in the concrete building, which in turn have exposed rebar in the building's walls to air and moisture. Because of this, the rebar has rusted and weakened. The basement often has chronic pooled water, which may cause health problems because of mold and, potentially, mosquitoes (Figure 2). Within the basement/crawl space, concrete deterioration and steel rebar corrosion are of concern in several areas. The standing water accelerates corrosion and deterioration of the foundation concrete. The depth of water is expected to increase as the building continues to settle (Baldridge and Associates 2004).

As the stub columns lose contact with the concrete foundation, there is concern that the structure will lose seismic stability. One function of the columns is to transfer shear force (such as that generated by uneven settling of the structure or during earthquakes) to the foundation and reduce the tendency for the building to slide. A minimum column depth of 1.1 feet is required to transfer shear load. If this depth is not maintained, the stubs have the potential to be displaced from their foundation collar (Baldridge and Associates 2004).

The portions of the structure most affected by these conditions are the entrance and lobby building and the concession, museum/exhibit area, and office building. During the structural evaluation, standing water in excess of 6 inches deep was present beneath the entrance and lobby, with extensive concrete and steel corrosion and deterioration near the foundation drain. Beneath the concession, museum/exhibit area, and office building, standing water was present and a large crack in one of the columns was apparent (Baldridge and Associates 2004).

Exposed rebar in basement.

Standing water in basement.

FIGURE 2. STRUCTURAL DETERIORATION AT USS *ARIZONA* MEMORIAL VISITOR CENTER

The theatre building shows fewer signs of deterioration. During the structural evaluation, little water was present in the basement, and there were minimal signs of deteriorated concrete or reinforcing steel. This building appears to have settled evenly, as a block, with portions appearing to be in excellent condition (Baldridge and Associates 2004).

These conditions combine to produce the expected building life expectancy of 3 to 8 years for all but the theatre building. Steps that could be taken to prolong the usable life of the visitor center are described as components of Alternative A: the No Action Alternative and would likely result in an additional 5 years of practical building use.

In addition to structural concerns, the building does not currently meet accessibility requirements of the Architectural Barriers Act Accessibility Standards. An assessment conducted by Space Options, an accessibility consulting firm, revealed several shortcomings in and around the current facility. These include difficult access from curbside and parking lots, unshaded waiting areas, inadequate number of wheelchair stations in the theatres and on the boat, and inaccessible restroom facilities (Space Options 2006).

Restroom facilities are also inadequate in size and fixture number, especially for women. During peak times of use, the men's bathroom is temporarily used by women. Employees have no separate bathrooms, so they must also stand in these lines, resulting in time lost.

The building was not designed for the 1.5 million annual visitors the park now receives. The theatres have an hourly capacity of 600 visitors. During peak visitation times, wait times for theatre entrance can reach 3.5 to 4 hours, which equates to 2,000 to 2,400 visitors waiting to enter the theatre (Orca Consulting 2006). These wait times and overcrowding are of concern, as they negatively affect visitor experience. Also, once visitors return via boat from the memorial, they re-enter to the same overcrowded area they recently left and must navigate through this to leave the park or visit the bookstore.

Related Projects and Plans

The 1992 *USS Arizona Memorial Statement for Management* outlines the direction for proposed actions to be taken for protecting park resources and enhancing visitor experiences

at the park. The following summarizes specific plans that relate to the actions proposed in this environmental assessment. These projects and plans were incorporated into the cumulative analysis scenario for the impact topics addressed in this assessment.

The project to replace the failing visitor center represents a continued commitment to preserve valuable park resources. The proposed action alternatives would not conflict with any ongoing or planned management activities within the park.

USS *Arizona* Memorial Interpretive Program – In concert with development of the new visitor center, the National Park Service plans to implement a new interpretive and educational program at the visitor center. Throughout the development and design process for the new visitor center the role of the exhibits and ways to "tell the story" have played a major role in shaping the direction of the project. Implementation of an effective interpretive plan can also improve visitor flow, reduce wait times, and allow visitors greater flexibility in choosing their experience at the visitor center.

The attack on O'ahu set in motion events that have shaped world history. It is important that the plan for the interpretive program inform many types of visitors about the importance of this site. The proposed interpretive program would expand the global historical perspective, provide greater details on the attack, and increase the time for reflection on the events of December 7, 1941.

The enhanced interpretive program would include introduction of several themes designed to reach a broad audience with a variety of interests in the event (Aldrich Pears 2006).

- *Arrival Plaza* – A new entry and walkway would lead visitors toward the new visitor center and introduce ideas, people, ships, or experiences that would be explored further as the visit continues. This "hub" would provide the opportunity for future orientation to all the venues located at the site and could allow for centralized ticketing to the USS *Bowfin*, USS *Missouri*, and attractions to be located on Ford Island.
- *Gathering Storm* – Using historical records, the global context of the attack would be set by introducing the worldwide effects of the Great Depression, resource use and demands made by both America and Japan, events in China, the breakdown in U.S.-Japan diplomatic relations, and other circumstances leading up to the use of military force.
- *Differing Perspectives* – This area would include exhibits, artifact cases, and stories of servicemen, local residents, Japanese veterans, and others whose lives have been affected by the attack on O'ahu.
- *O'ahu 1941* – The visitor would be introduced to the lifestyle, sights, and sounds of Pearl Harbor, Honolulu, and the island of O'ahu during 1941. Exhibits would include information on natives and other Hawaiian locals, tourism and local scenes, and defense workers from other parts of the U.S.
- *Attack!* – Using maps and details of the attack on the island of O'ahu, the events of December 7 would be chronicled. This was the greatest coordinated attack to date in human history. The place of Pearl Harbor within the context of the war in the Pacific would be explored.

- *Direct Results* – The visitor would be introduced to the aftermath of the attack, including photos and information on the immediate destruction. The beginnings of the war effort would be introduced, including forming alliances with New Zealand, Australia, Canada, India, Pakistan, Burma, China, etc.
- *Sacrifice and Courage* – This theme would be used to introduce individual stories of those who perished and those who survived. Both U.S. and Japanese stories would be told, with presentation of uniforms and memorabilia from both sides. Visitors would be introduced to the reconciliation message that is now found at Pearl Harbor.
- *Theaters* – The current film would continue to be used in the new visitor center prior to boarding the boat for the memorial.
- *Visit to the Memorial* – The boat service to the USS *Arizona* would be continued.
- *Visitors Reflect* – Upon leaving the memorial and prior to exiting the visitor center, visitors would be given the opportunity to look out onto the memorial and reflect on the events of December 7, 1941 and its meaning in their lives.

Park Headquarters and Administration Building – A separate headquarters facility, approximately 10,000 square feet in size is planned to accommodate all headquarters office spaces for the operation of the park including visitor services, resource management, law enforcement, interpretation, and administration. In addition, curatorial offices and museum collections storage will be provided for essential collections. Other parts of the park's museum collections, while still of value, are not primary to the visitor experience, and would continue to be managed and stored off-site in the National Park Service collections facility on the Pearl Harbor Naval Base. Management offices for the Arizona Memorial Museum Association will also be part of the headquarters facility. The headquarters building will be constructed within the 17.2 acres managed by the National Park Service, but separate from the new visitor center facility.

Commercial Services Plan for the USS *Arizona* Memorial – This plan will determine services that are necessary and appropriate for the site and will analyze the effects of the plan on the human and natural environments. How the new visitor center is designed to accommodate the bookstore, concessioner, and commercial operations will affect future commercial services at the park.

Pearl Harbor Historic Partners Site Master Plan – This master plan will include the USS *Bowfin*, USS *Missouri*, USS *Utah*, USS *Oklahoma*, and the Pacific Aviation Museum. The campus plan will result in an integrated, quality visitor experience, with a coordinated and complementary story across partners. This plan may include shared ticketing, centralized parking and access, and a shuttle service between the venues.

Integrated Cultural Resources Management Plan (ICRMP) – To preserve the cultural heritage of Pearl Harbor while meeting the ongoing needs of the Pacific Fleet, the Commander Navy Region Hawai'i commissioned the ICRMP. It provides a framework to ensure that cultural resources are properly considered and integrated into the Navy's decision-making process. By knowing what cultural resources it has, the Navy can better maintain, adaptively reuse, or minimize/mitigate adverse impacts on them. The USS *Arizona* Memorial

was included in this planning process. A programmatic agreement with the Hawai'i State Historic Preservation Office (SHPO) was completed with this process.

Pearl Harbor Historic Trail – This trail will follow an old railroad alignment along the north side of the Naval Station. The trail will originate near the USS *Arizona* Memorial visitor center. The interpretive aspects of this trail may complement the park's existing exhibits and interpretation.

Honolulu High Capacity Transit Plan – This plan is in the early planning stages and includes an alternative that would bring the transit line near the Naval Base along King Kamehameha Highway. This has the potential to bring additional visitors to the park.

King Kamehameha Highway Beautification Project – This project will enhance the appearance of the highway corridor from Pearl City to Center Street, by landscaping and other improvements. The USS *Arizona* entrance intersection is planned for the first improvement. This project could affect the overall appearance of the park entrance.

USS *Oklahoma* - When the memorial for the USS *Oklahoma* is complete, this site will be under NPS management.

USS *Utah* - The USS *Utah* is accessible from Ford Island, where it has a memorial and a walkway. It is not currently accessible by the public. However, the Navy plans to transfer management of this site to the NPS in the foreseeable future.

Pacific Aviation Museum - This museum will be constructed on Ford Island inside three hangars dating from World War II. In the museum will be a theatre, exhibits about aviation during World War II, and exhibits about technological advances in aircraft since then.

Scoping

Scoping is the effort to involve agencies and the public in determining the issues to be addressed in the environmental evaluation. Among other tasks, scoping determines important issues and eliminates issues that are ultimately unimportant; allocates assignments among the interdisciplinary team members and other participating agencies; identifies related projects and associated documents; identifies permits, surveys, or consultations required by other agencies; and creates a schedule that allows adequate time to prepare and distribute the environmental document for public review and comment before a final decision is made. An internal scoping meeting was held at the park in March 2006 to discuss the scope of the project, identify the purpose, need, and objectives, and to identify issues and impact topics to be addressed in this environmental assessment.

National Park Service agency scoping included input from the Hawai'i State Historic Preservation Office (SHPO), the Advisory Council on Historic Preservation, U.S. Army Corps of Engineers, National Marine Fisheries Service, the U.S. Fish and Wildlife Service, and Native Hawaiian groups interested in the park. During development of this environmental assessment, the park also contacted the Hawai'i Historic Preservation Officer, the U.S. Fish and Wildlife Service, and interested Native Hawaiian groups by letter. Appendix A contains a complete listing of agencies and Hawaiian groups that were consulted during the scoping process.

In May 2006, approximately 500 newsletters were distributed to the public, elected officials, and other parties who have expressed interest in activities at the USS *Arizona* Memorial. During this phase of scoping the public and interested parties were asked to identify issues, concerns, and ideas related to the project to replace the visitor center. In August 2006, the National Park Service held two public open houses at the park in which the public was invited to share their concerns, if any, about the project and to provide input on preliminary alternatives. All of the public and agency comments received were considered in the development of this environmental assessment.

A summary of the scoping activities undertaken prior to development of this environmental assessment can be found in the "Consultation and Coordination" section. Copies of consultation letters may be found in Appendix A.

Issues

Issues and concerns regarding this proposed project were identified by the planning team and through public scoping of the project. The main issues include the following:

- The building will potentially be unsafe and unusable in 3 to 8 years (2009 to 2014).
- Standing water in the basement could cause health issues related to mold and mosquitoes.
- Museum collections are exposed to the elements.
- The visitor center is too small for the number of visitors.
- There are long waits for tickets and restrooms.
- Concessions space is currently very limited, awkwardly placed near the restrooms, and inadequate for the large numbers of visitors waiting to visit the memorial.
- There is no place to leave belongings and they cannot be brought into the memorial.
- The visitor center is not fully accessible for visitors that are mobility impaired.
- After leaving the memorial, there is no opportunity to reflect, or for further interpretation.

Impact Topics

Derivation of Impact Topics

Impact topics were used to focus the evaluation of the potential environmental consequences of the alternatives. Candidate impact topics were identified based on legislative requirements, executive orders, topics specified in *Director's Order #12 and Handbook* (NPS 2001), *Management Policies* (NPS 2006a), guidance from the National Park Service, input from other agencies, public concerns, and resource information specific to the USS *Arizona* Memorial. A brief rationale for the selection of each impact topic is given below, as well as the rationale for dismissing specific topics from further consideration.

Impact Topics Included in this Document

Visitor use and experience was retained because of the potential effects on visitors due to changes in interpretation and facilities. This topic is addressed in accordance with *Management Policies* (NPS 2006a).

Cultural resources management in the National Park Service is guided by 36 Code of Federal Regulations 800; National Environmental Policy Act; *Director's Order #28*; *NPS-28, Cultural Resource Management Guideline; Director's Order #28A, Archeology;* and *Management Policies* (NPS 2006a).

Cultural landscapes was retained because the designed landscape surrounding and including the visitor center is within the Pearl Harbor National Historic Landmark boundary. According to the National Park Service's *Cultural Resource Management Guideline* (DO-28), a cultural landscape is

> …a reflection of human adaptation and use of natural resources and is often expressed in the way land is organized and divided, patterns of settlement, land use, systems of circulation, and the types of structures that are built. The character of a cultural landscape is defined both by physical materials, such as roads, buildings, walls, and vegetation, and by use reflecting cultural values and traditions.

The landscape surrounding the proposed visitor center has an essential role in establishing a commemorative and reflective mood and a setting appropriate to the solemnity and historic nature of the site (*NPS Management Policies* 2006a and *NPS-28, Cultural Resource Management Guideline* (1998).

Ethnographic resources was retained because the December 7 survivors and their families who have had an enduring relationship with the park for several generations form a traditional users group as defined in *Management Policies* (NPS 2006a) and *NPS-28, Cultural Resource Management Guideline* (1998). Ethnographic resources are "about people and the ethnographic resources, or traditional park sites, structures, objects, landscapes and natural resources, they define as significant to their present way of life" (NPS 1998). Traditionally associated groups may remain attached to the area despite having relocated, and

> "…people with loved ones buried or commemorated at NPS memorials represent another unique user group. They all represent a special client population with long-term stakes in the integrity of park resources and the outcomes of management decisions that affect resources associated with them…..Less visible uses occur off-site as people recount oral traditions highlighting park resources with central roles in traditional beliefs, history, and practices. Heritage lessons for the young are embedded in narratives anchored to park localities…. Traditional oral narratives… offer additional contexts for understanding the resources and their contributions to a people's cultural identity. ..[A]ssociated peoples perceive them as traditionally meaningful to their identity as a group and the survival of their lifeways" (NPS 1998).

These traditionally associated individuals maintain a strong sense of "guardianship" for the park, meet regularly with staff, and have a strong interest in management decisions that could

affect the site. Native Hawaiians have also been included in this impact topic because of the importance of Pearl Harbor to their lives and culture.

Museum Collections (including objects, specimens, and archival and manuscript collections) was retained because of the potential changes in location and the need to protect and preserve museum collections on display in or near the visitor center as described in *Management Policies* (NPS 2006a), *Director's Order 24, Museum Collections Management,* Museum *Handbook,* Parts I, II, and III, and *NPS-28, Cultural Resource Management Guideline* (1998). Note that the major portion of the park's museum collections are housed elsewhere and these will not be discussed as part of this environmental document.

Soundscape was retained due to the concern that noise associated with construction activities would have the potential to adversely affect this resource. The regulations and policies applicable to this topic include *Management Policies* (NPS 2006a) and Director's Order #47: Soundscape Preservation and Noise Management.

Public health and safety was retained as an impact topic because of the potential improvements in accessibility and structural integrity of the facility. These topics are addressed in accordance with *Management Policies* (NPS 2006a).

Park operations was retained because of the potential improvements in efficiency of park operations and the potential for impacts during installation and life-cycle maintenance of the new facility. This topic is addressed in accordance with *Management Policies* (NPS 2006a).

Commercial services and local economics was retained as an impact topic because of potential changes to tour access routes and because the AMMA bookstore and concession services could be affected during and after project implementation. Council on Environmental Quality regulations for implementing the National Environmental Policy Act (NEPA), 40 CFR 1500, require economic analyses of federal actions that will affect local or regional economies.

Impact Topics Dismissed From Further Analysis

The resource topics described in this section will not be evaluated any further in this environmental assessment. These impact topics were not identified during scoping as being of concern. Additional reasons for their dismissal are provided below.

Natural resources, including air quality, soils, vegetation, water resources, and wildlife: *Management Policies* (NPS 2006a) directs NPS managers to minimize human impacts on soils, water resources and native plants, animals, populations, communities, and ecosystems, and the processes that sustain them. These impact topics were dismissed from further consideration because the alternatives would have up to short-term, negligible to minor, adverse affects on air quality, natural soils, native vegetation and wildlife, or any water resources.

Air Quality: Overall, there could be local, short-term, negligible degradation of local air quality during construction activities; however, no measurable effects outside of the immediate construction site would be anticipated. Any construction-related, adverse effects to air quality would be temporary, lasting only as long as construction. Therefore, air quality was dismissed as an impact topic. In this highly urbanized location, with heavy traffic on the adjacent King Kamehameha Highway and diesel ships using the harbor regularly, any

additional short or long-term emissions would not likely be detectable. For 2004, the State of Hawai'i Department of Health, Clean Air Branch reported no instances of violations of state or federal air quality parameters in the Honolulu area (State of Hawai'i 2004a). Construction related emissions, such as those from equipment and fugitive dust, would be required to comply with the provisions of HAR 11-60.1 that control emissions of substantial size and require that fugitive dust be minimized. If needed, dust would be controlled using standard suppression methods, and would not likely be detectable. The proposed project would not result in violations.

*Soils***:** The No Action alternative would not produce new disturbance to soils. No adverse impacts on geology, topography, or soils greater than short-term and negligible to minor would be anticipated under any of the action alternatives. The site has been dramatically altered from its native condition by placing large quantities of fill materials during World War II construction activities. No impact on soil stability would result from planned construction as engineering designs account for site geology, topography, and soil conditions. No increase in erosion greater than short-term and minor would occur as potential erosion associated with construction would be controlled through best management practices (site stabilization, silt fencing, etc) and the National Pollutant Discharge Elimination System (NPDES) permit program required by Section 402 of the Clean Water Act, via state water quality permits.

Vegetation and Wildlife: According to National Park Service Management Policies, the National Park Service strives to maintain all components and processes of naturally evolving park unit ecosystems, including the natural abundance, diversity, and ecological integrity of plants and animals. The project area is urbanized (a developed and landscaped environment) and not a natural ecosystem. The waterfront shoreline is either developed or hardened. Vegetation in the project area is either ruderal (plants growing on disturbed ground) or characteristic of a designed and landscaped habitat. Open spaces are either landscaped or predominantly surfaced with impermeable material (concrete and/or asphalt).

Decades of urbanization has destroyed any natural habitat available to wildlife in the park. Also, there are no seabird rookeries in or near the project area and none of the actions proposed would affect transient birds.

Due to the urban character of the project area and the lack of natural habitat, neither preserving and restoring the natural abundances, diversities, dynamics, and distributions of native animal populations and the communities and ecosystems in which they occur nor minimizing human impacts on native animals, populations, communities, and ecosystems, and the processes that sustain them are goals of the park. Therefore, vegetation and wildlife was dismissed as an impact topic.

Water Resources: The NPS-managed area within Pearl Harbor Naval Station is bounded on the west by the marine waters of Pearl Harbor and on the south by Halawa Stream. Both of these water bodies have been heavily impacted by development. The Pearl Harbor estuary receives inflow from eight streams that enter from the highly urbanized areas of Honolulu. Upstream land use includes: agriculture, residential development, commercial and industrial use, and stormwater discharge. The Hawai'i Department of Health has classified Pearl Harbor as a "Water Quality Limited Segment" for its nutrient load, suspended solids, and turbidity (Hawai'i DOH 2004b). Water quality frequently does not meet the state's Water

Quality Standards, being affected by mass emissions of pollutants from non-point sources. During rainstorms, coastal waters are often colored brown by sediments carried in the runoff. In addition, Pearl Harbor is still affected by releases of partially treated sewage effluent (Hawai'i Water Environment Association 2006). The U.S. Navy reports that Pearl Harbor is also affected by copper, nutrient loading, and leachate from anti-fouling paint widely used on ship hulls. The presence of these pollutants can be directly linked to the Navy's long-term use of the harbor and nearby shoreside facilities (U.S. Navy 1998, 2001).

Halawa Stream is a perennial stream that carries stormwater runoff from the urban areas of west metro Honolulu. It was engineered and channelized during development of the naval station and is used to carry stormwater from upstream areas. The stream bed is stabilized with riprap at the location of the boat launch. Water quality in the stream is variable and generally low. Halawa Stream is listed on the Hawai'i 303(d) list of impaired waters for high levels of nutrients and turbidity (Hawai'i DOH 2004b).

Limited adverse effects on surface water quality and no effects on groundwater quality are expected to occur under any of the alternatives. Measurable adverse effects on surface water would not be anticipated as a result of construction because such activities would comply with regulatory requirements, including National Pollutant Discharge Elimination System (NPDES) and local stormwater permitting. Best management practices, stormwater pollution prevention plans, and spill prevention plans would be established to prevent such impacts. These activities would be implemented during all phases of construction.

Relocating the boat dock as proposed under both Alternatives B and C would have little effect on water quality. The dock floats and is anchored to the shoreline. It would not require new pilings for installation in the water. Rather, anchorage would be provided on the shoreline. Therefore, limited amounts of localized turbidity would be generated in the harbor, but this would not likely be detectable above the water quality effects of large ships and naval vessels using the harbor.

Endangered or threatened species and their habitats: There are no federal or state-listed threatened or endangered species at the shoreside visitor center site (USFWS 2006 and U.S. Navy 2002a). However the project is near an area where the federally threatened Newell's shearwater (*Puffinus auricularis newelli*) is known to fly. Several other species that are not listed under the Endangered Species Act but that are protected under the Migratory Bird Treaty Act may also transit the area. Bright lights can disorient night flying seabirds, causing them to land on the ground where they are vulnerable to vehicle collisions and non-native predators. As recommended by the USFWS in a letter to the park dated June 9, 2006, mitigation of impacts to these birds from light would include redirection downward of shielded outdoor lighting so that the bulb is not visible except from below. With implementation of this mitigation, there would be no adverse effect to the threatened Newell's shearwater or to migratory birds.

Three listed marine species have been documented within Pearl Harbor. They are the threatened green sea turtle (*Chelonia mydas*), the Hawaiian monk seal (*Monachus schauinslandi*), and the humpbacked whale (*Megaptera novaeangliae*) (U.S. Navy 2002a and NPS 2005b). Green sea turtle and humpback whale sightings within Pearl Harbor are rare (U.S. Navy 2002a), and the green sea turtle and Hawaiian monk seal have been observed in park waters resting on or swimming around the sunken hull of the USS *Arizona* (NPS

2005a). There are no whales or green sea turtles permanently residing within Pearl Harbor (U.S. Navy 2002a). No listed marine species were cited in the USFWS letter to the park dated June 9, 2006.

Under the action alternatives, piles would be driven to support the foundations. In recent years, several nearby projects have been constructed using pile driving (e.g., the Ford Island Bridge). It has been found that the vibrations from this activity do not transmit very far from the source in this location, because the soft soils of the harbor tend to dampen them (Mimura 2006). Therefore, the NPS has determined that vibrations that result from pile driving activities would not be anticipated to result in any adverse effects on listed species.

During construction, water quality would be protected by reducing or eliminating erosion using best management practices and stormwater control. Any potential limited (negligible to minor), short-term, localized adverse effects to water quality would not be anticipated to affect listed species in the vicinity of the project area.

Relocating the boat launch under Alternatives B and C would result in limited effects to water quality and marine sediments. The dock floats and would be anchored to shoreside footings (as in its current location). Little disturbance to sediments or erosion from placing the footings and moving the dock would result. Therefore, no effects to listed species from relocating the dock would be anticipated.

Accessibility: By law, following NPS adoption of the Architectural Barriers Act Accessibility Standards (ABAAS), "[f]acilities subject to the Architectural Barriers Act (ABA) must meet the ABAAS if the construction or alteration commences, or the lease is entered into, after May 8, 2006." Accessibility is a standard to be met regardless of the action alternative implemented, and is therefore dismissed from analysis.

Conflicts with land use plans, policies, or controls: Whenever actions taken by the National Park Service have the potential to affect the planning, land use, or development patterns on adjacent or nearby lands, the effects of these actions must be considered. The project area for the proposed visitor center is owned by the U.S. Navy, and is managed by the National Park Service under a long-term use agreement. The U.S. Navy and National Park Service work closely together to manage the resources of the USS *Arizona* Memorial and share in decision making about land use that may affect joint or individual operations. The Navy has been a full participant in planning for the new visitor center at the park, and the park service will continue to meet Navy and Department of Defense requirements for the site and structure throughout project planning and implementation. The project would not conflict with adjacent land uses or implementation of the integrated Pearl Harbor Historic Partners Site Master Plan effort.

Cultural resources:

*Archeological resources***:** Because the entire project area is comprised of fill added during the war-time construction of Pearl Harbor and only fill would be disturbed under the action alternatives considered in this plan/environmental assessment, there would be no effect to archeological resources under any of the alternatives considered. For these reasons, archeological resources were eliminated from further analysis. In the unlikely event that significant archeological resources are discovered during construction, all work in the immediate vicinity of the discovery would be halted until the resources could be identified

and documented and an appropriate mitigation strategy developed, if necessary, in consultation with the Hawai'i State Historic Preservation Officer.

*Historic structures***:** The park is situated within the Pearl Harbor National Historic Landmark District so it is imperative that special care be taken to ensure landmark properties are protected as described in 36 Code of Federal Regulations 800.10. However, no historic structures would be affected under any of the alternatives considered in this plan/assessment, as the visitor center and associated buildings were constructed in 1978, and are not considered eligible for listing on the National Register of Historic Places. For these reasons, the topic of historic structures was eliminated from further analysis (*Management Policies* (NPS 2006a) and *NPS-28, Cultural Resource Management Guideline* (1998)).

Under the action alternatives, piles would be driven into the ground to support the foundation of the visitor center structures. Pile driving creates vibrations that could have an effect on historic structures such as the sunken hull of the USS *Arizona*. In Pearl Harbor where multiple past projects such as large-scale bridge construction and pier replacements have been undertaken, it has been found that the vibrations resulting from pile driving generally do not transmit very far from the source because soft soils in the harbor tend to dampen them (Mimura 2006). Therefore it has been determined that vibrations that result from pile driving activities would not have any adverse effects on this historic structure considering the distance from the location of the development of the shoreside visitor facilities to the USS *Arizona* (Mimura 2006).

Ecologically critical areas or other unique natural resources: The proposed action would not affect any designated ecologically critical areas, wild and scenic rivers, or other unique natural resources, as referenced in the Wild and Scenic Rivers Act, *Management Policies* (NPS 2006a), 40 CFR 1508.27, or the criteria for national natural landmarks (36 CFR 62) as none are present within the park.

Environmental justice: Presidential Executive Order 12898, General Actions to Address Environmental Justice in Minority Populations and Low-Income Populations, requires all federal agencies to incorporate environmental justice into their missions by identifying and addressing the disproportionately high and/or adverse human health or environmental effects of their programs and policies on minorities and low-income populations and communities. According to the Environmental Protection Agency, environmental justice is the

> "…fair treatment and meaningful involvement of all people, regardless of race, color, national origin, or income, with respect to the development, implementation, and enforcement of environmental laws, regulations and policies. Fair treatment means that no group of people, including a racial, ethnic, or socioeconomic group, should bear a disproportionate share of the negative environmental consequences resulting from industrial, municipal, and commercial operations or the execution of federal, state, local, and tribal programs and policies."

The goal of fair treatment is not to shift risks among populations, but to identify potentially disproportionately high and adverse effects and identify alternatives that may mitigate these impacts.

There are both minority and low-income populations in the general vicinity of the USS *Arizona* Memorial; however, environmental justice is dismissed as an impact topic because:

- The Park staff and planning team actively solicited public participation as part of the planning process and gave equal consideration to all input from persons regardless of age, race, income status, or other socioeconomic or demographic factors.
- Implementation of the preferred alternative would not result in any identifiable adverse human health effects.
- The impacts associated with implementation of the preferred alternative would not disproportionately affect any minority or low-income population or community.
- Implementation of the preferred alternative would not result in any identified effects that would be specific to any minority or low-income community.
- The Park staff and planning team do not anticipate the impacts on the socioeconomic environment to appreciably alter the physical and social structure of the nearby communities.

Therefore, environmental justice was dismissed as an impact topic.

Floodplains and wetlands: Executive Orders 11988 and 11990, Floodplain Management and Wetlands, respectively, require analysis of impacts on floodplains and regulated wetlands. There are no wetlands regulated under the provisions of Section 404 of the Clean Water Act, or areas designated as wetlands using the classification system of Cowardin *et al*. (1979), within the areas of potential effect.

The visitor center site is within the Halawa Stream floodplain and the Hawai'i Coastal Management Zone. No other location is available to the NPS for the USS *Arizona* Memorial visitor center. In case of flood or tsunami emergency, life and property would be protected by implementation of the U.S. Navy emergency operations plan for the Pearl Harbor Naval Station. The long-term negligible to minor effects on floodplain function and values and threats to life and property that result from continued presence of the visitor center at this location would not change under any of the alternatives. Thus, the floodplains topic was not retained for analysis. However, development concerns with regards to floods, tropical storms, and other potential coastal hazards are addressed under the Coastal Zone Management Assessment, which is attached in Appendix B and in a Statement of Findings for Floodplains in Appendix C.

Indian trust resources: Indian trust assets are owned by American Indians but are held in trust by the United States. Requirements are included in the Secretary of the Interior's Secretarial Order 3206, American Indian Tribal Rites, Federal – Tribal Trust Responsibilities, and the Endangered Species Act, and Secretarial Order 3175, Departmental Responsibilities for Indian Trust Resources. According to USS *Arizona* Memorial staff, Indian trust assets do not occur within the park. Therefore, there would be no effects on Indian trust resources resulting from either of the alternatives.

Lightscape management: In accordance with National Park Service Management Policies (2006a), the National Park Service strives to preserve natural ambient lightscapes, which are natural resources and values that exist in the absence of human caused light.

Due to the urbanized setting of the USS *Arizona* Memorial, the preservation of natural ambient lightscapes would not be a project objective. The Park would strive, however, to limit the use of artificial outdoor lighting to that which is necessary for basic safety requirements. This would help ensure that all outdoor lighting is shielded to the maximum extent possible, to keep light on the intended subject and out of the night sky, so as to minimally contribute to surrounding light sources. Thus, lightscape management was dismissed as an impact topic

Prime and unique agricultural lands: The Council on Environmental Quality 1981 memorandum on prime and unique farmlands states that prime farmlands have the best combination of physical and chemical characteristics for producing food, feed, forage, fiber, and oilseed crops. Unique agricultural land is land other than prime farmland that is used for production of specific high-value food and fiber crops. The USS *Arizona* Memorial visitor center is located on fill, in a highly urbanized environment. No such agricultural sites are found at this location.

Wilderness: The USS *Arizona* Memorial is located in a highly urbanized military facility on Pearl Harbor in Honolulu, Hawai'i. The site does not contain and is not adjacent to any designated or proposed wilderness areas. USS *Arizona* Memorial is not under consideration for wilderness designation under the 1964 Wilderness Act, Director's Order 41, or *Management Policies* (NPS 2006a).

ALTERNATIVES CONSIDERED

A range of alternatives designed to address the shortcomings of the existing visitor center at the USS *Arizona* Memorial were evaluated by the National Park Service during the Value Analysis/Choosing by Advantages sessions held in June and August 2006. During the sessions, an interdisciplinary team analyzed the advantages and drawbacks of each design option. Four original options were rejected because they did not meet project objectives nor had the potential to produce an unacceptable level of adverse visitor use impacts. The alternatives dismissed from consideration are addressed in the section "Alternatives Considered but Dismissed."

Although the option of continuing current management / no action does not provide long-term resolution of the issues of building settling and visitor capacity, the No Action Alternative is used as the baseline against which action alternatives are analyzed. This is the context for determining the relative magnitude and intensity of impacts (NPS 2001). The no action alternative is referred to as "Alternative A, the No Action Alternative" in this environmental assessment.

DEVELOPMENT OF THE ACTION ALTERNATIVES

The design concept analysis for this project led to the development of two proposed action alternatives, which are addressed in this assessment. These alternatives were developed consistent with the National Park Service mandate in *Management Policies* (NPS 2006a) to minimize the short- and long-term environmental impacts of development and other activities through the use of energy-efficient and ecologically responsible materials and techniques. The action alternatives are Alternatives B and C. Alternative B would construct a cluster of visitor center structures directly to the east and to the north of the current location, reuse the existing theaters, and move the boat dock from its existing location on Halawa Stream approximately 100 feet downstream to improve visitor access to the boats to the memorial.. Alternative C would raze the existing visitor center, construct a cluster of visitor center structures to the north of the current location (closer to the USS *Bowfin* Submarine Museum and Park), and move the boat dock from Halawa Stream to the Pearl Harbor shoreline (at the old Halawa Landing site). The NPS proposed action is referred to as "Alternative B, the Preferred Alternative."

Natural or Depletable Resource Requirements and Conservation Potential

The National Park Service strives to incorporate the principles of sustainable design and development into all facilities and park operations. Sustainability can be described as the result achieved by doing things in ways that do not compromise the environment or its capacity to provide for present and future generations. Sustainable practices minimize the short- and long-term environmental impacts of developments and other activities through resource conservation, recycling, waste minimization, and the use of energy efficient and ecologically responsible materials and techniques.

The National Park Service's *Guiding Principles of Sustainable Design* (1993) provides a basis for achieving sustainability in facility planning and design, emphasizes the importance of bio-diversity, and encourages responsible decisions. The guidebook describes principles to be used in the design and management of visitor facilities that emphasize environmental

sensitivity in construction, use of nontoxic materials, resource conservation, recycling, and integration of visitors with cultural settings. The USS *Arizona* Memorial would reduce energy costs, eliminate waste, and conserve energy resources by using energy efficient and cost effective technology wherever possible. Energy efficiency would also be incorporated into any decision-making process during the design or acquisition of facilities, as well as all decisions affecting park operations. The use of value analysis and value engineering, including life cycle cost analysis, would be performed to examine energy, environmental, and economic implications of proposed development. The park would encourage suppliers, permittees, and contractors to follow sustainable practices and address sustainable park and non-park practices in interpretive programs.

Green Basis of Design

The National Park Service reduces energy costs, eliminates waste, and conserves resources by using energy-efficient and cost-effective technologies and design. Energy efficiency is incorporated into the decision-making process during the planning and design process by innovative use of site amenities and through reducing use of scarce or non-renewable resources. Examples of technologies that respond to these concepts are high-efficiency air-conditioning systems, low-flow plumbing fixtures, and use of renewable building materials.

For the USS *Arizona* visitor center project, the green building design concept for Alternatives B and C would focus on use of abundant resources present at the site. This approach would reduce energy and water consumption by taking advantage of cooling trade winds and shade from vegetation and by installation of more water-efficient fixtures and landscaping. Recognizing the poor soil conditions, the design approach would utilize light-weight construction methods to reduce the potential for unacceptable levels of building settling. Because visiting the park is an outdoor experience, visitors usually come dressed for tropical temperatures; thus air-conditioning visitor space would not be required in most visitor common areas (Portico Group 2006).

Ventilation and shade would be maximized, and auxiliary fans could be used to move air on days when the trade winds are not blowing. Air-conditioned spaces would be minimized, with only exhibit cases and the theater's audio/visual mechanical room requiring climate control.

The green design criteria goals for the new visitor center are common to both Alternatives B and C and would include (Portico Group 2006):

- a 40 percent reduction in potable water consumption,
- use less energy than the existing visitor center,
- attain a minimum of 20 percent use of building materials manufactured within 500 miles of the site, and
- use recycled materials to the extent possible.

Common Approach to Project Implementation

For both Alternatives B and C, visitors would arrive at the Pearl Harbor Historic Sites shared arrival plaza. The Pearl Harbor Historic Partnership has been formed to provide a centralized entrance and information site for all four Pearl Harbor historic venues: the USS *Arizona*

Memorial, the USS *Bowfin*, the USS *Missouri* and the Pacific Aviation Museum. A bus waiting area for transportation on the Ford Island shuttle to the USS *Missouri*, the Pacific Aviation Museum, and other Ford Island attractions would be installed and access to the nearby USS *Bowfin* Submarine and Museum would be maintained. The shared arrival plaza would provide joint restrooms, bag storage, and security before entering the orientation and ticketing area. Visitors to the USS *Arizona* Memorial would continue to receive a free, timed ticket to view the interpretive film and take the boat ride to the memorial. The USS *Arizona* retail sales area (run by the Arizona Memorial Museum Association) would be placed near the exit, allowing visitors to commemorate their experience through the purchase of books, posters, and souvenirs.

The park requires dignified building forms, and long lasting materials that are light weight, durable, and easily maintained. The site would feature tropical plantings, courtyards, lanais, open views, sun and rain protection, and access to prevailing winds. The design of the surrounding landscape would provide a sense of reverence, encourage recognition and honor, provide niches where people can reflect privately, and evoke a sense of the importance of these past events in today's world. Elimination of intrusive sights and sounds would also encourage a mood of solemnity.

An amphitheater and classroom would support the educational mission of the park, providing space for formal and informal programs by NPS guides or guest speakers. A Ceremonial Lawn and other smaller green spaces would provide a place for reflection, informal gatherings, and ceremonial functions. Views toward the memorial would be enhanced.

Both of the action alternatives provide options for location of the commercial services functions within the security perimeter (see "Antiterrorism Criteria" below). Parking, tour bus drop-off, and rest rooms would be placed outside the security check point. Ticketing, orientation and access to the Ford Island Shuttle would be available after security.

Antiterrorism Criteria

Because the USS *Arizona* Memorial visitor center is located within the Pearl Harbor Naval Base, the design criteria for Alternatives B and C must comply with the Department of Defense Minimum Antiterrorism Standards for Buildings (UFC 4-010-01). The Department of Defense Standards are based on a specific range of assumed threats that provides a reasonable baseline for the design of all inhabited buildings. For the purpose of the standards, the primary method of explosives delivery, the vehicle bomb, is assumed to be a stationary vehicle bomb (Portico Group 2006).

Standoff Distance (roadways and parking areas): The most cost-effective solution for mitigating explosive effects on buildings is keeping the buildings as far as possible from the source of the blast. The Department of Defense Standards provide minimum standoff distances that allow the use of conventional construction without consideration of blast hardening. The required standoff distances from roadways and parking areas are dependent on whether or not there is a physical boundary at which vehicle access is controlled. The USS *Arizona* visitor center is not within a controlled perimeter and therefore is subject to the conventional construction standoff distances of:

- 0-83 feet for no construction,

- 83-148 feet buildings must be hardened and
- no restrictions for structures greater than 148 feet (Portico Group 2006).

There is no security setback requirement along the Halawa Stream side of the property.

ALTERNATIVE A, THE NO ACTION ALTERNATIVE

The No Action Alternative would continue current management and use of the 19,325 square foot visitor center, without significant changes to maintenance or operation of the facilities (Figure 3). The existing structural configuration would remain unchanged. No major repairs or replacement of components at the visitor center would take place.

However, selected repairs to maintain the operation of the building and to provide a safe environment for staff and the visiting public would be performed. It is no longer practical to continue to re-level the building using the stub columns. Therefore, several remedial measures would be implemented on an "as needed" basis, with funds available. To maintain the structure in a usable condition for an additional five years, the Baldridge and Associates structural evaluation (2004) recommends that a group of actions be undertaken to improve the stability of the structure. These measures would not address the long-term issues associated with the site, structure, visitation rates, and visitor services.

To provide lateral stability for the fully extended stub columns beneath the lobby and entrance area, steel angle braces could be installed at the base of each column. At present, this would be required at seven to ten locations.

FIGURE 3. EXISTING VISITOR CENTER, ALTERNATIVE A

Existing gaps or holes between the stub columns and foundation could be filled with fluid grout that would then harden to provide continuous support. This would ensure proper transfer of shear forces and lateral support. Up to 48 interior columns may require this treatment.

The concrete and steel deterioration caused by water infiltration would be a priority for treatment as water depth and rate of corrosion are likely to increase. The National Park Service would actively monitor and continue to pump water from the basement/crawl space to maintain as dry an environment as possible.

Any loose shims and cracked or crushed columns would be repaired. This would help to provide uniform weight bearing and reduce shear stress. In addition, any excessive spalling or exposed rebar would be repaired to slow the deterioration and corrosion process.

In 2003, the cost for these actions was estimated to be just over $500,000. However, this value does not include adjustment for rapidly rising construction costs in Hawai'i, which have been as high as 20 percent annually in recent years.

Over time, the buildings could become seismically unstable. Ongoing monitoring of the columns and foundation system would indicate if this situation were to develop. In the event that one or more of the three segments of the structure were to become unstable, the NPS would take appropriate measures to protect public safety and park resources. Closure of any parts of the visitor center, for any duration, would be accompanied by removal of archival and collection items from vulnerable locations, and restrictions on public access. In the event that the concession and AMMA bookstore were to be closed, the NPS would provide alternative sites for these service providers to continue operations.

ALTERNATIVE B, THE PREFERRED ALTERNATIVE

Visitor Center Building Concept

Alternative B would construct new visitor center buildings adjacent to the existing facility to the east and north, and move the existing boat launch 100 feet to the west from its current location. The new visitor center structures would be placed in a linear, campus-based fashion. A Ceremonial Lawn is proposed at the location of the existing visitor center facility. This alternative would renovate and retain usage of the existing theaters. This option provides for greater visitor flow control and provides a highly consistent interpretive and educational experience.

The building concept and site layout for Alternative B are presented in Figure 4. This figure is a representation of the alternative; the actual configuration would be determined during later design stages.

Under Alternative B, the entry to the visitor center would be approached directly from the north or south parking lot, as well as from the public drive and tour bus turn-around. Passing through security, visitors could glimpse the memorial as they proceed through the shared arrival plaza and ticketing. To the north, visitors would have a direct route to the USS *Bowfin* and the Ford Island Shuttle. Turning south, the USS *Arizona* Memorial visitor center would have a central corridor containing the exhibits, the AMMA bookstore, food service, and theaters, in a linear procession.

Alternative B would integrate interior and exterior spaces, with visitor services around the Ceremonial Lawn. Each building and public space would help to refine and focus toward the memorial. Structures would also be well-oriented to the trade winds and combined with on-site shading so the need for conventional cooling systems would be reduced. The existing boat launch would be moved about 100 feet west of its current location in order to improve visitor circulation.

Required offices and NPS staff areas would be placed in a second story above the space designated for the AMMA bookstore and concession area. An elevator would be installed to improve employee and handicapped access to the second story. The design of this two-story structure would be consistent with the existing viewshed and building height requirements.

Under Alternative B the existing theater building would be renovated to increase its usability and lifespan an additional 20 years. Accessibility requirements would be met by installation of ramps and wheelchair seating areas. Accessible routes would be included with pedestrian routes to ensure consistency of visitor experience. New, energy-efficient mechanical and electrical systems, including new high volume air-conditioning (HVAC) would be installed to reduce energy consumption and operational needs. As in Alternative A, similar selected repairs (i.e. jacking and shimming foundation columns and repairing spalled concrete and exposed rebar) on the foundation could be performed, as necessary, to maintain the operation of the building and to provide a safe environment for staff and the visiting public. The upgrades would be expected to provide a life-expectancy of up to 20 years for the theaters due to their better structural condition as opposed to the remaining portions of the visitor center.

A defined "back of house" corridor and service area would be constructed along the east side of the proposed visitor center campus. This configuration would effectively separate the housekeeping and park operations functions from visitor circulation, thereby reducing conflict and interference with visitor flow.

To minimize ground disturbance during project implementation, all staging areas, materials stockpiling, vehicle storage, batch plants, and other construction-related facilities and areas would be located in a previously disturbed area or on hardened surfaces. There would be limitations for the staging and stockpiling for the contractor on the existing Halawa Landing site. Staging and stockpiling areas would be dependent upon contractor phasing, and final design criteria would identify where staging and stockpiling would occur. Designated travel routes, delivery times, and safety measures, would be included in final design. Best management practices would be implemented to minimize environmental impacts associated with these areas and are discussed in detail in the section under that title. Candidate sites could be located on existing parking areas or on the newly acquired parcel located to the northeast adjacent to the USS *Bowfin* that would likely become a parking area.

The number of vehicles associated with construction-related activities would be anticipated to contribute only minimally to the existing background traffic conditions. During construction, the flow of pedestrian and vehicular traffic at the site, and along nearby streets or in parking areas, would be temporarily restricted. There would be a temporary loss of some visitor parking during construction. Flaggers would be used during work hours to control traffic, pedestrians and drivers may experience delays. Every effort would be made

to maintain the flow of pedestrian and vehicular traffic and minimize delays as much as possible.

Demolition, stabilization, and construction activities associated with Alternative B would last approximately two years. During this time, the visitor center would remain operational to the extent possible. However, areas of the center could be closed or portions of the site could be inaccessible during all or part of the construction period. For example, the theatres would likely be closed for several months for installation of upgrades. Access routes for both vehicles and pedestrians would periodically change to allow safe egress through the changing construction area. Museum collections would be removed from the exhibits during construction.

The National Park Service has committed to maintaining operation of the boat service to the memorial throughout the construction period. However, the current location may not be accessible, and the frequency of the service may need to be adjusted. Visitors would access the boat from an alternate location, provided by the Navy.

The location and operation of the memorial's cooperating association, AMMA, and concession operator would also be subject to change during construction. Because the portion of the existing visitor center that houses these commercial services would be demolished, an alternate location for the bookstore and refreshment stand would be identified. The National Park Service would provide adequate, adjacent space for these activities, but specific accommodations are not known at this time. The need to operate in temporary facilities could span several months to the entire 2-year construction period.

Foundation System

The deposits of soft and highly compressible fill soil in the project area extend to depths of 100 to 150 feet. Moving to the north and east from the existing visitor center, the soil conditions improve somewhat. In order to reduce the problem of differential settlement, the new buildings would need to be supported on deep foundations. The most appropriate solution would be placement of steel driven piles placed into the stable material below the compressible soil. The proposed foundation system for Alternative B therefore would be 150 to 200 foot driven steel piles connected to grade beams to serve as support for the floor slabs. The floors would be structural slabs, limiting the potential for differential settlement and cracking. In addition to the floors of the new buildings, portions of the plaza slab will also be supported on piles.

Pile driving to provide a stable foundation for the structures would last up to 4 months. Piles would be needed for each of the campus-style structures, and for concrete-slab hardened surfaces such as courtyards and plazas. The piles would extend to underlying stable material, approximately 150 to 200 feet below the surface. Pile driving generates rhythmic vibrations and intense noise that would be felt and heard in nearby facilities and residences. The National Park Service would endeavor to mitigate effects of this activity by: removing all museum objects from the interpretive exhibits to protect them from vibrations; potential adjustments to hours of operation of the park to minimize visitor exposure to noise; and scheduling work during daylight or normal waking hours to limit effects on neighbors. Vibrations that result from pile driving activities would not be anticipated to affect the

FIGURE 4. DRAFT VISITOR CENTER CONCEPT ALTERNATIVE B

sunken USS *Arizona*. However, vibration monitors would be placed on the hull to detect any potential effects of construction-related activities.

Superstructure

The structural systems for the numerous smaller buildings arranged in a campus or cluster setting under this alternative would meet all pertaining building codes, and would also incorporate the following criteria:

- durable in Hawaii's tropical and highly corrosive environment;
- meets seismic and hurricane resistance criteria;
- efficiently integrates gravity- and lateral-load-resisting systems;
- minimizes extent of foundation system; and
- meets security and antiterrorism requirements.

The resulting design concept for the structures would use tensile structures, supported by reinforced concrete foundations and sidewalls.

Because of the poor soil conditions, the building foundation system would represent a significant portion of the overall structural cost and effort. The use of light weight construction materials would help reduce the overall number of piles and decrease the grade beam requirements. For this reason, structural steel is proposed as the primary structural framing material. The use of lightweight construction materials would reduce the overall building mass, thereby reducing the resultant seismic forces.

Tensile Structure

Alternative B would use a tensile structure that covers the exhibits, plazas, and courtyards beneath. Three types of tensile structures are being considered that typically consist of a Teflon® coated fiber glass fabric. The membrane structure would have high points with steel truss masts or columns that allow the membrane to cover areas where shade is needed, and would have openings creating courtyards and giving the structure the necessary curvature. The exact shape of the structure could be manipulated to reflect the plan of the exhibits and would likely be irregular in shape. The advantage of this system is that it would contain the least amount of steel (no framing, only columns). In addition, the overall form could assume any type of configuration. This would be the most informal of the design options, and would also have the least amount of downward foundation load. Compared to the buildings and plaza slabs the tensile structures would be lightweight and would not generate substantial downward forces. The primary force at the base of the tensile structures would be upward forces and lateral thrust from wind. It is anticipated that these forces would be fairly strong, requiring pile supports to act as hold-downs. If possible, the location of the tensile structure's vertical members would coincide with piles necessary for the plaza slab support. The weight of the plaza slab structure would help counteract the upward forces.

The disadvantage is that this tensile structure would have the most uplift loads of the design options. Another disadvantage of this design is that the entire roof would need to be "de-tensioned" to perform work if a section of the membrane were to require repair or replacement, and "re-tensioned" once the work was complete.

The costs of implementing the full program of Alternative B have been estimated at approximately $28 million for the facilities and $4 million for the exhibits. However, this cost estimate does not include adjustment for rapidly rising construction costs in Hawai'i, which have been as high as 20 percent annually in recent years.

ALTERNATIVE C, CAMPUS STYLE WITH RELOCATED BOAT LAUNCH

Visitor Center Building Concept

Alternative C would move the visitor center structures to the north of the current location, closer to the USS *Bowfin* Submarine and Museum. The exhibits, theaters, and shared arrival plaza structures would be placed in a clustered fashion while the concessions, administrative offices, restrooms and vending areas would be in a linear north-south trending configuration. As in Alternative B, the park's administrative offices would be placed over the AMMA bookstore creating a two-story structure. A larger Ceremonial Lawn would be located in the area of the existing visitor center facility. The boat dock would be moved to the western shore of the site and would be situated by the new theaters for easy access. This option would provide for greater range of choices for the visitor and chances to have an individual experience of the events of December 7, 1941.

The building concept and site layout for Alternative C are presented in Figure 5. This figure is a representation of the alternative; the actual site layout and appearance and configuration would be determined later during design stages.

As under Alternative B, the entry to the visitor center would again be approached directly from the north or south parking lots, as well as from the public drive and tour bus turn-around and after passing through security, visitors would glimpse the memorial as they proceeded through the shared arrival plaza and ticketing. To the north, visitors would again have a direct route to the USS *Bowfin* and the Ford Island Shuttle. Heading directly west, the USS *Arizona* Memorial visitor center would have a central arrival plaza, around which exhibits, theaters, and restrooms could be accessed. Turning south the visitor would encounter the AMMA book store/NPS administrative offices, additional restrooms and vending area.

As in Alternative B, the new visitor center design would integrate interior and exterior spaces, with visitor services around the Ceremonial Lawn. A shaded overlook area would provide open, unobstructed views of the memorial, Remembrance Circle, and Ceremonial Lawn from a site near the exhibits and interpretive message. New theaters would be constructed near the boat launch with new media presentation screens and sound systems, compatible with a shaded, outdoor setting. Air-conditioned spaces would be limited to exhibit cases and areas where museum collections and archival items require climate-controlled environments.

Required offices and NPS staff areas would be placed in a second story above the space designated for the AMMA bookstore and concession area. The design of this two-story structure would be consistent with the existing viewshed. Each building and public space would help to refine and focus public attention toward the memorial. Structures would also be well-oriented to the trade winds and combined with on-site shading, the need for conventional cooling systems would be reduced.

As in Alternative B, a defined "back of house" corridor and service area would be constructed. This configuration would effectively separate the housekeeping and park operations functions from visitor circulation, thereby reducing conflict and interference with visitor flow.

Unlike Alternative B, moving the visitor center to the north would allow for continued use of the existing visitor center throughout construction. Vehicle and pedestrian access routes to and within the site would periodically change in response to construction conditions, but the visitor center and boat launch would be fully operational. The AMMA bookstore and refreshment vendor would continue operations until completion of the new facility and then transfer operations to the new location.

Demolition, stabilization, and construction activities associated with Alternative C would last approximately two years during which the visitor center and boat service to the memorial would be fully functional. The boat service would be discontinued for several days (not to exceed one week) for transfer of the floating dock from Halawa Stream to the new location adjacent to the USS *Bowfin*. The National Park Service, in conjunction with the U.S. Navy, could choose an alternate location of the service, if this were deemed necessary. Contractor equipment and material staging and traffic control would be similar to Alternative B and would be dependant upon final design and project phasing.

Foundation System

The foundation would be similar to that described for Alternative B. Approximately 125 to 150 Driven steel piles would be installed and would connect to grade beams to act as structural support. At this location, depth of solid substrate is somewhat less than at the current site. Piles would be driven to a depth of less than 150 feet. The effects and mitigation measure for pile driving would be the same as described for Alternative B.

Superstructure

As described for Alternative B, the soil conditions and consideration of sustainability and green design have led to the selection of lightweight construction materials. Structural steel would also serve as the primary structural framing material under Alternative C.

Tensile Structure

Alternative C would construct tensile structures with membrane covers for exhibits, plazas, courtyards, and the theatres. These structures would be similar to those described for Alternative B.

The costs of implementing the full program of Alternative C have been estimated at approximately $28 million for the facilities and $4 million for the exhibits. However, this cost estimate does not include adjustment for rapidly rising construction costs in Hawai'i, which have been as high as 20 percent annually in recent years.

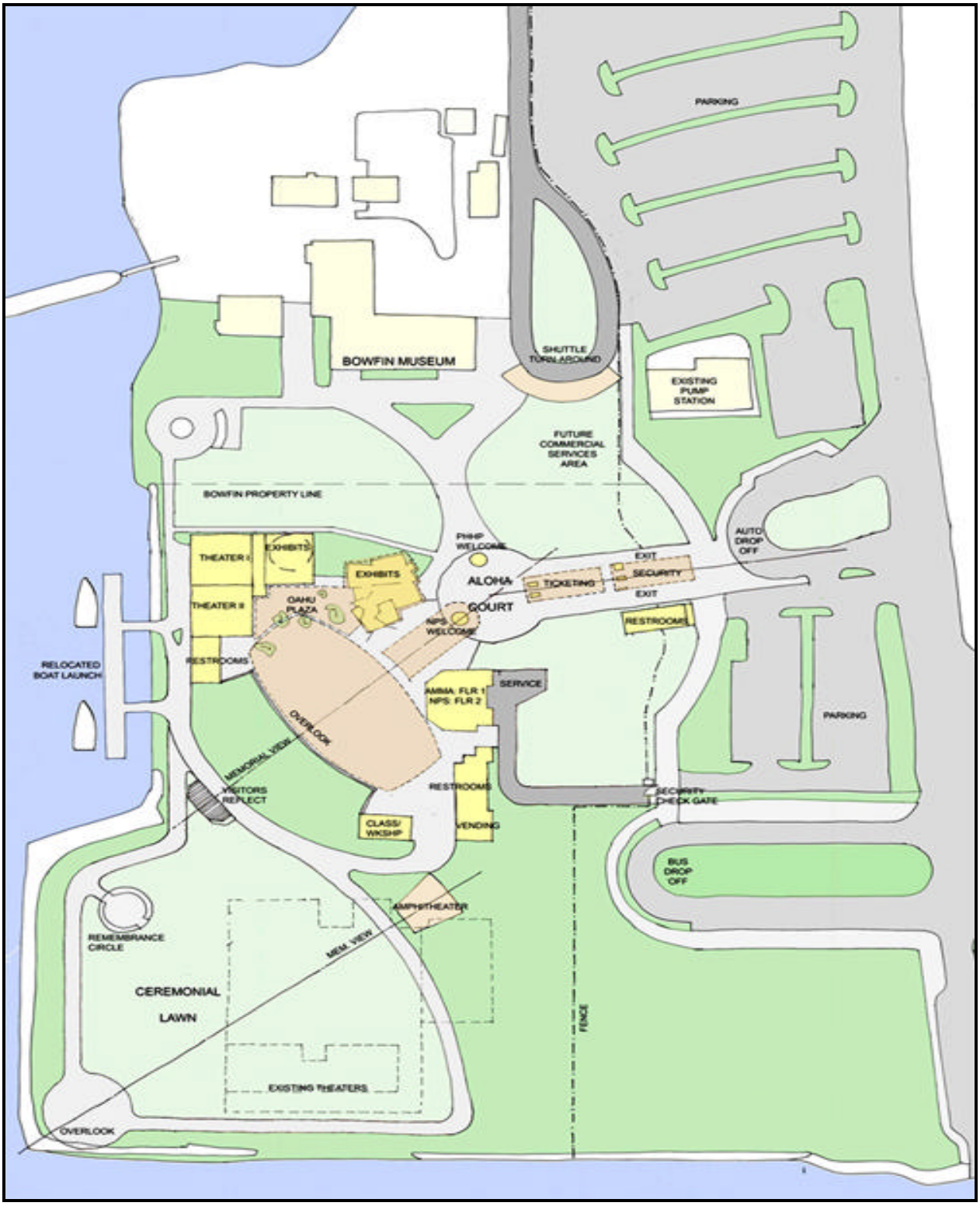

FIGURE 5. DRAFT VISITOR CENTER CONCEPT ALTERNATIVE C

RESOURCE PROTECTION MEASURES OF THE ACTION ALTERNATIVES

Under either of the action alternatives, best management practices and mitigation measures would prevent or minimize potential adverse effects associated with the project. These practices and measures would be incorporated into the project design and plans.

Resource protection measures undertaken during project implementation would include, but would not be limited to, those listed below in Table 1. The impact analyses in the "Affected Environment and Environmental Consequences" section were performed assuming that these best management practices and mitigation measures would be implemented as a part of project implementation.

TABLE 1. RESOURCE PROTECTION MEASURES

Visitor Use and Experience

The majority of material deliveries would be made and disruptive work would be done during low visitation times (such as weekday afternoons), rather than during peak visitation periods.

Paved areas used by vehicular and pedestrian traffic would be kept clean of construction debris and soils.

Hours of operation of the park would be adjusted to minimize visitor exposure to vibrations and sounds of pile driving. The park would continue to notify tour operators, agencies, organizations, neighbors, etc about the project on a timely basis.

Project information such as construction phasing, schedule and time changes, or timing of pile driving events, etc would be made available to visitors and local residential housing and commercial users by several means and methods, including but not limited to:

- Local newspapers and media outlets including television and radio programming,
- Commercial service (tour) providers,
- Visitor centers and contact locations in and around the Pearl Harbor and Ford Island visitor attractions,
- The park's website, and
- Local hotels, visitor's bureaus and tourist information locations.

Cultural Resources

During the project, protection of the park's museum collections would be imperative. All museum objects would be removed from interpretive exhibits to protect them from pile driving vibrations or other construction related effects, and to ensure their safety. Procedures in the National Park Service Museum Handbook would be followed to ensure none of the museum collections are lost or damaged. This handbook contains specific procedures for managing museum collections to protect them from theft, flooding, fire and biological infestation; describes ways to package, handle, transport, and store museum collections; and defines appropriate climatic conditions and methods to protect museum collections from light, temperature and humidity variations, chemicals, and dust and air pollution. For those exhibits that are vital to the understanding of the Pearl Harbor story, replicas of the artifacts and documents could be used so that visitors could continue to receive the best possible interpretation of the story.

If prehistoric or historic archeological resources are discovered during any portion of the proposed action, work in the area associated with the find would cease, and resources would be protected. Procedures outlined in 36 CFR 800 would be followed, potentially including relocation of the work to a non-sensitive area to avoid further disturbance to the site until the significance of the find can be evaluated.

Discovered resources would be evaluated for their potential National Register of Historic Places significance by an archaeologist meeting the Secretary of the Interior's standards, and, if needed, mitigation measures

TABLE 1. RESOURCE PROTECTION MEASURES

would be developed in consultation with the Hawai'i State Historic Preservation Officer and appropriate representatives of Native Hawaiian groups. Mitigation measures would be cognizant of ethnographic concerns, resource significance and preservation needs, and could include such provisions as changes in project design and/or archeological monitoring of the project and data recovery conducted by an archeologist meeting the Secretary of the Interior's standards.

Noise

A press release would be issued by the park before construction begins identifying the projected construction schedule and duration of noise-generating construction activities. In addition, notices regarding the projected construction would be posted on site and mailed to visitor bureaus, bus companies and other tourist oriented businesses and organizations.

Contractors would create and implement development-specific noise reduction plans, which would be enforced via contract specifications. Contractors may elect any combination of legal, non-polluting methods to maintain or reduce noise to thresholds levels or lower, as long as those methods do not result in other significant environmental impacts or create a substantial public nuisance. The plan for attenuating construction-related noises would be implemented prior to the initiation of any work that triggers the need for such a plan. The noise reduction plan would be reviewed and approved by the National Park Service

Lightscape Management

All outdoor lighting would be shielded downward so that the bulb is not visible, at bulb height, from the side.

Public Health and Safety

An accident prevention plan, which would include job hazard analyses associated with each major phase of the proposed project, would be required. The plan would address:

- Fires,
- Power outages,
- Windstorms,
- The nature of the construction work,
- Site conditions, and
- Required project inspections and safety meetings.

Measures to reduce effects of demolition and construction on visitor safety and experience would be implemented, including different locations and types of barriers.

All trucks hauling demolition debris and other loose materials that could spill onto paved surfaces would be covered or would maintain adequate freeboard.

The use of hazardous materials would be approved in advance, including:

- Analysis of explosive, flammable, poisonous, corrosive, oxidizing, or irritating substances (relative to their safe storage and use),
- Minimization of the use of hazardous chemicals, and
- Use of substances with low or no air quality impacts, and limited persistence or low potential to cause chemical sensitivity.

TABLE 1. RESOURCE PROTECTION MEASURES

Lead and asbestos abatement:

- Where appropriate, activities conducted in interior rooms and spaces would be guided by a lead abatement investigation and removal plan. This plan would be compliant with all federal, state, and local requirements in accordance with Title 15, Chapter 53, subchapter IV Section 2688 – Control of Lead-based Paint Hazards at Federal Facilities and the Occupational Safety and Health Administration standard for construction (29 CFR 1926.62).
- Where appropriate, activities conducted in interior rooms and spaces would be guided by an asbestos investigation and removal plan. This plan would be compliant with all federal, state, and local requirements and in accordance with Occupational Safety and Health Administration standards pertaining to employee or worker exposure covered under 29 CFR 1910.1001. Additional work practices would comply with the Construction Standard for the Asbestos Industry (40 CFR 1926.1101 or CFR Title 8 Section 1529).

Soils, Vegetation and Water Resources

Revegetation efforts would include:

- Modern sustainable landscape designs, including use of native plants where possible, compatible with the structure and that reduce the amount of irrigation needed, and
- Stockpiling and covering stored soils and excavated materials prior to reuse.

To prevent soil from eroding:

- Stored topsoil would be overtopped by anchored matting to prevent siltation from heavy runoff during rainstorms,
- Adequate erosion control or drainage structures would be installed and maintained, and
- Stockpiling of materials would occur on pavement or in areas exhibiting signs of recent disturbance (bare ground).

An adequate hydrocarbon spill containment system would be available on site in case of unexpected spills in the project area. Fuelling of construction equipment would be done at least 100 feet from the shoreline.

Air Quality

To the degree possible, impacts to air quality would be mitigated by:

- Reducing vehicle emissions by keeping equipment properly tuned and maintained in accordance with manufacturers' specifications, and not allowing engines to idle when not in use,
- Use of best management practices to reduce generation of dust,
- Limiting the types of chemicals (low volatile organic compound ratings) used in new construction and rehabilitation work, and
- Reducing trip generation by encouraging carpooling and shipment of full loads only.

ALTERNATIVES CONSIDERED BUT DISMISSED

Analysis of all design options led to the dismissal of five alternatives. These alternatives included components that failed to meet the project objectives, actions that generated unacceptable levels of impacts, or actions that were generally unacceptable under the terms of alternative elimination found in Director's Order #12, Section 4.5.E.6. The nature of the dismissed features, and the rationale for their rejection, are outlined below.

Move Visitor Center onto Ford Island. This alternative was dismissed as this option was not acceptable to the U.S. Navy. The U.S. Navy owns this property and has indicated that property there is not available for use by the National Park Service.

Subcontract out Services. This alternative considered contracting out services and using the existing maintenance building for non-critical visitor center elements. This alternative was dismissed because it was not acceptable to the National Park Service as it did not meet the mission of the memorial to provide for interpretation of the historic events of the December 7, 1941 attack and the intangible historic values associated with those events.

Consolidate Activity at or Add to the USS *Bowfin* Submarine Museum and Park. This alternative considered consolidating activity and critical functions with the USS *Bowfin* Submarine Museum and Park and would have included adding an addition or second story to the existing building. This alternative was dismissed due to the cost and design impacts on the existing building and probable building height restrictions.

Implement a Visitor Reservation System. This option was considered in early stages of planning as a way to spread visitation throughout the day and reduce crowding. However, requiring reservations would not address issues related to structural conditions and protection of archival and collection objects displayed in the visitor center museum. This option is undergoing further evaluation and may be pursued by the National Park Service

THE ENVIRONMENTALLY PREFERRED ALTERNATIVE

The environmentally preferred alternative is the alternative that will best promote national environmental policy expressed in the National Environmental Policy Act. The environmentally preferred alternative would cause the least damage to the biological and physical environment, and would best protect, preserve, and enhance historical, cultural, and natural resources.

Section 101(b) of the National Environmental Policy Act identifies six criteria to help determine the environmentally preferred alternative. The act directs that federal plans should:

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

Continuing the current conditions under Alternative A would be less effective in meeting these criteria than either of the proposed action alternatives. Although ongoing and

emergency actions would be taken to repair and provide structural stability to the visitor center buildings, the conditions at the visitor center would continue to worsen and effectiveness of repairs would diminish over time. Over time, threats to public health and safety could occur, leading to the closure of portions of the visitor center precluding interpretive and educational opportunities. Therefore, the No Action Alternative would partially meet criterion 2 – assure safe, healthful, and productive surroundings and criterion 3 – attain a wide range of uses without risk to health or safety. Artifacts and museum collections that would be located on site would continue to be displayed in the open environment setting of the current visitor center and would continue to be exposed to environmental conditions such as light, humidity and hot temperatures that would accelerate deterioration and prohibit the use of them in interpretive programs. As a result, this alternative would not meet criterion 1 and 4. The current visitor center design and facilities available are inadequate to accommodate the high number of visitors that come to the memorial each year resulting in overcrowded and uncomfortable conditions that degrade the visitor experience and impede interpretation and understanding of the memorial. Therefore, this alternative does not achieve a balance between population and resource use that permits a high standard of living as specified in criterion 5.

Development of new visitor center facilities under Alternatives B and C would satisfy the majority of the criteria listed above. In the long-term, both alternatives would provide new facilities to enhance interpretation and understanding of the historic events of the Pearl Harbor attack and would provide display space that would protect and preserve artifacts and collection materials used on site that would fulfill the responsibility of the memorial to act as environmental trustee for succeeding generations.

New structures constructed under Alternatives B and C would be fully compliant with Architectural Barriers Act Accessibility Standards (ABAAS) requirements for staff and visitors, thereby assuring for all visitors safe, healthful, and productive surroundings. Under Alternative B, the existing theaters would be upgraded and retrofitted for visitor safety and accessibility.

Alternatives B and C would result in improved accessibility to new structures and surroundings, improved visitor flow, and reduced crowding by use of open-air spaces and dispersed exhibits. These alternatives would provide facilities that are fully compliant with safety codes and are designed to increase visitor comfort. The design of the buildings and landscaping and the preservation and continued display of historical artifacts would further enhance visitor's recognition and reverence for the events leading up to and during the December 7, 1941 attack. Therefore these alternatives fully meet criterion 3 and 5 by attaining the widest range of beneficial uses without risks to health or safety or other unintended consequences as well as achieve a balance between population and resource use that permits a high standard of living.

Alternatives B and C would also provide increased protection and preservation of important historic artifacts and museum collections for display at the visitor center by installing conditioned spaces for exhibits that are climate controlled.

Alternatives B and C also meet criterion 6 by enhancing the quality of renewable resources and approach the maximum attainable recycling of depletable resources. The new visitor center facilities under both alternatives would be developed using a green building design

concept that would reduce energy consumption and costs, eliminate wastes, and conserve resources.

Based on the above evaluation, it has been determined that both Alternative B and C could be considered the environmentally preferred alternative.

COMPARISON OF ALTERNATIVES

Table 2 shows the ability of the two alternatives to meet the project objectives. This provides a way to quickly compare and contrast the degree to which each alternative accomplishes the purpose or fulfills the need identified in the "Purpose and Need" section above.

SUMMARY OF IMPACTS

Table 3 briefly summarizes the effects of each of the alternatives on the impact topics that were retained for analysis at the USS *Arizona* Memorial. More detailed information on the effects of the alternatives is provided in the "Affected Environment and Environmental Consequences" section.

TABLE 2. OBJECTIVES AND THE ABILITY OF THE ALTERNATIVES TO MEET THEM

Objective	Alternative A, the No Action Alternative	Alternative B, the Preferred Alternative	Alternative C
Provide safe, quality space for basic visitor orientation and education/interpretive activities to enhance the visitor experience and instill respect for the quiet, contemplative objectives of the USS *Arizona* Memorial.	Partially meets this objective. Ongoing and emergency maintenance and repair would continue in order to maintain operation of buildings and provide a safe environment for staff and the public. However, the buildings would remain seismically unsound and environmental conditions would persist that could cause health and safety concerns. Space at the visitor center would continue to be inadequate for the high number of visitors, resulting in overcrowding and poor visitor flow that detracts from the solemn and respectful environment of the memorial, and hampers visitor understanding and appreciation of the history of the USS *Arizona* and the Pearl Harbor attack. Environmental conditions would continue to cause deterioration of displayed artifacts, reducing the potential for interpretation and education.	Meets this objective. New structures would provide a safe environment for staff and the public; theater buildings would be updated with new mechanical and electrical systems and structural repairs performed to enhance safety and accessibility. The design of the visitor center facilities would provide adequate space for a high number of visitors and improve visitor flow. This alternative would result in less crowding and more space to allow visitors to reflect on the experience offered at the memorial in a landscaped environment that promotes reverence and recognition. Displayed artifacts and museum collection items would be preserved and protected allowing for enhanced interpretation and education.	Meets this objective. All structures, including theaters, would be constructed to provide a safe environment for the staff and public. The visitor center facilities would be designed to provide adequate space for a high number of visitors and improve visitor flow. This alternative would allow for a greater range of visitor choice in how the memorial is experienced and a larger Ceremonial Lawn would enhance opportunity for quiet reflection of the memorial experience in a landscaped environment that promotes reverence and recognition. Displayed artifacts and museum collection items would be preserved and protected allowing for enhanced interpretation and education.

TABLE 2. OBJECTIVES AND THE ABILITY OF THE ALTERNATIVES TO MEET THEM

Objective	Alternative A, the No Action Alternative	Alternative B, the Preferred Alternative	Alternative C
Improve operational efficiency with sustainable, easily maintained, functional, code-compliant facilities.	Does not meet this objective. The settling of the buildings and accelerating structural deterioration has exceeded the ability of the park's staff to sustain the buildings (except the theater building) beyond 3 to 8 years (2009 to 2014). As conditions worsen with time, increased park staff and funding resources would be allocated to keep structures open to the public to the extent possible decreasing operational efficiency overtime.	Fully meets this objective. All new structures would be constructed to standard building and life safety codes; designed using green technologies to increase energy and water conservation; and built of light-weight materials to increase long-term sustainability. The existing theater building would be upgraded with new electrical and mechanical systems to increase energy conservation. Routine maintenance actions would continue to occur (and would increase over time) to sustain the structure and foundation of the theater building.	Fully meets this objective. All structures, including the new theaters, would be constructed to code and using green technologies to increase energy and water conservation. New structures would be built of light-weight materials to increase long-term sustainability.
Provide facilities that meet the Architectural Barriers Act Accessibility Standards (ABAAS) requirements.	Partially meets this objective. The visitor center structures provide minimal accessibility for mobility impaired visitors.	Meets this objective. All new structures would be constructed to be compliant with the Architectural Barriers Act Accessibility Standards (ABAAS). The theater building would be upgraded to meet accessibility requirements.	Meets this objective. All new structures including the theaters would be constructed to be compliant with the Architectural Barriers Act Accessibility Standards (ABAAS).
Provide facilities that meet the security requirements for setbacks and "hardening."	Does not meet objective. The current location of the visitor center structures are not in compliance with setback and "hardening" requirements established by the Department of Defense Minimum Antiterrorism Standards for Buildings.	Fully meets this objective. The new visitor center structures would be situated according to the required setback distances from roadways and parking areas in compliance with DoD Minimum Antiterrorism Standards for Buildings.	Fully meets this objective. All new structures would be located on the site to meet setback and hardening requirements.

TABLE 2. OBJECTIVES AND THE ABILITY OF THE ALTERNATIVES TO MEET THEM

Objective	Alternative A, the No Action Alternative	Alternative B, the Preferred Alternative	Alternative C
Provide for limited food and beverage concession operations.	Partially meets this objective. A small space would continue to be provided for refreshment and snack concession.	Fully meets this objective. The design of the visitor center would include space for food and beverage service in a central corridor.	Same as Alternative B.
Provide safe, archivally sound space for display and interpretation of museum collections, including historic objects and archival materials.	Does not meet this objective. Displayed museum collections would continue to be exposed to environmental conditions such as light, air, humidity, temperature, and insects in the open air environment of the visitor center.	Fully meets this objective. Exhibit cases for displayed artifacts would be climate controlled to protect artifacts and museum collections from environmental conditions.	Same as Alternative B.

TABLE 3. SUMMARY OF IMPACTS BY RESOURCE TOPIC

Resource Topic	Alternative A, the No Action Alternative	Alternative B, the Preferred Alternative	Alternative C
Visitor use and experience	Under Alternative A, the existing facility and program would continue to enable the park to meet its mission to convey Pearl Harbor story and memorialization of those who died during the attack, a long-term, moderate benefit. Long-term, moderate, adverse effects on visitor experience would continue due to over crowding, visitor flow conflicts, and confusing conditions. The museum displays, the concession stand, restrooms, and AMMA bookstore spaces would continue to be inadequate for the number of visitors on site. Moderate to major adverse effects of undetermined duration could occur if the visitor center closes. Overall cumulative effects on visitor use and experience would be long-term, moderate, and adverse.	Long-term effects of Alternative B on visitor use and experience would be moderate and beneficial. These benefits would occur from improved visitor flow, providing more restroom facilities, renovated theaters, facilitating an organized and focused educational experience, and providing adequate space for visitor amenities such as the AMMA bookstore and refreshment vendor. Trade wind-oriented and shaded structures and plazas would help to refine and focus visitor attention, and provide a comfortable outdoor experience. A new access corridor and service area would separate park operation functions from visitor areas. Overall long-term cumulative effects would be moderate and beneficial. Short-term, minor to moderate, adverse effects would occur during visitor center construction from interruption in interpretive programming, use of an alternate boat launch location, as well as construction activities and noise, and relocated services and access routes.	Long-term effects of Alternative C on visitor use and experience would be moderate and beneficial. These benefits would occur from improving visitor flow, providing more restroom facilities, improved theaters, facilitating an open educational experience with many choices, and providing adequate space for amenities such as the AMMA bookstore and refreshment vendor. Trade wind-oriented and shaded structures and plazas provide a comfortable outdoor experience. A new access corridor and service area would separate park operation functions from visitor areas. Overall long-term cumulative effects would be moderate and beneficial. Short-term, minor to moderate, adverse effects would occur during visitor center construction from increased noise and presence of equipment, altered pedestrian and vehicle access routes, and absence of exhibits and archival materials.

TABLE 3. SUMMARY OF IMPACTS BY RESOURCE TOPIC

Resource Topic	Alternative A, the No Action Alternative	Alternative B, the Preferred Alternative	Alternative C
Ethnographic resources	Effects of Alternative A would be adverse, long-term, and moderate because of lack of accessibility for traditional users (elderly veterans, survivors, and their families and friends, including Native Hawaiians); because of inadequate protection for valued artifacts and archival materials that remain a meaningful part of their lives; and because the inadequacies of the current visitor center detract from the feeling of respect and commemoration that should be present in a memorial. Cumulative moderate, adverse, long-term effects would occur. There would be no impairment of ethnographic resources or values under Alternative A.	Under Alternatives B (and C), these new facilities and improved access would have long-term, moderate benefits for traditional users by providing easy, comfortable access, areas that encourage quiet contemplation and a sense of history; appropriate, archivally sound exhibit space for valued items used in the exhibits; and an incentive to share oral histories and other experiences with visitors. Short-term effects would be adverse and minor, as access and interpretive materials were altered for the duration of the construction period. This project would not have any effects on traditional ethnographic sites valued by Native Hawaiians. Cumulative effects would be long-term, minor, localized, and adverse because benefits of improvements at the visitor center would be outweighed by the past, on-going, and probable adverse effects in the region in the foreseeable future. The relatively small size of the park facilities and landscapes potentially affected would tend to reduce the park's contribution to overall regional cumulative effects. There would be no impairment of ethnographic resources or values under either action alternative.	Same as Alternative B
Museum collections	Effects of Alternative A would be both beneficial and adverse, long-term, and	Implementation of Alternative B (or C) would have long-term, minor to moderate,	Same as Alternative B

TABLE 3. SUMMARY OF IMPACTS BY RESOURCE TOPIC

Resource Topic	Alternative A, the No Action Alternative	Alternative B, the Preferred Alternative	Alternative C
	minor. Rotation of exhibit items would be beneficial by diminishing the exposure of individual items to adverse conditions. (Collections stored off-site would receive continued protection in archivally sound facilities). Inadequate climatic controls, difficulty in maintaining and monitoring environmental conditions, use of dated materials that do not reflect current understanding, the need to move or otherwise manage collections during stabilization of the building, and lack of an emergency management operations or fire plans would result in long-term, adverse effects of minor intensity on museum exhibits. Cumulative, long-term, minor, beneficial effects on collections used in the exhibits would occur. There would be no impairment of museum collection resources or values under Alternative A.	beneficial effects on display items currently housed within the visitor center. The park would continue to protect and interpret collections associated with the historic events of 1941. Planning and design of the new facilities would follow mandates of the NPS Museum Handbook (NPS 2006c) to ensure protection of collections used in the exhibits from human and environmental factors before, during, and after construction; ease of access for curators; and improved interpretation. Emergency operations plans would be developed to deal with both human and environmental threats. Space would be provided for research and exhibit curation. Items used in exhibits would be rotated to ensure that sensitive materials are not on exhibit for an excessive amount of time. Past damage to exhibits has contributed to minor to moderate, long-term, adverse effects, while long-term moderate benefits have accrued by establishing the memorial and the collections. Construction of the new Park Headquarters and Administration Building would have a moderate beneficial effect on collections by providing an easily accessible, safe, climate controlled facility. When these actions are combined with Alternatives B and C (long-term, minor, beneficial), moderate, localized, long-	

TABLE 3. SUMMARY OF IMPACTS BY RESOURCE TOPIC

Resource Topic	Alternative A, the No Action Alternative	Alternative B, the Preferred Alternative	Alternative C
		term, beneficial cumulative effects on collections would occur. There would be no impairment of museum collection resources or values under either action alternative.	
Soundscape	It is not anticipated that the stabilization efforts associated with continued current management would affect the soundscape at the USS Arizona Memorial visitor center. There would be no impairment of soundscape resources or values under Alternative A.	Effects associated with Alternative B would be local, short-term, minor to moderate, adverse to neighbors and short-term, minor to moderate, adverse to visitors, depending on the of application of sound mitigation measures during operation of construction machinery, timing of pile driving activities, and duration of visit. There would be no impairment of soundscape resources or values under Alternative B.	Effects associated with Alternative C would be similar to Alternative B, local, short-term, adverse and minor to moderate. There would be no impairment of soundscape resources or values under Alternative C.
Public health and safety	Alternative A would produce localized, long-term, negligible to minor, adverse effects on public health and safety. These would result from the ever present danger of seismic activity; hurricanes, tsunami, or flooding; mold growth and potential insect infestation; and effects on visitors from waiting in long unshaded lines without rest benches.	There would be long-term, localized, minor, beneficial effects to health and safety by reducing or eliminating the structural deficiencies present at the current visitor center, and by implementing fire and life code standards and security and antiterrorism requirements in new construction. By including shade and green design principles, effects of topical sun and heat stress would be reduced. Long-term threats from potential natural hazards like hurricanes, earthquakes, and tsunami would continue to produce long-term, minor, adverse effects. Construction	Same as Alternative B

TABLE 3. SUMMARY OF IMPACTS BY RESOURCE TOPIC

Resource Topic	Alternative A, the No Action Alternative	Alternative B, the Preferred Alternative	Alternative C
		activities would produce short-term adverse effects of minor intensity.	
Park operations	The No Action Alternative would have adverse effects on park management and operations. The continued activities related to monitoring and maintenance of the building movement caused by poor soil substrate, monitoring and removal of water from the basement along with standard, park-wide maintenance and management activities would result in long-term, moderate, adverse effects on park operations. The possibility of future closures of portions of the visitor center would produce short to long-term, minor to moderate adverse effects on operations and management. Cumulative effects on park operations of future projects and plans would be long-term, minor, and adverse.	There would be long-term, minor to moderate, beneficial effects to park management and operations by building a new, redesigned visitor center and renovating the theaters thereby reducing operations and maintenance in response to the building movement, staff overcrowding, and inefficiency of operations. Short-term, minor, adverse effects would result from monitoring and managing construction activities. The cumulative effects of other projects and plans would be long-term, minor, and beneficial.	There would be the same long-term, minor to moderate, beneficial effects on park operations as described in Alternative B. Short-term effects on park management and operations related to construction activities would be the same as in Alternative B, minor and adverse. The cumulative effects of other projects and plans would be long-term, minor, and beneficial.
Commercial services and local economics	Because overall visitation rates are not expected to vary above the historical range under Alternative A, the long-term, minor, beneficial economic effects currently generated by the park would be anticipated to continue in the future. In combination with the long-term, minor, local to regional benefits of other projects and plans, overall cumulative effects would be long-term, minor,	Overall visitation to the park may not increase under this alternative, but the long-term, minor benefits the park provides to the local economy would continue. The beneficial effects of construction activities would be negligible to minor, and of short-term duration. In combination with the long-term, minor, local to regional benefits of other projects and plans, overall cumulative	Overall visitation to the park could increase slightly under this alternative, and the long-term, minor benefits the park provides to the local economy would continue. The beneficial effects of construction activities would be negligible to minor, and of short-term duration. In combination with the long-term, minor, local to

TABLE 3. SUMMARY OF IMPACTS BY RESOURCE TOPIC

Resource Topic	Alternative A, the No Action Alternative	Alternative B, the Preferred Alternative	Alternative C
	local to regional, and beneficial.	effects would be long-term, minor, local to regional, and beneficial.	regional benefits of other projects and plans, overall cumulative effects would be long-term, minor, local to regional, and beneficial.

AFFECTED ENVIRONMENT AND ENVIRONMENTAL CONSEQUENCES

INTRODUCTION

This section describes the environmental consequences associated with the alternatives. It is organized by impact topic, which allows a standardized comparison between alternatives based on issues. Consistent with NEPA, the analysis also considers the context, intensity, and duration of impacts, indirect impacts, cumulative impacts, and measures to mitigate impacts. National Park Service policy also requires that "impairment" of resources be evaluated in all environmental documents associated with resource analysis.

METHODOLOGY

General Evaluation Methodology

For each impact topic, the analysis includes a brief description of the affected environment and an evaluation of the effects of implementing each alternative. The analysis is conducted on actions described in the "Alternatives" chapter. Specifically, this environmental assessment analyzes A) the No Action Alternative; B) replacing the visitor center with reuse of the existing theaters and relocating the existing boat launch 100 feet west; and C) replacing the entire visitor center with construction of a new boat launch on the shore of Pearl Harbor. The impact analyses were based on information provided by park staff, relevant references and technical literature citations, and subject matter experts. The impact analyses involved the following steps:

- Define issues of concern, based on internal and external scoping;
- Identify the geographic area that could be affected;
- Define the resources within that area that could be affected;
- Impose the action on the resources within the area of potential effect; and
- Identify the effects caused by the alternative, in comparison to the baseline represented by the No Action Alternative, to determine the relative change in resource conditions.

Characterize the effects based on the following factors:

- Whether the effect would be beneficial or adverse;
- Intensity of the effect: negligible, minor, moderate, or major. (Impact-topic-specific thresholds for each of these classifications are provided in Table 4) Threshold values were developed based on federal and state standards, consultation with regulators, and discussions with subject matter experts;
- Duration of the effect: short-term or long-term, with specificity for each impact topic;
- Context or area affected by the proposed action: site-specific, local, parkwide, regional; and

- Whether the effect would be a direct result of the action or would occur indirectly because of a change to another resource or impact topic. An example of an indirect impact would be increased mortality of an aquatic species that would occur because an alternative would increase soil erosion, which would reduce water quality.

Methodology for Assessing Impacts to Cultural Resources

Potential impacts (direct, indirect, and cumulative effects) are described in terms of type (are the effects beneficial or adverse?), context (are the effects site-specific, local, or regional?), duration (are the effects short-term, long-term, or permanent?) and intensity (is the degree or severity of effects negligible, minor, moderate, or major). Because definitions of intensity (negligible, minor, moderate, or major) vary by impact topic, intensity definitions are provided separately for each cultural resource impact topic (cultural landscapes, ethnographic resources, museum collections) analyzed in this environmental assessment.

Impacts to Cultural Resources and §106 of the National Historic Preservation Act: In this environmental assessment, impacts to cultural resources are described in terms of type, context, duration, and intensity, which is consistent with the regulations of the Council on Environmental Quality (CEQ) that implement the National Environmental Policy Act (NEPA). These impact analyses are intended, however, to comply with the requirements of both NEPA and §106 of the National Historic Preservation Act (NHPA). In accordance with the Advisory Council on Historic Preservation's regulations implementing §106 of the NHPA (36 CFR Part 800, Protection of Historic Properties), impacts to cultural resources were also identified and evaluated by (1) determining the area of potential effects; (2) identifying cultural resources present in the area of potential effects that are either listed in or eligible to be listed in the National Register of Historic Places; (3) applying the criteria of adverse effect to affected, National Register eligible or listed cultural resources; and (4) considering ways to avoid, minimize or mitigate adverse effects.

CEQ regulations and the National Park Service's *Conservation Planning, Environmental Impact Analysis and Decision Making* (Director's Order #12) also call for a discussion of mitigation, as well as an analysis of how effective the mitigation would be in reducing the intensity of a potential impact, e.g. reducing the intensity of an impact from major to moderate or minor. Any resultant reduction in intensity of impact due to mitigation, however, is an estimate of the effectiveness of mitigation under NEPA only. It does not suggest that the level of effect as defined by §106 is similarly reduced. Cultural resources are non-renewable resources and adverse effects generally consume, diminish, or destroy the original historic materials or form, resulting in a loss in the integrity of the resource that can never be recovered. Therefore, although actions determined to have an adverse effect under §106 may be mitigated, the effect remains adverse.

A §106 summary is included following the cultural resource impact analyses. The §106 summary is an assessment of the effect of the undertaking (implementation of the preferred alternative) on National Register eligible or listed cultural resources only, based upon the criterion of effect and criteria of adverse effect found in the Advisory Council's regulations. The §106 criteria for characterizing the severity or intensity of impacts are the determinations of effect: *no historic properties affected*, *no adverse effect*, or *adverse effect*.

- A determination of no historic properties affected means that either there are no historic properties present or there are historic properties present but the undertaking will have no effect upon them.
- A determination of no adverse effect means there is an effect, but the effect would not meet the criteria of an adverse effect, i.e. diminish the characteristics of the cultural resource that qualify it for inclusion in the National Register. A no adverse effect finding also may include beneficial effects of an action.
- An adverse effect occurs whenever an impact alters, directly or indirectly, any characteristic of a cultural resource that qualifies it for inclusion in the National Register, e.g. diminishing the integrity (or the extent to which a resource retains its historic appearance) of its location, design, setting, materials, workmanship, feeling, or association. Adverse effects also include reasonably foreseeable effects caused by the alternatives that would occur later in time, be farther removed in distance or be cumulative. Because cultural resources are nonrenewable, all adverse effects on National Register-eligible cultural resources would be long term and have a high level of concern.

Impact threshold definitions have been drafted for and are included with each of the following cultural resource topics (cultural landscapes, ethnographic resources, and museum collections) to help ensure that the intent and legal requirements of both NEPA and NHPA are met in this document. Note that all unevaluated cultural resources would be considered eligible for the National Register of Historic Places until evaluation is completed.

There are no historic structures within the area of potential effect so this topic is not discussed in this environmental document. However, the project area **is** within the Pearl Harbor National Historic Landmark District, so the design, scale, location and other attributes of the proposed visitor center will be discussed under the topic of Cultural Landscapes. Much of the available information is taken from the Integrated Cultural Resources Management Plan for the Pearl Harbor Naval Complex, which uses a cultural landscape approach to identify and integrate linkages between historic periods, geographic locations, and resource types (U.S. Navy 2002b).

Methodology for Cultural Landscapes

Cultural landscapes represent a complex subset of cultural resources resulting from the interaction between people and the land, and reflect the influence of human beliefs and actions over time on the natural landscape. Cultural landscapes are a living record of an area's past, providing a visual chronicle of its history.

For a cultural landscape to be listed in the National Register, it must possess significance (the meaning or value ascribed to the landscape) *and* have integrity of those features necessary to convey its significance. The character-defining features of a cultural landscape include spatial organization and land patterns; topography; vegetation; circulation patterns; water features; and structures or buildings, site furnishings, and objects. Impacts on cultural landscapes were evaluated using the process described at beginning of this section. Definitions of intensity levels for cultural landscapes are included in Table 4.

Methodology for Museum Collections

Museum collections (including prehistoric and historic objects, artifacts, works of art, archival documents, oral histories, photographs, and natural history specimens), which are generally ineligible for listing in the National Register, are not subject to §106 of the National Historic Preservation Act. Therefore, potential impacts to museum collections are described using NEPA terminology. That is, they are discussed in terms of context (are the effects site-specific, local, or even regional?), duration (are the effects short-term [one year or less] or long-term [more than one year] but with reversible or remedial effects, or permanent?) and intensity (is the degree or severity of effects negligible, minor, moderate, or major?). The definitions of impact intensity for museum collections are included in Table 4.

Methodology for Ethnographic Resources and Concerns

The term "ethnographic resources" typically refers to Native Americans or other groups such as Native Hawaiians with long-term cultural ties to a particular geographic area. In this environmental document, the term "ethnographic resources" refers to two groups. First, there is a special group of people who have long-term stakes in the integrity of park resources; that is, the survivors, families, and their close friends. This "ethnographic" group has a shared identity and strong relationship to the park, for some of them survived the events of December 7, 1941 while others have loved ones buried or commemorated here. The second group is Native Hawaiians who also have traditional connections to this area. The definitions of impact intensity for ethnographic resources are included in Table 4.

Cumulative Effects

The Council on Environmental Quality (1981) regulations for implementing the National Environmental Policy Act requires an assessment of cumulative effects in the decision-making process for federal projects. Cumulative effects are defined as "the impact on the environment which results from the incremental impact of the action when added to other past, present, and reasonably foreseeable future actions regardless of what agency (federal or non-federal) or person undertakes such other actions" (40 *CFR* 1508.7). Cumulative effects are considered for both the no action and action alternative. The cumulative impacts analysis is presented at the end of each impact topic analysis.

Cumulative effects were determined by combining the effects of the alternative with other past, present, and reasonably foreseeable future actions in the vicinity. Therefore, it was necessary to identify other past, ongoing, or reasonably foreseeable future actions within and adjacent to the USS *Arizona* Memorial. These identified projects and plans are presented under "Related Projects and Plans" in the "Purpose and Need" section.

Impairment of Park Resources or Values

National Park Service *Management Policies* (NPS 2006a) provides guidance on addressing impairment of park resources. Impairment is an impact that, "in the professional judgment of the responsible National Park Service manager, would harm the integrity of park resources or values, including those that would otherwise be present for the enjoyment of those resources or values. Whether an impact meets this definition depends on the particular resources that would be affected, the severity, duration, and timing of the impact, the direct and indirect

effects of the impact, and the cumulative effects of the impact in question with other impacts."

Any park resource can be impaired, but an impact would be more likely to result in 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 park or to opportunities for enjoyment of the park, or
- Identified as a goal in the park's general management plan or other relevant National Park Service planning documents.

An impact would be less likely to result in impairment if it is an unavoidable result, which cannot reasonably be mitigated, of an action necessary to preserve or restore the integrity of vital park resources.

Public health and safety, visitor use and experience, park operations, and energy requirements and conservation potential are not considered park resources for which the memorial was established to protect. Therefore, impairment findings are not included as part of the impact analysis for these topics.

Neither Alternative A (the No Action Alternative), Alternative B (the Preferred Alternative) nor Alternative C (Campus Style with Relocated Boat Launch) would produce major adverse impacts or impairment of park resources or values.

TABLE 4. IMPACT TOPIC THRESHOLD DEFINITIONS

Impact Topic	Negligible	Minor	Moderate	Major	Duration
Visitor use and experience	Visitor access to and appreciation of the resource is unhindered or readily apparent. Temporary adverse effects, if they occur, do not detract from the experience. Action meets the park mandate.	Visitor access to the resource or appreciation of the interpretive story would not be appreciably limited. Changes in visitor use and/or experience would be detectable, but not significant. The visitor would be aware of the effects associated with the alternative, but the changes would not appreciably limit or enhance critical experiences identified as fundamental to the park's mandate.	Visitor access to the resource or appreciation of the interpretive story would be noticeably affected. Critical characteristics of the desired experience would be changed, or the number of participants engaging in an activity would be altered. Visitor satisfaction would begin to decline or increase as a direct result of the effect. Some changes to the experiences identified as fundamental to the park's mandate would be apparent.	Visitor access to resource is significantly impeded or fails to understand and/or appreciate the interpretive story. Multiple critical characteristics of the desired experience would be eliminated or detracted from, or would be created or greatly enhanced. Participation in desired experiences would be considerably changed. Action fails to meet the park mandate.	Short-term – Occurs only during project implementation. Long-term – Persists beyond the period of project implementation.

TABLE 4. IMPACT TOPIC THRESHOLD DEFINITIONS

Impact Topic	Negligible	Minor	Moderate	Major	Duration
Cultural Landscapes	Negligible effect. The action would not have the potential to cause effects to a pattern(s) or feature(s) of the landscape that would alter any of the characteristics that would qualify the resource for inclusion in or eligibility for the National Register. For purposes of Section 106, the determination would be no adverse effect.	Adverse effect. The action would affect a pattern(s) or feature(s) of the landscape, but it would neither alter its character-defining features nor diminish the overall integrity of the property. For purposes of Section 106, the determination of effect would be no adverse effect. Beneficial effect. The action would maintain and improve the character-defining features of a cultural landscape in accordance with The Secretary of the Interior's Standards for the Treatment of Historic Properties. For purposes of §106, the determination of effect would be no adverse effect.	Adverse effect. The action would affect a character defining pattern(s) or feature(s) of the landscape. While the overall integrity of the resource would be diminished, the property would retain its National Register eligibility. For purposes of Section 106, the determination of effect would be adverse effect. Beneficial effect. Positive actions would be taken to preserve and noticeably enhance character-defining features of a cultural landscape in accordance with The Secretary of the Interior's Standards for the Treatment of Historic Properties. For purposes of §106, the determination of effect would be no adverse effect.	Adverse effect. The action would affect a character defining pattern(s) or feature(s) of the landscape, diminishing the overall integrity of the resource to the point where its National Register eligibility may be in question. For purposes of Section 106, the determination of effect would be adverse effect. Beneficial effect. The action would enhance the character-defining features of a cultural landscape in accordance with the Secretary of the Interior's Standards for the Treatment of Historic Properties. For purposes of §106, the determination of effect would be no adverse effect.	Short-term. Patterns or features of a cultural landscape, such as vegetation, recover in less than one year. Long-term: Patterns or features of a cultural landscape, such as vegetation, recover in more than one year. Permanent: Patterns or features of a cultural landscape are irrevocably affected.

TABLE 4. IMPACT TOPIC THRESHOLD DEFINITIONS

Impact Topic	Negligible	Minor	Moderate	Major	Duration
Ethnographic Resources	Negligible effect. Effect(s) would be barely perceptible and would neither alter resource conditions, such as access or site preservation, nor alter the relationship between the resource and the affiliated group's body of practices and beliefs. For purposes of §106, the determination of effect would be no adverse effect.	Adverse effect. Effect(s) would be slight but noticeable and would neither appreciably alter resource conditions, such as access or site preservation, nor alter the relationship between the resource and the affiliated group. Beneficial effect – would allow continued access to and/or accommodate a group's practices or beliefs. For purposes of §106, the determination of effect would be no adverse effect.	Adverse effect. Effect(s) would be apparent and would alter resource conditions. Something would interfere with access, resource preservation, or the relationship between the resource and the affiliated group. For purposes of §106, the determination of effect would be adverse effect. Beneficial effect – would facilitate access and/or accommodate a group's practices or beliefs. For purposes of §106, the determination of effect would be no adverse effect.	Adverse effect. Effect(s) would alter resource conditions. Something would block or greatly affect access, site preservation, or the relationship between the resource and the affiliated group, to the extent that the survival of a group's practices and/or beliefs would be jeopardized. For purposes of §106, the determination of effect would be adverse effect. Beneficial effect – would encourage access and/or accommodate a group's practices or beliefs. For purposes of §106, the determination of effect would be no adverse effect.	Long-term – Because most ethnographic resources are essentially non-renewable, any effects on these resources would be long-term.

TABLE 4. IMPACT TOPIC THRESHOLD DEFINITIONS

Impact Topic	Negligible	Minor	Moderate	Major	Duration
Museum Collections	Negligible effect. The action would have an effect at the lowest levels of detection – barely measurable with no perceptible consequences, either adverse or beneficial, to museum collections.	Adverse effect. The action would affect the integrity of few items in the museum collection but would not degrade the usefulness of the collection for future research and interpretation. Beneficial effect. The action would stabilize the current condition of the collection or its constituent components to minimize degradation.	Adverse effect. The action would affect the integrity of many items in the museum collection and diminish the usefulness of the collection for future research and interpretation. Beneficial effect. The action would improve the condition of the collection or protect its constituent parts from the threat of degradation.	Adverse effect. The action would affect the integrity of most items in the museum collection and destroy the usefulness of the collection for future research and interpretation. Beneficial effect. The action would secure the condition of the collection as a whole or its constituent components from the threat of further degradation.	Impacts on the majority of the museum collections and archival materials would be long term because virtually all of these items are non-renewable and irreplaceable. Some materials (copies of records, microfilm, etc.) that could be replaced could incur short-term damage during flooding, failure of dehumidifiers, etc.
Impairment of Cultural Resources A major adverse effect would occur to one or more cultural resources whose conservation is necessary to fulfill specific purposes identified in the enabling legislation of the park, key to the cultural integrity of the park, or identified as a goal in the park's general management plan or other relevant NPS planning documents. The change would be permanent and would preclude the use and enjoyment of these cultural resource(s) by future generations.					
Soundscape	Urban sounds are predominant. Noise effects would not be audible in most of the project area. Where noise is audible, it would be for a short duration with significantly lengthy periods of time that are noise free.	Urban sounds usually predominate. Noise effects would not be audible in most of the project area. When noise is audible, effects occur for short durations frequently during the day, and would be occasionally audible between sunset and sunrise.	Noise effects would be commonly audible in some areas of the park for up to half of the daylight hours. In locations where noise is audible, it occurs occasionally between sunset and sunrise. Noise would sometimes be audible at places outside of the project area.	Sounds in the project area would be commonly affected by noise during extended periods of time, and frequently, between sunrise and sunset. Noise would frequently be audible outside the project area.	Short-term – Occurs only during the duration of the project. Long-term – Persists beyond the duration of the project.

TABLE 4. IMPACT TOPIC THRESHOLD DEFINITIONS

Impact Topic	Negligible	Minor	Moderate	Major	Duration
Public health and safety	Public health and safety would not be affected, or the effects would be at low levels of detection and would not have an appreciable effect on public health or safety.	The effect would be detectable, but would not have an appreciable effect on public health and safety.	The effect would be readily apparent, and would result in substantial, noticeable effects on public health and safety on a local scale. Changes in rates of accidents or injuries could be measured.	The effects would be readily apparent, and would result in substantial, noticeable effects on public health and safety on a regional scale. Effects could lead to changes in the rate of mortality.	Short-term – Occurs only during project implementation. Long-term – Persists beyond the period of project implementation.
Park operations	Park operations would not be affected or the effect would be at or below levels of detection, and would not have an appreciable effect on park operations.	The effect would be detectable but would not be of a magnitude that would appreciably change the park operations.	The effects would be readily apparent and would result in a substantial change in park operations in a manner noticeable to staff and the public.	The effects would be readily apparent and would result in a substantial change in park operations in a manner noticeable to staff and the public and be markedly different from existing operations.	Short-term – Occurs only during project implementation. Long-term – Persists beyond the period of project implementation.
Commercial services and local economics	Socioeconomic conditions would not be affected, or effects would not be measurable. Effects to concession income or operations would not be detectable.	The effects on socioeconomic conditions would be small but measurable. Few effects could be in the local economy. Effects to concession income would be measurable, but no changes in staffing or operations would result.	The effects on socioeconomic conditions would be readily apparent and widespread within and throughout the City and County of Honolulu. Effects on the concession and museum association (including AMMA book store) would be readily apparent and changes in operations and /or staffing would result.	The effects on socioeconomic conditions would be readily apparent and would substantially change the economy throughout the City and County of Honolulu. Effects to concession income would substantially alter the available services and staffing requirements at the bookstore. Other operations of the concession corporation, beyond the USS *Arizona* Memorial visitor center would also be affected.	Short-term: Effects occur only during project implementation activities. Long-term: Effects persist beyond project implementation activities.

VISITOR USE AND EXPERIENCE

Affected Environment

Visitors come to the USS *Arizona* Memorial to honor and memorialize the U.S. servicemen who sacrificed their lives during the December 7, 1941 attack on Pearl Harbor. The goal of interpretation at the USS *Arizona* Memorial visitor center is to set the stage for visiting the memorial. It communicates the story of December 7, 1941 in a way that transforms the hearts and minds of the visitor so that when they visit the memorial they can honor and remember those who died during the Japanese attack on O'ahu.

The USS *Arizona* Memorial hosts an average of approximately 1.5 million visitors per year, based on information from 1981 through 2005 (NPS 2006d). The most popular months for visiting the monument are June, July, and August, with the least visitation in November, December, and January (see Figure 6).

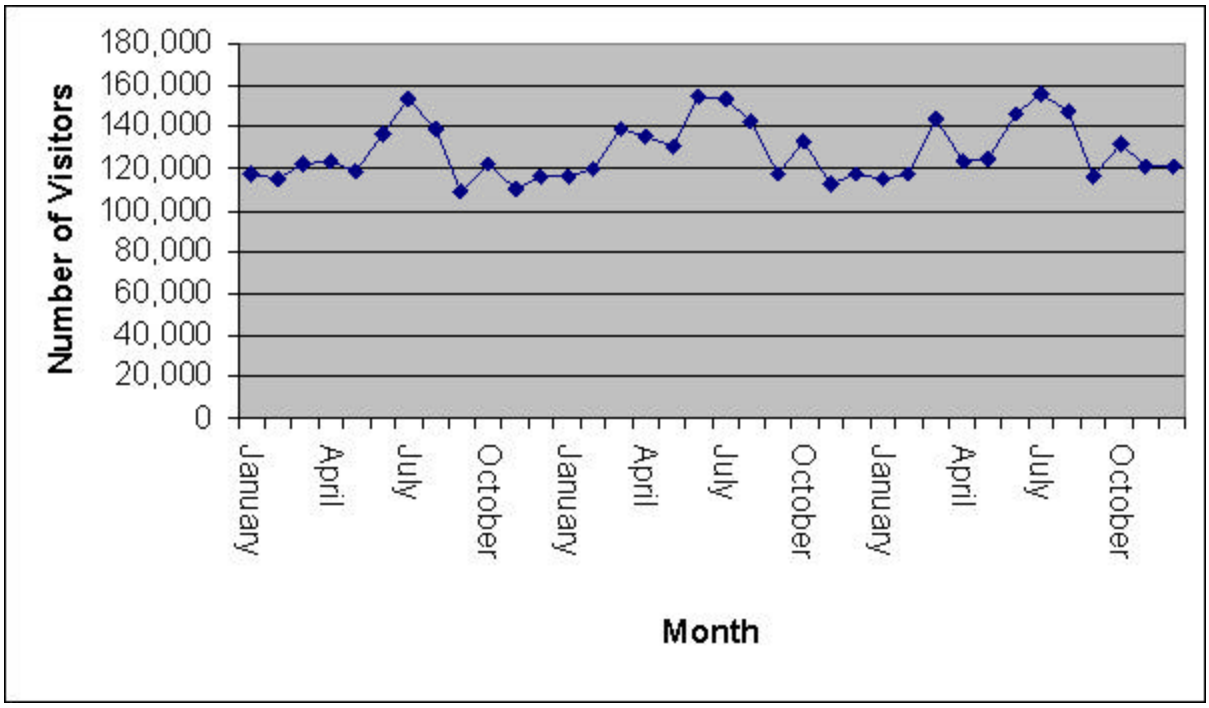

FIGURE 6. MONTHLY VISITATION RATES AT USS ARIZONA MEMORIAL

Source: NPS Public Use Statistics Office

The shoreside visitor center sits on the edge of Pearl Harbor which is a National Historic Landmark. This location allows visitors to look out over the cultural landscape that includes battleship row which was the primary target of the December 7, 1941 attack (NPS 2005a). Wayside exhibits in the park depict the historical landscape the visitor is seeing. Other nearby cultural sites include the submarine USS *Bowfin*, the USS *Missouri*, and the Pacific Aviation Museum, as well as other sites of the Pearl Harbor Historic Sites partnership.

Facilities available for visitor use at the park include a museum (exhibit area), bookstore (AMMA), refreshment concession area, two theaters, a Remembrance Circle, Ceremonial Lawn, boat dock, and boat ride to the memorial itself. There are two parking areas, one adjacent and one across the street from the visitors center to accommodate vehicles used by visitors who arrive via private transportation.

When guests enter the visitor center, they are asked to line up for a numbered ticket, which provides free admission to the memorial tour. While waiting for the tour to begin, many visitors tour the visitor center and its shoreline exhibits and walkway including the museum and Remembrance Circle.

When the number that appears on their ticket is called, visitors are asked to assemble at the theater entrance in preparation for the tour to begin. The guided tour of the USS *Arizona* Memorial includes a 23-minute documentary film depicting the attack on Pearl Harbor. The film includes background information on World War II and information specific to the USS *Arizona*. Each theater has a capacity of 150 people, which matches the capacity of the boats that travel to the memorial. At the conclusion of the film, visitors board the boat, located on Halawa Stream. They spend time, approximately 12 minutes, in reflection and observance and then return on the boat to the visitor center where they can revisit the exhibits and Remembrance Circle as well as the bookstore, concessions, or restrooms prior to leaving.

For visitors interested in a narrated tour an audio headset is available for rent at the visitor center front lobby. The audio tour takes visitors to 24 destinations throughout the visitor center and grounds and is available in seven languages: English, French, Japanese, Korean, Mandarin, German, and Spanish.

Strict security measures prohibit purses, handbags, fanny packs, backpacks, camera bags, diaper bags, luggage and/or other items that offer concealment. Visitors may bring a camera and cam-recorder. A bag storage facility, operated by a private vendor, is available for visitors coming to the USS *Arizona* Memorial, USS *Bowfin* Submarine Museum and Park and the USS *Missouri*. The facility can be found in the "white tents" located adjacent to the visitor center parking lot. There is a nominal storage fee of $3. The bag storage facility is in operation daily 7:30 a.m. to 5:30 p.m. Visitors may use the same bag storage and parking stall for all three tours.

Impacts of Alternative A, the No Action Alternative

The National Park Service is committed to conveying the message and meaning of the December 7, 1941 attack on Pearl Harbor as one of its mission goals. Under Alternative A, the existing facility and program would continue to enable the park to meet its mission to convey the importance and solemnity of the event, and to memorialize those who died during the attack. Thus, Alternative A would produce a long-term, moderate benefit.

Use of the existing facility would continue without significant modification needed to accommodate the increasing visitation rates or the deteriorating facility. These conditions would continue to detract from the visitor experience resulting in moderate, long-term, adverse effects. However, over the long term, moderate to major, long-term, adverse effects could occur if the visitor center were to be closed due to structural deterioration. In the event of facility closure, operations would continue in another facility in order for the park to continue its mission of interpreting the Pearl Harbor story.

The existing visitor center was designed to accommodate 750,000 visitors. The current annual visitation rate of 1.5 million is twice that of designed capacity. The theaters and boats have a capacity of 600 visitors per hour that can view the film and visit the memorial. The wait time for a program (film and boat ride to the memorial) varies from a few minutes (if you are first in line in the morning) to 4 hours (ORCA 2006, NPS 2005a). Average wait times range from 1 to 2 hours except during the summer and holidays when it could peak at 3 to 4 hours. The museum, concession stand, restrooms, and bookstore spaces are all inadequate for the numbers of visitors on site. A 2-hour wait means that up to 1,200 visitors are waiting and a 3 to 4-hour wait means 1,000 to 2,400 people could be in the visitor center at one time, not counting those visitors that choose not to participate in the program but are there to view the museum exhibits (ORCA 2006 and NPS 2005a).

Upon arrival, early-morning visitors would continue to be confronted by long lines of visitors standing in the sun (Figure 7). There are few signs or information sources prior to reaching the visitor center, and visitors experience uncertainty about the length of wait or the nature of the upcoming visitor experience. There is little or no seating available during the wait, and no protection from sun or rain. Other continuing conditions would include: the need to stow personal belongings off-site; lack of adequate restroom facilities and uncertainty about their locations, lack of orientation for other venues and points of interest such as the USS *Bowfin* and USS *Missouri*, and confusion about ticketing for the various Pearl Harbor venues.

FIGURE 7. VIEW OF TYPICAL MORNING VISITOR RUSH

The exhibit area and museum, concession stand, and bookstore spaces are undersized and poorly designed. There is little room for two-way pedestrian movement in these spaces and crowding and bottlenecks result. Often visitors are shoulder to shoulder in very crowded conditions that can hinder access to exhibits and interpretive materials and produce long lines (Figure 8). The queue for the womens' restroom forms in the entry area for the refreshment

concession, and this hinders access and generates complaints from the vendor. These adverse effects are somewhat ameliorated, however, by access to a nearby shady, planted courtyard that contains pools with small waterfalls. Highly desirable concrete benches in the courtyard provide seating for visitors where they can rest and listen to the soothing sounds of the water (Figure 9). These conditions would combine to produce a moderate long-term, adverse effect on visitor experience.

FIGURE 8. CROWDED MUSEUM CONDITIONS

FIGURE 9. CROWDED CONDITIONS IN VISITOR CENTER AT RESTROOMS AND CONCESSIONS AREA WITH CENTER COURTYARD WATER FALLS

Once visitors return from the memorial they go back into the visitor center to face the same crowds they left 75 minutes ago. The congestion can quickly distract and dispel the solemn mood felt at the memorial, and the opportunity to reflect on what they had just experienced is lost, a long-term, moderate, adverse effect.

Adverse environmental conditions in the museum and inadequate exhibit cases have rapidly accelerated the rate of deterioration of many of the artifacts. These conditions include changing humidity, temperature, light, and insect damage. Under continuing conditions, the opportunity for visitors and park staff to view and interpret the artifacts would continue to diminish, a long-term, moderate, adverse effect.

Foundation stabilization work that could occur under continued current management would generally be confined to the basement/crawlspace of the structure. These repairs would not be likely to have measurable effects on the visitor experience as work would be done in the basement/crawl space and any sounds generated would tend to be muffled. It is not anticipated that the level of noise or other distraction would diminish the overall visitor experience.

Over the 3 to 8-year life expectancy of the building, if portions of the visitor center were to become seismically unstable, components of the building may need to be closed. Loss of interpretative opportunities at the museum and exhibit area or viewing of the film could degrade visitor experience. If closures were needed, the NPS and U.S. Navy would work to ensure that boat service to the memorial would continue, at the current location or at an

alternate site. Such conditions could produce moderate to major adverse effects on the visitor experience of undetermined duration.

Cumulative Effects. Under Alternative A, a number of plans and projects would contribute to cumulative effects. Implementation of a new commercial services plan for the USS *Arizona* Memorial would have long-term, minor benefits on visitor use and experience because this plan would enhance the visitor experience by providing necessary and appropriate services.

Transfer of future management of the battleships USS *Oklahoma* and USS *Utah* to the NPS would provide additional long-term, minor benefits to the visitor experience because visitors would have additional opportunities to enhance their understanding of the events of December 7, 1941.

Implementation and integration of the Pearl Harbor Historic Partners Site Master Plan, Integrated Cultural Resources Management Plan, Pearl Harbor Historic Trail, and Pacific Aviation Museum plans and sites would also have long-term, minor benefits on visitor use and experience in that these plans would help integrate, coordinate and complement the many sites and stories that define the events of December 7, 1941 and World War II.

The Honolulu High Capacity Transit Plan as well as the King Kamehameha Highway Beautification Project would further improve the visitor experience by enhancing the appearance of the highway corridor from Pearl City to Center Street and the entrance to the park itself. The High Capacity Transit Plan has the potential to bring the transit line near the Naval Base, thereby improving visitor access to the area. Both plans would have long-term, minor benefits.

The beneficial effects of these other projects and plans would not offset the long-term, moderate, adverse effects of existing conditions. Long-term, moderate, adverse effects to visitor experience would result.

Conclusion. Under Alternative A, the existing facility and program would continue to enable the park to meet its mission to convey Pearl Harbor story and memorialization of those who died during the attack, a long-term, moderate benefit. Long-term, moderate, adverse effects on visitor experience would continue due to over-crowding, visitor flow conflicts, and confusing conditions. The museum displays, the concession stand, restrooms, and AMMA bookstore spaces would continue to be inadequate for the number of visitors on site. Moderate to major adverse effects of undetermined duration could occur if the visitor center closes. Overall cumulative effects on visitor use and experience would be long-term, moderate, and adverse.

Impacts of Alternative B, the Preferred Alternative

As under Alternative A, the park service would continue to meet its mission of conveying the Pearl Harbor story and memorialization of those who died, a long-term, moderate benefit. Additional, long-term enhancements to visitor use and experience would result from visitor center construction and theater renovation.

The new facility would better accommodate 1.5 million visitors per year. The chaotic and confusing lines would be replaced with orderly lines, with areas available for rest and shade

as well as opportunities for visitors to access restrooms, storage lockers, ticket booths, and orientation to other sites of interest.

Inside, the visitor center capacity and flow redesign would reduce the bottlenecks and overcrowding. The concession stands, restrooms, and bookstore spaces would be adequate, less crowded, and easier to access and use. New museum and exhibit space, renovated theaters, a classroom, and an amphitheater would better accommodate educational and interpretive programming. Better visitor amenities and accommodations would enhance the experience, including those of the Pearl Harbor survivors.

The linear, campus-style visitor center would provide a visitor experience approach that would reduce confusion and help to refine and focus visitor attention toward the memorial. Use of open-air spaces and dispersed information and exhibits would help reduce lines and crowding. The visitor would have an organized, sequential experience from the shared arrival plaza through the existing theaters and boat launch. The new organization and interpretive experience would provide a long-term, moderate benefit.

Structures would be well-oriented to the trade winds, and when this orientation is combined with on-site shading, would result in measurable cooling effects to improve visitors' comfort. A "back of house" corridor and service area to the east of the visitor center campus would separate housekeeping and park operation functions from visitor circulation and reduce potential visitor flow conflicts, a long-term, minor benefit.

Because this alternative requires construction in and around the existing visitor center complex, interruption of visitor services would be anticipated during project implementation. Effects would be adverse, short-term, and minor to moderate. However, as the park service is committed to its mission of conveying the Pearl Harbor story and memorialization of those who died, the memorial would continue to provide for the optimal visitor experience under those conditions as possible, offsetting the adverse effects.

To protect archival, metal, textile and paper items from the collection, these collections would be removed from the display cases prior to beginning construction. The absence of these interpretive materials would produce short-term, minor, adverse effects on the visitor experience.

During the 2-year project period, the visitor center would remain operational to the extent possible with accessibility being maintained throughout construction. However, areas of the center could be closed, and/or portions of the site could be restricted for indefinite periods. Street access, vehicle parking, pedestrian walkways, and location of the AMMA bookstore and refreshment vendor would periodically change and could be limited. The NPS has committed to providing continued operations for AMMA and the refreshment vendor, and alternate locations for these operations would be identified as needed.

During upgrade and rehabilitation of the theaters, the interpretive film experience may not be available. This situation could last for several months. In addition, upgrading the theaters, would require that visitors access the boat launch from an alternate location. There is not adequate space to complete demolition and/or construction activities at this site, while allowing safe passage to the boat launch. Because viewing the interpretive film, followed by an immediate trip to the memorial, plays a key role in conveying the somber and important message of the memorial, these conditions would have short-term, moderate, adverse effects

on the visitor experience. However, as the NPS is committed to its mission of interpreting the Pearl Harbor story, alternate ways of portraying the message would be provided to offset, as best possible, the adverse effects.

The effects of construction activities (including pile driving) on the sounds and views associated with the memorial could also interfere with the visitor experience. Construction activities would be timed to limit effects on visitors, but the presence of and exposure to equipment, disturbance, pile driving, and general construction activity and noise would produce short-term, moderate, adverse effects on the visitor experience.

Cumulative Effects. The effect of other projects and plans described in Alternative A would be the same for Alternative B (long-term, minor to moderate, beneficial).

In concert with the development of the new visitor center, the NPS plans to implement a new interpretive and educational program. The components of this plan are outlined in "Related Projects and Plans" in Chapter 1. The new interpretive plan would improve and shape the direction and understanding of the events of the December 7 attack on O'ahu. The new programming would contribute to improved visitor flow and overall visitor appreciation and satisfaction. Implementation of the new exhibitry and educational programs would produce long-term, moderate, beneficial effects.

In combination with the long-term, minor to moderate benefits of Alternative B, cumulative effects on visitor use and experience would be long-term, moderate, and beneficial.

Conclusion. Long-term effects of Alternative B on visitor use and experience would be moderate and beneficial. These benefits would occur from improved visitor flow, providing more restroom facilities, renovated theaters, facilitating an organized and focused educational experience, and providing adequate space for visitor amenities such as the AMMA bookstore and refreshment vendor. Trade wind-oriented and shaded structures and plazas would help to refine and focus visitor attention, and provide a comfortable outdoor experience. A new access corridor and service area would separate park operation functions from visitor areas. Overall long-term cumulative effects would be moderate and beneficial.

Short-term, minor to moderate, adverse effects would occur during visitor center construction from interruptions in interpretive programming, use of an alternate boat launch location, construction activities and noise, and relocated services and access routes.

Impacts of Alternative C

Many of the benefits described for Alternative B would be the same for Alternative C. Upon completion, a new visitor center facility would better accommodate 1.5 million visitors by: improving organization and order at arrival and through the visitor center; providing shaded seating areas for rest; and supporting the new interpretive and educational program. Alternative C would generate long-term, moderate, beneficial effects on visitor use and experience.

The new visitor center design would help reduce uncomfortable wait times, provide for adequate restrooms, necessary and appropriate commercial services (such as the AMMA bookstore and refreshment vendor), and improve access and ease of use. The new venues for education and interpretation would include the new exhibit and museum area, open-air theaters, a classroom, and an amphitheater.

The new structures would be clustered in a group, north of the existing visitor center. The facility would provide multiple views to the memorial, and a chance for increased visitor choice and experience options. By clustering the buildings, a venue of exploration and discovery can be achieved by use of multiple access routes from the centrally located arrival plaza. As for Alternative B, trade winds, shading, and site conditions would be used to provide a comfortable environment. Park functions would be separated from visitor areas.

Implementation of Alternative C would result in long-term, moderate, beneficial effects on visitor use and experience at the USS *Arizona* Memorial.

Under this alternative, the majority of construction-related activities would occur to the north of the existing visitor center. The visitor center would be anticipated to remain operational throughout the construction period. Upon completion of the new facility, the NPS and vendor operations would relocate to the new buildings. As in Alternative B, throughout the 2-year construction period, equipment traffic and staging of materials would result in reduced parking and closure and re-routing of some vehicle and pedestrian routes. Construction activities would result in short-term, minor to moderate, adverse effects on visitor use and experience.

To protect the collections, archival, metal, textile and paper items would be removed from the display cases prior to beginning construction. The absence of these interpretive materials would produce short-term, minor, adverse effects on the visitor experience.

As in alternative B, the effects of construction activities (including pile driving) on the sounds and views associated with the memorial could also interfere with the visitor experience. Construction activities would be timed to limit effects on visitors, but the presence of equipment, disturbance, and general construction activity and noise would produce short-term, minor to moderate, adverse effects on the visitor experience.

Overall adverse effects on the visitor experience for the 2-year construction period would be short-term and minor to moderate.

Cumulative Effects. The effect of other projects and plans would be the same as described for Alternative B (long-term, minor to moderate, beneficial). In combination with the long-term, moderate benefits of Alternative C, cumulative effects on visitor use and experience would be long-term, moderate, and beneficial.

Conclusion. Long-term effects of Alternative C on visitor use and experience would be moderate and beneficial. These benefits would occur from improving visitor flow, providing more restroom facilities, improved theaters, facilitating an open educational experience with many choices, and providing adequate space for amenities such as the AMMA bookstore and refreshment vendor. Trade wind-oriented and shaded structures and plazas would provide a comfortable outdoor experience. A new access corridor and service area would separate park operation functions from visitor areas. Overall long-term cumulative effects would be moderate and beneficial.

Short-term, minor to moderate, adverse effects would occur during visitor center construction from increased noise and presence of equipment, altered pedestrian and vehicle access routes, and absence of exhibits and archival materials.

CULTURAL RESOURCES

Background History

Originally, Pearl Harbor was a fairly extensive but shallow bay known as Wai Momi ("water of pearl") or Puʻuloa by the Hawaiians (NPS 2006b and Pearl Harbor Memorial Fund 2006). This bay was an important part of Native Hawaiian life for it was regarded as the home of the shark goddess Kaʻahupahau and her brother, Kahiʻuka. During historic times, the harbor was used both by Native Hawaiians and Euroamericans, and until the late 1800s, the harbor contained pearl-producing oysters. The Reciprocity Treaty ratified in 1887 allowed the U.S. Navy to lease Pearl Harbor as a naval base in exchange for Hawaii's exclusive rights to allow Hawaiian sugar to enter the United States duty free.

In 1902, the Navy acquired land along the coast, and in 1903 the harbor was dredged. In 1908, the channel was again dredged to accommodate the "largest ships" (U.S. Navy 2002b) and the Pearl Harbor Naval Shipyard was established. Over the next two decades numerous facilities were completed, and Ford Island was purchased for joint Army and Navy use in 1917. As Japanese influence in the Pacific increased so did U.S. Navy's presence at Pearl Harbor. Facilities were established or expanded, including a naval air station, fuel storage, naval magazines, piers, and railway and battleship moorings. Training operations began. With the onset of war in Europe in 1939, an expanded building program was begun at Pearl Harbor.

Early on the morning of December 7, 1941, a surprise attack on Pearl Harbor was launched by the planes and midget submarines of the Japanese Imperial Navy. The initial attack was made by 181 planes (torpedo bombers, dive-bombers, level bombers, and fighters) that left six Japanese aircraft carriers at 6:00 a.m. Military airfields and American ships anchored in Pearl Harbor were struck at 7:53 a.m. Twenty-one ships of the U.S. Pacific fleet were damaged and the human death toll reached 2,390. This attack brought the United States into World War II.

CULTURAL LANDSCAPES

Affected Environment

A cultural landscape by definition occupies a geographic area that incorporates natural and cultural elements that are associated with a historic activity, event, or person. Cultural landscapes are geographic areas that have meaning for people. Within cultural landscapes, people have been, and in some cases, still are, modifying, interacting with, and giving human meaning to the land. Natural features such as landforms, soils, and vegetation are not only part of the cultural landscape; they provide the framework within which it evolves. In the broadest sense, a cultural landscape is a reflection of human adaptation and use of natural resources and is often expressed in the way land is organized and divided, patterns of settlement, land use, systems of circulation, and the types of structures that are built. The character of a cultural landscape is defined both by physical materials, such as roads, buildings, walls, and vegetation, and by use reflecting cultural values and traditions.

Cultural landscapes are dynamic, and change resulting from both natural processes and human activities is an inherent part of all landscapes. These changes are balanced by the continuity of other characteristics retained over time. The formally defined cultural landscape at the USS *Arizona* Memorial is outside of the area of potential effect for it begins at the edge of the harbor to take in the sunken ship and the memorial facility, set in the midst of the harbor near Ford Island.

The shoreside NPS facilities are, however, within the Pearl Harbor National Historic Landmark District that contains numerous historic structures and buildings related to World War II. Other ships adjacent to the USS *Arizona* include the USS *Bowfin* submarine, the USS *Missouri* (privately docked at Ford Island), and the USS *Oklahoma* (currently being developed as a memorial). In the future the USS *Utah* could be added to this grouping.

The 1964 landmark designation noted that

> "…the U.S. possession of Pearl Harbor and the development of a naval base and headquarters there after 1898 were important factors in the rise of U.S. naval power in the Pacific. The dispute of this power by Japan eventually contributed to the precipitation of war between the United States and Japan, the significant opening shots of which occurred at Pearl Harbor on the morning of December 7, 1941" (U.S. Navy 2002b).

The U.S. Navy used a cultural landscape approach in their preservation planning for this landmark district. They broadly defined the district as a historic vernacular landscape; that is a landscape "that evolved through use by the people whose activities or occupancy shaped that landscape" (U.S. Navy 2002b). This approach linked geographic areas, historic periods, and types of resources, and established historic interpretive themes (military and non-military) for the district.

The character-defining features of this landscape include views, topography, circulation, vegetation, and buildings and structures, all centered on the harbor. Views of the harbor, the memorial, the USS *Missouri* and the USS *Bowfin* from the vicinity of the visitor center are an important element of the landscape (see Figure 1, Character-defining Features for the Pearl Harbor Region, US Navy 2002b). Makalapa Crater and the adjacent bluffs and the natural shoreline provide relief from the relatively level topography of the harbor area, and stand in stark contrast to the waters of Pearl Harbor.

Historically, Pearl Harbor was the region's central circulation element. Water linkages, both small and large, are among the most important character-defining features of the Pearl Harbor area. A system of channels maintained throughout the harbor serves to connect the dispersed harbor facilities. Remnant piers, some dating back to O'ahu's plantation era, "remain as significant indicators of historic water links and routes" (U.S. Navy 2002b).

Transportation corridors such as the Kamehameha Highway and the historic railroad corridor were laid out to follow the natural contours of the outer perimeter of the harbor. While they currently provide access to various U.S. Navy, National Park Service, and other facilities, and served an important role during World War II, these transportation corridors have been an element of the historic scene at Pearl Harbor for many, many years. The name "Kamehameha Highway" was chosen in 1920 for the O'ahu beltway by the Daughters and Sons of Hawaiian Warriors. The name honors King Kamehameha and his armies who

marched up the Nuuanu Valley to the Pali where he fought his last battle (Honolulu Advertiser 2006).

The O'ahu Railway and Land Company (OR&L) narrow gauge railroad was built in 1889 to carry workers, supplies, and equipment between O'ahu's sugar cane plantations and the docks in Honolulu. When Pearl Harbor was bombed, the OR&L assumed a major role in wartime transportation, serving not only its regular freight operations, but assuming the burden of massive amounts of military related traffic. In 1947 much of the railroad line was abandoned and partially dismantled. However, the Hawaiian Railroad Society helped to preserve parts of the line, and nominated them to the National Register of Historic Places. In the Pearl Harbor area, the railroad corridor has been transformed into a bicycle path. This corridor is an element of the cultural landscape.

The scattered groves of red mangrove and kiawe serve as "…important visual backdrops from vantage points throughout the region….This vegetation conveys a sense of previous eras and historic integrity" (U.S. Navy 2002b). Significant vegetation in the harbor area is mostly limited to groves of trees planted in residential areas.

Unfortunately, no significant extant structures remain from the pre-military era except for scattered fishpond walls, indications of taro and rice fields, and a few stone structures. Buildings and structures that are character-defining in the landscape include not only the land-based naval facilities, but such things as the Battleship *Missouri*, and the submarine *Bowfin*. As a working U.S. Naval facility, the presence of various maritime vessels continues to contribute to the landscape setting.

The entire district "exists today of a series of fragments of different eras" (U.S. Navy 2002b), but viewed as a whole, the relationship between the natural and man-made landscape is part of the overall context of the district. As an active naval base, the area continually faces the challenge of changes that will, sometime in the future, become an integral part of the landscape.

The USS *Arizona* Memorial visitor center complex was built in 1978, along with interpretive exhibits and the Remembrance Circle, are part of the Pearl Harbor National Historic Landmark District. The park's landscape is in an urban setting, and has palm trees, mowed lawns, ornamental plantings, parking lots, streets, exhibits, and the visitor center complex. While the park is within and part of this the National Landmark District, it is not a contributing element of that landscape. The existing landscape within and surrounding the visitor center complex is not eligible for the National Register of Historic Places (it is only about 35-years old).

Impacts of Alternative A, the No Action Alternative

Under Alternative A, there would be no effect on the cultural landscape in the visitor center vicinity because there would be few, if any, visible changes in the existing structures, topography, access, transportation routes, or plantings.

Cumulative Effects. Continued current management of the USS *Arizona* Memorial shoreside visitor center would make no contribution to cumulative effects on the adjacent historic district and cultural landscape.

Conclusion. Alternative A would have no effect on the Pearl Harbor National Historic Landmark District or on the cultural landscape. There would be few, if any, visible changes in the existing structures, topography, access, or plantings.

There would be no impairment of cultural landscape resources or values under Alternative A.

Impacts of Alternative B, the Preferred Alternative

Under Alternative B, new structures, site arrangement, and landscaping features would be compatible with the surrounding National Historic Landmark District. New structures would be lighter and less stolid than the present heavy, gray, rectilinear concrete buildings, and the new two-story building would add height to the massing of the existing buildings. Although taller than the present structures, carefully chosen materials and sensitive design of new structures would ensure that the scale, massing, materials, and colors are compatible with the cultural landscape and historic district. Important elements of the existing complex such as the Ceremonial Lawn and Remembrance Circle are too small and cramped for existing uses. These landscape elements would be retained, but would be improved under Alternative B. That is, by removing the present visitor center, more space would be gained in the back lawn adjacent to these landscape elements in order to accommodate larger numbers of visitors at special functions.

There would be minor changes in topography, the new buildings would be slightly elevated on fill materials, and the arrangement of the structures and open spaces would provide visitors a better view of Pearl Harbor and the USS *Arizona* Memorial. The spatial organization and circulation patterns would change within the site, but the park would continue to occupy much the same general physical area, and the changes would be compatible with the overall landmark cultural landscape.

Vegetation removed during the project would be replanted, and wherever possible, native plants would be used. If exotic (non-native plants) are considered, they would be chosen from plant species that would have been found on O'ahu in 1941. There would be a short-term adverse effect on the cultural landscape during construction as the vegetation is removed and demolition of existing facilities is underway. This effect would continue only until the new facility is completed, and plants have had a chance to become established.

Decreased vehicle congestion and improved access would be beneficial to the cultural landscape by reducing intrusive visual effects, traffic noise, and exhaust fumes. Under Alternative B, traffic would have a negligible to minor, adverse effect on the landscape.

Construction of the new visitor center would have very little visual effect on the Pearl Harbor National Historic Landmark District because other significantly larger facilities such as the nearby Naval facilities and the causeway to Ford Island would tend to draw viewer's attention away from the few modestly-sized new structures at the park. Under Alternative B, proposed changes within the park, particularly improved views, retention of important elements such as the Ceremonial Lawn and the Remembrance Circle and expansion of adjacent areas for visitor use, and construction of new structures in keeping with the area would have long-term, negligible to minor, adverse impacts to both the overall cultural landscape and the Pearl Harbor National Historic Landmark District. Short-term, moderate, adverse effects on the cultural landscape would result from construction activities.

Cumulative Effects. The specific area under consideration for cumulative effects on the cultural landscape is the USS *Arizona*, the adjacent harbor, and the shoreside visitor center and its immediate environs. The period of time for cumulative effects begins on December 7, 1941 and continues to the present.

The attack on Pearl Harbor forever changed many of the existing physical attributes of the area, both natural and manmade. Over time technological changes and peacetime conditions resulted in construction of new and different facilities in the surrounding area. Construction of the Admiral Clarey Bridge (automobile causeway also known as the Ford Island Bridge) added a major element to the viewshed in the vicinity of the park. Yet, Pearl Harbor retains its long-time use as a harbor and military post, and continues to include ships and other structures associated with the U.S. Navy, all of which continue the historic maritime influences on the cultural landscape.

Proposed plans such as the Pearl Harbor Historic partners Site Master Plan, proposals for rehabilitation and interpretation of other ships, the Honolulu High Capacity Transit Plan, Kamehameha Highway Beautification Project, Ford Island Housing Development Project, the Pacific Aviation Museum, and the Pearl Harbor Historic Trail all would have effects, both beneficial and adverse, on the cultural landscape surrounding the visitor center. That is, projects such as the highway beautification and the Pearl Harbor Historic Trail would help preserve and interpret the historic features of the landscape surrounding the visitor center. Other projects would likely contribute additional clutter, traffic, and structural intrusion into the historic scene.

When the effects on the cultural landscape from past and ongoing activities (localized, minor to moderate, adverse effects) are added to the expected future effects under Alternative B long-term, beneficial, minor to moderate), the resulting cumulative effects would generally be long-term, minor, and adverse. The relatively small size of the park facilities and landscapes potentially affected under Alternative B would tend to reduce the park's contribution to overall adverse regional cumulative effects, which reflects extensive changes over the past six decades.

Conclusion. With the use of designs and materials that are compatible with the overall landscape, retention of the Ceremonial Lawn, Remembrance Circle, and expansion of adjacent visitor use areas, Alternative B would have long-term, negligible to minor, adverse effects to the cultural landscape, mainly from new construction. Changes in the landscape from new structures and access routes would have an indirect minor adverse effect on the landscape. These changes, plus reduction of vehicle congestion and improved access would have a negligible to minor adverse effect on the Pearl Harbor National Historic Landmark District. There would be a short-term, moderate, adverse effect on the cultural landscape during construction as the vegetation is removed and demolition of existing facilities is underway. This effect would continue only until the new facility is completed and plants have had a chance to become established. Cumulative effects would generally be long-term, minor, localized, and adverse because the relatively small size of the park facilities and landscapes potentially affected would tend to reduce the park's contribution to overall adverse, regional cumulative effects.

There would be no impairment of cultural landscape resources or values under Alternative B.

Impacts of Alternative C

Overall, effects of Alternative C on cultural landscapes would be the same as described for Alternative B (long-term, negligible to minor and adverse), resulting from new construction, improved views, new structures, plantings, circulation systems, retention of important elements such as the Ceremonial Lawn and Remembrance Circle, etc. As described for Alternative B, there would be a short-term, moderate, adverse effect on the cultural landscape during construction as the vegetation is removed and demolition of existing facilities is underway. This effect would continue only until the new facility is completed and plants have had a chance to become established.

Alternative C proposes relocation of the boat launch to an area immediately adjacent to the memorial view and the restrooms, in an area historically used for boat landings. The boat launch is an on-going activity related to visitor use of the park and the naval history of the area. The U.S. Navy's ICRMP report recommends that new boat landings should be located near historic pier and landing remnants so that the remnants could be interpreted as part of area history (2002b). The new boat launch would have a long-term, negligible, beneficial effect on the cultural landscape.

Alternative C proposes changes in site configuration to accommodate two views of the memorial, instead of the single view proposed under Alternative B. The new construction would have a short-term, adverse effect on the landscape. Given the beneficial aspects of interpretation of the historic pier and additional views of the memorial, a negligible, long-term effect would result. Thus, the resulting effects on the cultural landscape would be the same as Alternative B (long-term, negligible to minor, and adverse).

Cumulative Effects. Cumulative effects would be the same as described for Alternative B (long-term, minor, localized, and adverse.) The relatively small size of the park facilities and landscapes potentially affected would tend to reduce the park's contribution to overall regional cumulative effects.

Conclusion. Effects of Alternative C on cultural landscapes would be the same as described for Alternative B (long-term, negligible to minor, and adverse), resulting from improved views, new structures, plantings, circulation systems, retention of important elements such as the Ceremonial Lawn and Remembrance Circle, etc. A negligible, beneficial effect would result from re-location of the boat launch and from adding another new view of the memorial and the harbor. Short-term, moderate, adverse effects would occur during demolition of existing facilities. Cumulative effects would be long-term, minor, localized, and adverse. The relatively small size of the park facilities and landscapes potentially affected would tend to reduce the park's contribution to overall regional cumulative effects.

There would be no impairment of cultural landscape resources or values under Alternative C.

ETHNOGRAPHIC RESOURCES

Affected Environment

The following discussion focuses on the people, past and present, whose lives were forever and irrevocably changed by December 7, 1941 attack on the island of O'ahu. The physical representation of those events is preserved in numerous ways throughout the park. From the graphic and deeply moving historic materials and media at the visitor center and at the

memorial, the commemorative landscape setting on the island, and the stark reality of the hull of the USS *Arizona* itself. Yet, it is not just the physical remains that reflect the significance of this memorial, but the story itself that has become a part of human history and cultural understanding of this area where two very different cultures, East and West, converged more than half a century ago.

The events of December 7 are deeply etched in the memories of the survivors and in the stories told to their descendents. All of these individuals are part of a unique user group with long-term stakes in the integrity and meaning of the park's tangible and intangible resources which carry considerable symbolic and emotional weight. Some have relatives whose bodies lie beneath the waters of the harbor or on the surrounding hills. Others retell to their children the dramatic stories of their survival or the stories told by their fathers and mothers and grandparents. For many who were part of their country's armed forces, the shared experience of Pearl Harbor remains one of life's most defining moments.

The association of this cultural group with the park has endured for several generations, resulting in the growth of a strong sense of spiritual and emotional "guardianship" for the park, and an interest in the outcomes of management decisions that could affect the site and its resources. Members of the Pearl Harbor Survivors Association in Hawai'i continue to meet regularly with the park to provide an ongoing sense of caring and continuity for the park's resources.

For many centuries Pearl Harbor and the surrounding area has been an important part of Native Hawaiian life and culture. Numerous fishponds were located in this area, as well as irrigated taro, rice, and watercress fields situated on the shorelines. World War II irrevocably changed the way Hawaiians used the Pearl Harbor area. Most of the places where Hawaiians had fished and gathered seafood, planted crops, and celebrated life were lost to war and subsequent military development. Only a few sites remain and include four extant fishponds: Loko Paaiau near McGrew Point, Loko Okiokiolepe (listed on the National Register of Historic Places), Loko Pamoku near Naval Magazine, and Loko Laulaunui on Laulaunui Island (U.S. Navy 2002b). Some former fishpond walls were incorporated into railroad causeways during the development of the naval base. Other ponds were filled in to create development areas. During the latter part of the 20th century, additional growth of military and tourist facilities has further diminished the presence of ethnographic sites.

Impacts of Alternative A, the No Action Alternative

Overall, effects of Alternative A on ethnographic resources associated with the Pearl Harbor survivors would be long-term and moderately adverse. The visitor center at the USS *Arizona* Memorial houses and interprets a variety of mementos, records, photographs, and other materials describing and documenting the events occurring before, during, and after December 7, 1941. The deep sense of feeling and association that the survivors and their friends and families share is closely linked to these physical materials. Preservation and interpretation of these materials by the National Park Service is a long-term benefit to the survivors and veterans.

The building does not provide adequate archival protection for artifacts and records that have such significant meaning for the survivors and their families and friends. It lacks quality space and educational/interpretive activities and media that would continue to help others

understand the event and the experiences of those associated with it. It is critical that first-hand stories continue to be told and understood.

When these individuals and groups come to visit the park, they find an inadequate structure that is overcrowded, forcing them to wait in long lines to obtain a ticket or to get on the boat. Most of the Pearl Harbor survivors are in their eighties or older, yet the structure fails to provide ease of physical access for elderly or handicapped visitors. Access for these visitors has become difficult.

One of the most important aspects of a visit to the memorial is visitors' increased awareness of the occurrences at Pearl Harbor, and a growing sense of respect and gratitude for the contributions of World War II veterans. However, the inadequacies of the current visitor center listed above tend to tarnish this sense of respect and gratitude, detract from the commemorative mood, and help to diminish the relationship between the resource and the survivors groups.

Native Hawaiians also feel a deep cultural attachment to the site and its resources. Some may remember the stories of Pearl Harbor told by their grandparents. Well into the 20th century the name Pu'uloa was commonly used in traditional and historical texts as the name of the Pearl Harbor lagoon. A more ancient name for Pearl Harbor is Ka-awa-lau-o-pu'uloa, which can be translated as the many harbored sea of Pu'uloa, or the leaf-shaped lagoon of Puuloa (U.S. Navy 2002b). Traditional stories refer to modification of the lagoon and to fishpond construction, and focus on two major themes – the riches of the harbor and the deities associated with it. Pearl Harbor is located within the district of Ewa. It was here at Puuloa lagoon that the chiefs of Ewa fought several major battles in Hawaiian history.

In more recent times, many Native Hawaiians are survivors or descendents of those killed in the attack or of those who lived through it. Their memories of the time have become part of traditional stories. The existing facilities are inadequate to fully meet the needs of this ethnographic group as well.

Over time, the effects from continued settling could lead to closure of areas of the visitor center. Display items in the exhibits would be removed to safety in such an event, and no additional effect greater than short-term and minor would be anticipated.

Under the No Action Alternative, these impediments would combine to produce a long-term, moderate, adverse effect on the survivors' groups, relatives, and friends, including Native Hawaiians.

Cumulative Effects. The specific area under consideration for cumulative effects on ethnographic resources is the USS *Arizona*, the adjacent harbor, and the shoreside visitor center and its immediate environs. The period of time for cumulative effects begins on December 7, 1941 and continues to the present. Cumulative effects on Native Hawaiian ethnographic resources extend back further in time to the late 1880s when the U.S. Navy first leased the harbor and began to develop facilities in the area. Places that had been used traditionally as fishponds and farms began to be transformed into military or support facilities.

The events of December 7 dramatically changed Pearl Harbor and the surrounding area. The peaceful harbor was decimated. Areas that had once been Native Hawaiian fishponds and traditionally used areas were lost. Over the succeeding 65 years, many events have

contributed both beneficially and adversely, to the cumulative effects on the survivors and their families, including Native Hawaiians. Creation of the memorial and its management by the Navy and later the National Park Service were beneficial by preserving the actual site where the attack happened, and providing facilities where survivors and families could come to commemorate those lost in the battle and share their memories among themselves and with others. Construction of the visitor center further provided a place to interpret other physical remains such as photographs, oral histories, and artifacts that hold such meaning for this group.

However, during and after the war, major physical changes gradually occurred in the area surrounding the harbor. New buildings were erected, and landscapes changed. Numerous upcoming or proposed plans would further affect the connection between survivors groups and the site. These plans include a commercial services plan, the Navy's integrated cultural resources management plan, and other proposed management plans; the Pearl Harbor Historic Trail, local beautification projects, a master plan for the USS B*owfin*, USS *Missouri*, USS *Utah*, USS *Oklahoma*, and the Pacific Aviation Museum, and development on Ford Island.

Implementation of these plans would result in both adverse and beneficial effects. Some of the physical development could diminish survivors' sense of the place they associate with Pearl Harbor, a long-term, moderate, adverse effect. As each new, modern facility is erected, a small bit of Native Hawaiian history could be diminished or lost. Other developments would be moderately beneficial by reinforcing and enhancing memories of the event and past human relationships. The inadequacies of the present visitor center make it more difficult for survivors and families and friends to pay their respects and commemorate those human stories associated with events at Pearl Harbor (moderate and adverse) and with Native Hawaiian culture. When the moderate, adverse effects of other plans, projects, and activities affecting cultural resources are combined with actions under Alternative A (long-term, moderate, and adverse), cumulative, long-term, moderate, adverse effects would occur.

Conclusion. Effects of Alternative A would be adverse, long-term, and moderate because of lack of accessibility for traditional users (elderly veterans, survivors, and their families and friends, including Native Hawaiians); because of inadequate protection for valued artifacts and archival materials that remain a meaningful part of their lives; and because the inadequacies of the current visitor center detract from the feeling of respect and commemoration that should be present in a memorial. Cumulative moderate, adverse, long-term effects would occur.

There would be no impairment of ethnographic resources or values under Alternative A.

Impacts of Alternatives B and C

Overall, the action alternatives would have long-term, moderate benefits for traditional users. The new visitor center would be designed to provide facilities that would give Pearl Harbor survivors and others easy, comfortable access, areas that encourage quiet contemplation and a sense of history, and appropriate, archivally sound, exhibit space for collections used in the exhibits. These new facilities would give groups such as the Pearl Harbor Survivors added incentive to share their experiences so that visitors can better understand the whole story behind the beginning of World War II.

During the construction period, the visitor center would not be fully accessible, hours of operation of the memorial could change, and the location of the boat launch may be altered. In addition, construction activities would generate vibrations with the potential to harm exhibits currently displayed in the museum exhibit spaces. These items would be removed from their casings and placed in protective storage. Such changes in operations and exhibitry would diminish the visitation experience of traditional users and result in a short-term, adverse effect of minor intensity. This project would not have any effects on traditional ethnographic sites valued by Native Hawaiians.

Cumulative Effects. Cumulative effects to traditional users, ethnographic resources, and Pearl Harbor survivors groups resulting from the implementation of other projects and plans would be long-term, minor, localized, and adverse. Despite the fact that new visitor facilities would provide long-term moderate benefits for traditional users, these benefits would be outweighed by the adverse effects to ethnographic resources (described under Alternative A) that have occurred over the past half century, and that are likely to continue in the future.

Conclusion. Under Alternatives B and C, these new facilities and improved access would have long-term, moderate benefits for traditional users by providing easy, comfortable access, areas that encourage quiet contemplation and a sense of history; appropriate, archivally sound exhibit space for valued items used in the exhibits; and an incentive to share oral histories and other experiences with visitors. Short-term effects would be adverse and minor, as access and interpretive materials were altered for the duration of the construction period. This project would not have any effects on traditional ethnographic sites valued by Native Hawaiians.

Cumulative effects would be long-term, minor, localized, and adverse because benefits of improvements at the visitor center would be outweighed by the past, on-going, and probable adverse effects in the region in the foreseeable future. The relatively small size of the park facilities and landscapes potentially affected would tend to reduce the park's contribution to overall regional cumulative effects.

There would be no impairment of ethnographic resources or values under either action alternative.

MUSEUM COLLECTIONS

Affected Environment

After the National Park Service officially took over management of the USS *Arizona* Memorial and visitor center in 1980, the Navy Historical Center loaned several museum collection items to the park, including original parts of the USS *Arizona* (the anchor, ship's bell, and commanders' plaque), and the Japanese mini-sub periscope. The *Day of Infamy* painting by Kipp Soldwedel also came under park management. The Pearl Harbor Survivors Association commissioned a large mural of the USS *Arizona* for the visitor center lobby. Since that time, the museum collection has expanded dramatically as Pearl Harbor survivors and other World War II veterans donated their own collections. Over the years thousands of historic photographs and other museum objects and archival materials have been added to the park's collections, which now number over 70,000 items. These materials are presently housed in several different locations, including the visitor center, Navy Building 416, the

NPS Western Archeological and Conservation Center, the University of Hawaii, and the University of Nebraska. Approximately 4,400 items from the collection are displayed in the exhibit area/museum and other areas in and adjacent to the visitor center for visitor interpretation and appreciation.

Impacts of Alternative A, the No Action Alternative

Overall, effects of Alternative A on the park's exhibits (e.g. museum collection items that are on display) would be long-term, minor, and both adverse and beneficial. The preservation of items at the visitor center, especially textiles, metal objects and paper records and photographs, is a concern because the existing facility lacks adequate exhibit climate controls. The visitor center provides only a roof for protection of museum collection but otherwise is open to ambient conditions such as light and tropical, moist, salt air. This design allows an open-air environment for metal artifacts such as the ship's bell, allows free access to vermin and insects such as dry-wood termites, and encourages fungal growth. Thus, there is a potential for collections to be exposed to air, humidity, light, and temperature in the open-air museum, with its inadequate museum cases.

Individual microclimate museum cases have been established for some exhibits, but are costly and labor intensive to maintain and monitor. Maintenance and monitoring of these exhibits must be done by trained personnel during hours when the building is closed. Because staff curators are physically located elsewhere, maintenance and monitoring of the visitor center exhibits creates a difficult management situation and a strain on the park staff.

Because continued display of the same materials can be detrimental, collections used in the museum exhibits would be rotated to diminish deterioration.

Management of the existing exhibits at the visitor center also is severely hampered by lack of adequate work space and facilities for needed curation. There is no place set aside for researchers to conduct in-depth research. The park also lacks emergency operations plans to provide for unusual weather or security conditions, so there is a continued danger of loss of artifacts from such events. Lack of a comprehensive emergency operations plan and structural fire plan also pose potential future threats to the collections housed in the visitor center.

Although the majority of foundation rehabilitation work that could occur under continued current management would occur in the basement, surface movement of equipment, supplies, and personnel would necessitate removal of exhibits. Over time, the effects from continued settling could lead to closure of areas of the visitor center. Exhibits would be removed to safety in such an event, and no additional adverse effects would be anticipated.

Under the No Action Alternative, these deficiencies and conditions would continue to have a long-term, minor, adverse effect on visitor center exhibits.

Cumulative Effects. The specific area under consideration for cumulative effects on collections includes the shoreside visitor center and its immediate environs. The period of time for cumulative effects begins on December 7, 1941 and continues to the present.

U.S. Navy and National Park Service acquisition and curation of items related to Pearl Harbor has had moderate benefits by preserving significant documentation of the attack and subsequent events.

Use of these museum objects and archival materials in the museum has helped visitors better understand and appreciate the history of Pearl Harbor and World War II. However, since creation of the existing exhibits, many thousands of photographs, oral histories, papers, and artifacts have been donated to the park. The park's collections are expected to increase in the future as veterans and their families donate additional objects and archival materials. Research on this new material has broadened our understanding of the attack on Pearl Harbor, but the current exhibits and interpretive messages fail to reflect these recent acquisitions and research.

Establishment of exhibits at other entities such as the USS *Oklahoma* and USS *Utah* could produce demands for resources related to December 7, 1941, creating long-term, negligible to minor, adverse and beneficial effects on the collections. The proposed new park headquarters and administration building would include collections storage and curation facilities. The location of this new facility relative to the visitor center would make archival materials and collections much more accessible to researchers and park curators and interpreters, and would consolidate scattered collections. It would provide an appropriate facility for curation of the collections and would be constructed so as to meet standards outlined in the NPS Museum Handbook. This new facility would have a long-term, moderate benefit to collections. Otherwise, plans, projects, and activities in the Honolulu area would have little effect on the collections. When these long-term negligible to minor, adverse and beneficial effects are combined with the effects of Alternative A (long-term, minor, adverse, and beneficial), cumulative, long-term, minor beneficial effects on collections would occur.

Conclusion. Effects of Alternative A would be both beneficial and adverse, long-term, and minor. Rotation of exhibit items would be beneficial by diminishing the exposure of individual items to adverse conditions. (Collections stored off-site would receive continued protection in archivally sound facilities). Inadequate climatic controls, difficulty in maintaining and monitoring environmental conditions, use of dated materials that do not reflect current understanding, the need to move or otherwise manage collections during stabilization of the building, and lack of an emergency management operations or fire plans would result in long-term, adverse effects of minor intensity on museum exhibits. Cumulative, long-term, minor, beneficial effects on collections used in the exhibits would occur.

There would be no impairment of museum collection resources or values under Alternative A.

Impacts of Alternatives B and C

Overall, implementation of either action alternative would have long-term, minor, beneficial effects on the park's collections used in the exhibits. Before and during construction, plans would be developed for the appropriate means of inventory, packing, handling, transporting, and storage of items currently housed in the visitor center (see the NPS Museum Handbook 2006c).

Careful design would help ensure that the new facility has appropriate climate-controlled exhibit cases and other museum storage that would help prevent access for vermin, while controlling air, humidity, light, and temperature. Security for exhibits also would be an important consideration in planning the new facilities. These facilities would meet standards

and guidelines outlined in the NPS Museum Handbook series, Parts 1 – 3. New facilities also would be designed for ease of access and use for curators who need to monitor environmental conditions within the exhibits. Museum collections would continue to be acquired, accessioned and cataloged, preserved, protected, and made available for access and use according to NPS standards and guidelines. Rotation of exhibit items would be beneficial by diminishing the exposure of individual items to adverse conditions.

Accompanying the new facilities would be emergency operations plans for protecting vulnerable exhibits (see Chapter 10 of the NPS Museum Handbook, Part 1 and appropriate appendices). Plans would take into consideration such occurrences as possible fire hazards, utility failures, structural problems, natural disasters such as storms, water damage and floods, and civil unrest, vandalism, and terrorism.

During construction activities, vibrations would be generated (particularly from pile-driving) that could potentially harm the museum items now displayed in the museum. To protect these resources, museum objects would be removed from display and placed in appropriate storage space for the duration of the construction period. The utmost care would be exercised during the packing, moving, and unpacking of all collections; therefore, potential impacts to the park's museum collections associated with the risk involved in moving artifacts and archives would be negligible.

Development and use of careful techniques and actions to protect and preserve collections in the exhibits before, during, and after construction would have long-term, minor to moderate, beneficial effects on museum collections and archives currently housed within the visitor center.

Cumulative Effects. By gathering collections related to the story of Pearl Harbor, and by preserving and interpreting them, the U.S. Navy and National Park Service have had a moderate beneficial effect on these items. However, many of the exhibit items used to tell the story of Pearl Harbor are at least 50 years old, and have suffered varying degrees of exposure to vermin and light, heat, moisture, and other environmental hazards. Curators have had to be constantly vigilant to prevent damage to these resources, but some deterioration has occurred in the past, resulting in long-term, localized, minor to moderate, adverse effects.

Under Alternatives B or C, planning for the new visitor center would take exhibits into consideration to avoid potential damage or loss during preparations for moving, during actual transport, short-term storage, and reinstallation into climatically controlled cases in the new facility. Comprehensive emergency operations and structural fire plans would be developed to help ensure protection of collections used in the exhibits during and after construction of the new facilities. As described for Alternative A, construction of the new Park Headquarters and Administration Building would have moderate benefits to collections by providing increased ease of access, and appropriate storage and curational facilities. These actions would result in moderate benefits.

When the past long-term, minor to moderate, adverse effects and moderate beneficial effects are combined with actions of Alternatives B or C (long-term, minor, beneficial effects), moderate cumulative, long-term, benefits would result.

Conclusion. Implementation of Alternative B or C would have long-term, minor to moderate, beneficial effects on display items currently housed within the visitor center. The park would continue to protect and interpret collections associated with the historic events of 1941. Planning and design of the new facilities would follow mandates of the NPS Museum Handbook (NPS 2006c) to ensure protection of collections used in the exhibits from human and environmental factors before, during, and after construction; ease of access for curators; and improved interpretation. Emergency operations plans would be developed to deal with both human and environmental threats. Space would be provided for research and exhibit curation. Items used in exhibits would be rotated to ensure that sensitive materials are not on exhibit for an excessive amount of time.

Past damage to exhibits has contributed to minor to moderate, long-term, adverse effects, while long-term moderate benefits have accrued by establishing the memorial and the collections. Construction of the new Park Headquarters and Administration Building would have a moderate beneficial effect on collections by providing an easily accessible, safe, climate controlled facility. When these actions are combined with Alternatives B and C (long-term, minor, beneficial), moderate, localized, long-term, beneficial cumulative effects on collections would occur.

There would be no impairment of museum collection resources or values under either action alternative.

SECTION 106 SUMMARY

This environmental assessment has defined the area of potential effect (the entire park), described existing cultural resource conditions in the study area (including National Register properties), and evaluated the potential environmental effects of three alternatives: Alternative A, a continuation of existing conditions and Alternatives B and C, action alternatives. Alternative B is the preferred alternative. Definitions of intensity levels for cultural resources were developed (Table 4) to provide a basis for evaluating effects of proposed actions on cultural resources. Mitigating measures were developed to help ensure the protection and preservation of cultural resources.

Archeological resources. The area of potential effect is in a heavily disturbed zone. Comparison of aerial photographs from 1941 and 1944 show that the original shoreline and stream channel have been filled in and developed with a boat landing, fuel station and other Naval Facilities. The depth to solid substrate is approximately 150 to 200 feet. Thus, there is no potential for *in situ* archeological resources.

Historic structures, buildings, and objects. There are no historic structures within the project area; the Navy constructed the present visitor center in 1978 prior to transfer of the original 11-acre site to NPS management. Vibrations from recent, large-scale construction that included pile driving (Ford Island Bridge and dock for the USS *Missouri*) have not had appreciable effects on the sunken hull of the USS *Arizona*. Therefore, construction of the new visitor center is not it is not likely to affect the ship. However, vibration monitors would be used on the sunken hull to determine what, if any, affects that may occur.

Cultural landscapes. The shoreside NPS facilities lie within the Pearl Harbor National Historic Landmark District. This district contains numerous historic structures and buildings related to World War II, as well as the USS *Bowfin* submarine, the USS *Missouri* (privately

docked at Ford Island), the USS *Oklahoma* (currently being developed as a memorial), and possibly (in the future) the USS *Utah*. This landmark district is based on the U.S. possession of Pearl Harbor and the development of a naval base and headquarters after 1898. In documenting this district, the U.S. Navy used a cultural landscape approach, broadly defining it as a historic vernacular landscape that evolved "through use by the people whose activities or occupancy shaped that landscape" (U.S. Navy 2002b). By using this approach the Navy could link geographic areas, historic periods, and types of resources, for which they established historic interpretive themes (military and non-military) for the district.

The character-defining features of this landscape include views, topography, circulation, vegetation, and buildings and structures, all centered on the harbor. The entire district "exists today of a series of fragments of different eras" (U.S. Navy 2002b), but viewed as a whole, the relationship between the natural and man-made landscape being part of the overall context of the district. The designation recognizes that change will occur, eventually becoming integral to the landscape.

However, the NPS-managed, Navy-owned lands are not included as a contributing element to the cultural landscape (U.S. Navy 2002b: Table 1 and Figure 3). The new visitor center facilities proposed in the preferred alternative would be constructed outside of the defined historic landscape, and would be so designed as to blend seamlessly, without intrusive elements, into the larger viewshed so that there would be no effect on the landmark district.

Ethnographic resources. The survivors and their families are all part of a unique user group with long-term stakes in the integrity and meaning of the park's tangible and intangible resources which, for them, carry considerable symbolic and emotional weight. Some have relatives whose bodies lie beneath the waters of the harbor or on the surrounding hills. Others retell to their children the dramatic stories of their survival or the stories told by their fathers and mothers and grandparents. For many who were part of their country's armed forces, the shared experience of Pearl Harbor remains one of life's most defining moments. Native Hawaiians share these experiences, and also remember the importance of Pearl Harbor and the surrounding area as part of their cultural heritage.

The association of these cultural groups with the park has endured for several generations, resulting in the growth of a strong sense of spiritual and emotional "guardianship" for the park, and an interest in the outcomes of management decisions that could affect the site and its resources. Members of the Pearl Harbor Survivors Association in Hawai'i continue to meet regularly with the park to provide an ongoing sense of caring and continuity for the park's resources. For many centuries Pearl Harbor and the surrounding area has been an important part of Native Hawaiian life and culture, but World War II irrevocably changed the way Hawaiians used this area. Many of the places where Hawaiians fished and gathered seafood and celebrated life have been lost. However, actions under the preferred alternative would have no adverse effects on Native Hawaiian ethnographic resources. Instead, by erecting new facilities that can better meet the needs of these visitors, many of whom are quite elderly, and by preserving collections valued by ethnographic groups, the preferred alternative would benefit ethnographic resources.

The Advisory Council on Historic Preservation, the Hawai'i State Historic Preservation Officer, and concerned groups were contacted at the beginning of this environmental assessment process (see Consultation and Coordination and letters in Appendix A). This

environmental assessment, which will be used as a vehicle to accomplish Section 106 compliance for this project, also will be sent to these entities for their review and comment.

After applying the implementing regulations of the Advisory Council on Historic Preservation (36 CFR 800, revised regulations effective August 5, 2004), addressing the criteria of effect and adverse effect, the National Park Service finds that the implementation of the preferred alternative, Alternative B, would result in a finding of *no adverse effect* to historic properties.

In the unlikely event that cultural resources are discovered during project implementation, work would be halted in the vicinity of the resource, and procedures outlined in 36 CFR 800 would be followed.

SOUNDSCAPE

Affected Environment

A soundscape can be defined as "usually composed of both natural ambient sounds and a variety of human-made sounds." Noise, an element that can degrade the soundscape is defined as "…unwanted or undesired sound, often unpleasant in quality, intensity or repetition…In a national park setting, noise is a subset of human-made noises" (NPS 2006a). Sound can be perceived as noise because of loudness, frequency, duration, occurrence at unwanted times, or because it interrupts or interferes with a desired activity. Noise may vary in character from day to night, and from season to season. Some human-caused sound can be acceptable if it is associated with the purposes and uses for which the park was created.

The setting at the visitor center is within an operating naval base in a highly-urbanized area. There are few natural sounds at the visitor center. The human-made sounds that are present include human voices, vehicular traffic, naval shipping, aircraft overflights, and the sounds associated with the use, maintenance and operation of the buildings and facilities. Human-caused sound is typically more pronounced with high park visitation and during working hours. Outside sounds from surrounding highways such as the King Kamehameha Highway and the Admiral Clarey Bridge (a.k.a. the Ford Island Bridge) are intermittently audible and decrease rapidly toward the memorial, helping to set a tone for a respectful, commemorating visit to the memorial.

Nearby land uses include Navy residences to the south and east of the project area, and high-volume traffic corridors such as King Kamehameha Highway to the east. To the west of the site is the open water of Pearl Harbor, with its transient naval ship traffic, including large naval vessels such as aircraft carriers and battleships.

Impacts of Alternative A, the No Action Alternative

The actions that could occur to stabilize the visitor center under continued current management would be small in scale. Any sounds generated would be muffled as it would occur in the basement and foundation areas of the buildings. As such, it is not anticipated that Alternative A would affect the soundscape at the USS *Arizona* Memorial visitor center.

Cumulative Effects. Alternative A would make no contribution to the cumulative effects of other projects and plans on the soundscape at the visitor center.

Conclusion. It is not anticipated that the stabilization efforts associated with continued current management would affect the soundscape at the USS *Arizona* Memorial visitor center.

There would be no impairment of soundscape resources or values under Alternative A.

Impacts of Alternative B, the Preferred Alternative

Implementation of Alternative B would produce short-term, local, minor to moderate, adverse effects on the soundscape at the visitor center, at adjacent Pearl Harbor venues, and at nearby residential areas. Construction activities are estimated to be two years in duration, with pile driving taking up 4 months of that time.

Sources of noise associated with the action alternatives would include the mechanical noises and peak noise levels associated with equipment use (including pile driving, bulldozers, hammers, rock drills, and other machines). For example, the noises associated with operating a D9 Caterpillar Bulldozer (85 dB, at 50 feet) and various construction equipment can be roughly twice as loud as an average car. Some construction equipment and activities can produce sounds in excess of 100 dB, (e.g. pile driving generates 101 db at 50 feet) typically in short bursts, but spread over the duration of the project. Overall, peak nonvehicle-related noises during construction would have short-term, minor to moderate, adverse impacts, affecting both visitors and nearby residents.

Contractors would create and implement development-specific noise reduction plans, in accordance with Occupational Safety and Health Administration guidance, that would be enforced via contract specifications. Contractors may elect any combination of legal, non-polluting methods to maintain or reduce noise to thresholds levels or lower, as long as those methods do not result in other significant environmental impacts or create a substantial public nuisance. The plan for attenuating construction-related noises would be implemented prior to the initiation of any work that triggers the need for such a plan. The noise reduction plan would be reviewed and approved by the National Park Service. Contractors would also implement a hearing protection plan for workers, compliant with OSHA regulation 1926.52 – Occupation Noise Exposure Standard for Construction.

A press release would be issued by the park before construction begins identifying the projected construction schedule and duration of noise-generating construction activities. In addition, notices regarding the projected construction would be posted on site and mailed to visitor bureaus, bus companies and other tourist oriented businesses and organizations.

Because of the intense nature of noise associated with pile driving it would not be feasible to mitigate these effects to low or inaudible levels. However, effects of the intermittent hammering or pounding sounds may be modified by performing this work during off-visitor hours or by employing vibratory methods of pile installation in lieu of the percussion methods where practical. Effects on visitors would be minor to moderate and adverse depending upon timing of activities and duration of visit. Effects on nearby neighbors, particularly of pile driving, would be short-term, moderate, and adverse for the foundation piling installation period of up to 4 months. These sounds would decline rapidly moving away from the construction area, and would likely blend in with the ambient urban background noise upon reaching King Kamehameha Highway. Overall effects of the project

on the soundscape of the visitor center and surrounding areas would be short-term, minor to moderate, and adverse.

Cumulative Effects. Under Alternative B, a number of projects would contribute to cumulative effects. Implementation of the Honolulu High Capacity Transit Plan as well as the King Kamehameha Highway Beautification project would generate short-term, minor, adverse construction noise and long-term, negligible to minor, adverse, urban-use noise. When combined with the effects on urban soundscape from implementation of Alternative B (short-term, minor to moderate, adverse), overall cumulative effects on the urban soundscape would be short-term, minor to moderate, adverse, and long-term, negligible to minor, and adverse.

Conclusion. Effects associated with Alternative B would be local, short-term, minor to moderate, adverse to neighbors and short-term, minor to moderate, adverse to visitors, depending on the of application of sound mitigation measures during operation of construction machinery, timing of pile driving activities, and duration of visit.

There would be no impairment of soundscape resources or values under Alternative B.

Impacts of Alternative C

Alternative C, like Alternative B, would have short-term, local, minor to moderate, adverse effects on the soundscape during project implementation. Sources of noise associated with construction equipment, pile-driving for the foundation, and general construction and building demolition activities would be similar to those described for Alternative B. Because Alternative C includes construction of new theatres, a greater number of piles would be driven during the initial foundation construction period of up to 4 months. Impacts from these short-term noises would be reduced through implementation of mitigation measures mentioned in Alternative B.

Cumulative Effects. Effects of other projects and plans would be the same as described for Alternative B (short-term, minor to moderate, adverse and long-term, negligible to minor, adverse). When combined with the effects on urban soundscape from implementation of Alternative C (short-term, minor to moderate, adverse), overall cumulative effects on the urban soundscape would be long-term, negligible to minor, and adverse.

Conclusion. Effects associated with Alternative C would be similar to Alternative B, local, short-term, adverse and minor to moderate.

There would be no impairment of soundscape resources or values under Alternative C.

PUBLIC HEALTH AND SAFETY

Affected Environment

The primary issues associated with public health and safety at the USS *Arizona* Memorial visitor center include the possibility that the existing structure may soon become seismically unstable, as well as the continued presence of standing water in the basement and crawlspace of the structures.

The structural evaluation and report (Baldridge Associates 2004) raised questions about the structure's ability to withstand earthquakes that could occur in this seismically active

environment. Emergency situations at the Pearl Harbor Naval Station are addressed as part of the U.S. Navy emergency preparedness and response plan. In the event of an earthquake or tsunami, the USS *Arizona* Memorial areas would comply with requirements of this plan. (For specific information on tsunami and flood compliance, see Appendix B: Coastal Zone Management Act Consistency Determination for the Preferred Alternative and Appendix C: Statement of Findings for Floodplains, respectively.)

Infiltration of groundwater into the basement of the visitor center has increased over the years and pooled water is often found in sections of the basement and crawlspaces (NPS 2005a). The presence of water in the basement can promote the growth of mold and/or breeding of insects such as mosquitoes, issues that are common in Hawai'i. The wet environment is of concern because mold allergens are common in Hawai'i, and hotels and other facilities have been closed as a result of the presence of molds. Mold has not been observed to date, and insect infestations have been prevented by an active prevention program (NPS 2005a).

Another health and safety concern is the lack of shade and seating areas in the outdoor waiting areas. Visitors are exposed to the direct sun and/or inclement weather and have no benches on which to rest. These conditions can pose health risks to many individuals, but especially the elderly.

Fire protection for the existing visitor center consists of two fire hydrants. The building does not have a sprinkler system and alarms are not up to code (Portico Group 2006). Although the USS *Arizona* Memorial visitor center is located within an active naval base, the facility does not comply with current Department of Defense security and antiterrorism requirements related to standoff distances, vehicle barriers, drive-up/drop-off areas, access roads, and standards for building structure and window design. (These requirements include conventional standoff distances of 0 to 83 feet - no construction of building allowed; 83 to148 feet - building construction must be hardened; and 148 feet and up - no restrictions.) There is no security setback requirement along the Halawa Stream side of the visitor center complex.

Impacts of Alternative A, the No Action Alternative

Under the No Action Alternative, long-term, localized, minor, adverse effects to public health and safety would continue to occur as a result of the existing structural and environmental conditions at the visitor center.

The deterioration of the foundations and structural elements of the visitor center that make it susceptible to seismic activity would continue. Over time, the effects from continued settling could lead to closure of areas of the visitor center structure, if significant health and safety issues were to arise. However, this situation is not predictable or certain. The NPS would endeavor to maintain a safe visitor and staff environment, and no adverse effect greater than short-term and minor would be anticipated.

The visitor center would continue to operate under existing conditions without adequate fire protection, and would be non-compliant with existing security and antiterrorism requirements related to architecture and standoff distances. (The theaters would be in compliance with the antiterrorism requirements.) The potential for fire is not great in the structure, as it is constructed of concrete, and access to the outdoors is readily available. Terrorism is an

unpredictable and random act, the threat of which can not be quantified here. These conditions would combine to produce long-term, minor, adverse effects to public health and safety.

Due to the location of the visitor center on Pearl Harbor, the threat to visitor and staff safety from the effects of hurricanes, tsunami, flooding or seismic activity would be ongoing. By participating in Pearl Harbor Naval Station emergency operations and implementing responses to protect staff and visitors, the adverse effects on public health and safety would be negligible. These effects would be due to the potential for flooding and structural damage.

Dampness and flooded conditions in the basement would also continue to contribute to the adverse effects on health and safety due to the potential of insect infestations like mosquitoes and promotion of the growth of hazardous molds. However, continued monitoring for and pumping of water accumulations from the basement would reduce the effects.

Rehabilitation of the failing foundation system would not be anticipated to pose risks to visitors and staff. Construction and repair activities would likely be confined to spaces of the basement, and access to any affected public areas would be restricted by use of barriers.

Overall, continuation of current management would produce localized, long-term, minor, adverse effects on public health and safety.

Cumulative Effects. There are no past, present, or reasonably foreseeable future projects that would be anticipated to have measurable effects on public health and safety in the vicinity of the USS *Arizona* Memorial visitor center; therefore, there are no cumulative effects.

Conclusion. Alternative A would produce localized, long-term, negligible to minor, adverse effects on public health and safety. These would result from the ever present danger of seismic activity; hurricanes, tsunami, or flooding; mold growth and potential insect infestation; and effects on visitors from waiting in long unshaded lines without rest benches.

Impacts of Alternatives B and C

Implementation of either Alternative B or Alternative C would result in localized benefits to public health and safety. The new visitor center structures would be designed to meet all applicable life health safety codes, and would be more seismically stable than the existing structures. The new building configuration would reduce visitor flow and control and provide large, shaded areas, with some seating, to accommodate visitors during any ticket or theater wait times. This would reduce stress placed on visitors from exposure to tropical sun and heat.

The new visitor center would include adequate fire protection and alarm systems, and would comply with security and antiterrorism setback requirements. The problems associated with pooled water in the basement (mold and insects) would also be resolved. These conditions would combine to produce long-term, localized, minor, beneficial effects on public health and safety.

As described for Alternative A, due to the location of Pearl Harbor, threats to visitor and staff safety from hurricanes, tsunami, flooding or seismic activity would be ongoing and would have a continuous, long-term, minor, adverse effect on health and safety.

Overall, long-term effects of the action alternatives on pubic health and safety would be localized, beneficial, and minor. Construction activities would produce low levels of risk to visitors and staff during project implementation. The use of construction equipment and materials and increased traffic by workers could present potential hazards. Risks would be reduced by providing information to visitors so they do not inadvertently enter the construction area, implementing a contractor safety plan, using barriers around construction units, controlling traffic, and increasing ranger presence. These measures would be taken under both action alternatives. In addition, lead and asbestos abatement measures would be implemented. (See Table 1 for a list of mitigation measures, if determined necessary.) Overall, project implementation and construction would produce short-term, minor, adverse effects on public health and safety.

Cumulative Effects. There are no other past, present, or reasonably foreseeable future projects that would be anticipated to have measurable effects on public health and safety in the vicinity of the USS *Arizona* Memorial visitor center; therefore, there are no cumulative effects.

Conclusion. There would be long-term, localized, minor, beneficial effects to health and safety by reducing or eliminating the structural deficiencies present at the current visitor center, and by implementing fire and life code standards and security and antiterrorism requirements in new construction. By including shade and green design principles, effects of topical sun and heat stress would be reduced. Long-term threats from potential natural hazards like hurricanes, earthquakes, and tsunami would continue to produce long-term, minor, adverse effects. Construction activities would produce short-term adverse effects of minor intensity.

PARK OPERATIONS

Affected Environment

The superintendent of the USS *Arizona* Memorial is responsible for managing the park, its staff, concessionaires, all of its programs, and its interactions with persons, agencies, and organizations interested in the memorial. Park staff provide the full scope of functions and activities to accomplish management objectives, including interpretation and education, resource protection, law enforcement, emergency services, public health and safety, visitor services, utilities, and management support.

The memorial has 25 NPS full-time staff, 14 NPS seasonals, and between four to ten volunteers at any one time. The Arizona Memorial Museum Association (AMMA) staffs 14 employees (NPS 2005a). The Navy operates the boats that shuttle visitors from the visitor center to and from the memorial.

The visitor center includes 2,550 square feet of NPS administrative office space, located "behind" the AMMA bookstore and concession area, and accessed separately from the public entrance. The office space houses the Superintendent, management assistant, interpretive staff, rangers, and several AMMA staff members. Due to limited and cramped space, offices are shared by staff creating an ineffective work environment. The close proximity of the administrative offices to visitor services results in interruptions caused by misplaced visitors

and vendor deliveries. A lack of storage space forces staff to store items in the visitor center basement, which becomes a concern due to potential risks from mold and insects such as termites that can affect park equipment and supplies. Also, there are no separate restroom facilities for the employees; as a result they are must wait for in line to use the overcrowded public facilities.

Facilities and maintenance staff are responsible for maintaining the driveways, parking lots and structures of the park, performing grounds-keeping, and maintaining all park facilities in working order. These staff members handle routine custodial requirements and general maintenance activities. When specific problems are identified in the visitor center, specialists such as electricians or utility systems operators are called in to assist with repairs.

Individual microclimate museum cases have been established for some exhibits in the museum. These systems are designed to maintain temperature and humidity suitable for preserving archival and collection items. The current system has become somewhat unreliable and park and regional staff are concerned about the ability of these cases to continue to house items from the collection.

Impacts of Alternative A, the No Action Alternative

Under Alternative A, current operation of the visitor center would continue without significant changes. Ongoing operation and maintenance of access routes and parking lots, grounds keeping, and maintenance of all park facilities would continue.

The deteriorating condition of the buildings and associated mechanical systems require increasing maintenance and repair activities. Simple repairs that are performed on an as-needed basis include pumping water from the basement; patching cracking concrete, repairing undulating walkways and filling gaps between floors; and realigning plumbing and fixtures (NPS 2005a). The majority of maintenance work currently performed on the visitor center addresses problems resulting from the stresses and movement of the structures on the unstable substrate.

The exhibit microclimate system has become costly and labor intensive to maintain and monitor. Maintenance and monitoring of these exhibits must be done by trained personnel during hours when the building is closed. Because staff curators are physically located elsewhere, maintenance and monitoring of the visitor center exhibits creates a difficult management situation and a strain on the park staff.

The existing structural and mechanical conditions require inordinate amounts of time spent by a number of staff in attempting to maintain the structure and operations system. Continuing this would produce long-term, moderate, adverse effects on park management and operations.

In the event that they become necessary, and with funds available, selected repairs to maintain the operation of the building would be performed. As it is no longer practical to continue to re-level the building using the stub column system, remedial measures would be implemented on an as-needed basis. These remedial measures could include installation of angle braces on columns beneath the lobby and entrance area, grouting the gaps between the stub columns and foundation, repairing or replacing loose shims and column and rebar damage, and continually monitoring for and pumping water from the basement/crawlspace.

Implementation of these measures would last until the life expectancy of the visitor center is reached in 3 to 8 years (2009 to 2014). Implementation of these actions would have short-term, minor to moderate, adverse effects on park operations. These actions however, ultimately would not address the long-term issues associated with the current visitor center.

Under Alternative A park staff would continue to work in and share cramped office spaces, be disrupted by visitors, vendors and other staff members, and share the public rest facilities. These conditions would lead to continuing long-term, moderate adverse effects on park operations. Use of off-site facilities for park administrative and maintenance functions and storage as well as utilizing the wet basement of the visitor center for offices and storage would further contribute to the adverse effects.

Rehabilitation of the failing foundation system could produce low levels of inconvenience to park staff generated by the presence of construction equipment, limited access to facilities in the basement, and the need to assist visitors in finding and accessing park facilities. In addition, traffic and parking congestion would require increased ranger patrols and temporary re-routing of traffic. These demands would be short-term, lasting through the foundation rehabilitation period, and would result in effects of minor intensity.

Over time, the effects from continued settling could lead to closure of areas of the visitor center, if significant structural instability or health and safety issues were to arise. This could result in loss of office space and/or visitor use areas, relocation of commercial service operators, and changes to operation of the facility. This would generate short to long-term, minor to moderate adverse effects on park management and operation. These effects would result from relocating staff and vendors, restricting public access to portions of the building, moving archival and collection items to safe storage, providing alternate restroom facilities, and continuing to manage the facility in the face of such change.

Cumulative Effects. Several plans and projects would contribute to the cumulative effects of Alternative A. Use of a new park headquarters and administration building would have long-term, minor, benefits as park administrative and operational staff would have a centralized location of operations that would greatly enhance their ability and efficiency to operate and maintain the park. Implementation of the anticipated Commercial Services Plan for the USS *Arizona* Memorial would require increased administrative, monitoring, and review by park staff, a long-term, minor adverse effect. Inclusion of the shared arrival plaza at the new visitor center would have long-term, minor, benefits to park operations in that operation and staffing would be shared between the various Pearl Harbor Partners whose venues are ticketed at the plaza. When combined with the effects on park operations from implementation of Alternative A (long-term, minor to moderate, adverse), overall cumulative effects on park operations would be long-term, minor, adverse.

Conclusion. The No Action Alternative would have adverse effects on park management and operations. The continued activities related to monitoring and maintenance of the building movement caused by poor soil substrate, monitoring and removal of water from the basement along with standard, park-wide maintenance and management activities would result in long-term, moderate, adverse effects on park operations. The possibility of future closures of portions of the visitor center would produce short to long-term, minor to moderate adverse effects on operations and management. Cumulative effects on park operations of future projects and plans would be long-term, minor, and adverse.

Impacts of Alternative B, the Preferred Alternative

Space within the new structure would be organized to improve staff operational efficiency. The cramped and crowded quarters as well as office spaces in the wet basement and inadequate restroom facilities would be eliminated. Similar improvements would occur due to the "back of house" design of park service and maintenance operations to eliminate pedestrian/park staff conflicts during service and maintenance operations and reduction in routine maintenance due to new construction and equipment. Corresponding operating energy costs would also be reduced due the high energy efficiency of the green-design facility. These improvements would lead to long-term, minor to moderate beneficial effects to park operations as they would improve operational efficiency.

The existing theaters would be upgraded with new mechanical and electrical systems and made fully accessible. These measures would extend the lifespan of these structures, but would have little effect on overall operations, as a large, energy inefficient portion of the visitor center complex would remain (e.g. the existing theaters would be renovated and reused under this alternative.)

The NPS would make every attempt to maintain the visitor center in a fully operational condition during the 2-year construction period. However, temporary closures and access restrictions (both within the visitor center and in the pedestrian and vehicular access routes) would be anticipated. Park staff would need to adjust their work routines, while providing visitors with a high-quality experience. Short-term, minor to moderate, adverse effects to park management and operations would result during construction from the added need for park staff to monitor construction activities, inform and direct park visitors to relocated services and boat launch to the memorial, and ensure protection of park resources.

Cumulative Effects. Effects from other plans and projects would be the same as described for Alternative A (long-term, minor, adverse). When combined with the effect on park operations from implementation of Alternative B (long-term, minor to moderate, beneficial), overall cumulative effects on park operations would be long-term, minor, and beneficial.

Conclusion. There would be long-term, minor to moderate, beneficial effects to park management and operations by constructing a new redesigned visitor center and rehabilitating the theaters, thereby reducing operations and maintenance needed to respond to the building movement, staff overcrowding, and operations inefficiencies. Short-term, minor, adverse effects would result from monitoring and managing construction activities. The cumulative effects of other projects and plans would be long-term, minor, and beneficial.

Impacts of Alternative C

The effects to park management and operations through implementation of Alternative C would be the same as described in Alternative B, with the exception that replacement of the theaters would further reduce the operational and energy consumption needs at the park. Long-term effects would be beneficial, and moderate. Effects during project construction would also be the same as Alternative B, short-term, minor, and adverse.

Cumulative Effects. Effects from other plans and projects would be the same as described for Alternative A (long-term, minor, adverse). When combined with the effect on park

operations from implementation of Alternative C (long-term, minor to moderate, beneficial), overall cumulative effects on park operations would be long-term, minor, and beneficial.

Conclusion. There would be the same long-term, minor to moderate, beneficial effects on park operations as described in Alternative B. Short-term effects on park management and operations related to construction activities would be the same as in Alternative B, minor and adverse. The cumulative effects of other projects and plans would be long-term, minor, and beneficial.

COMMERCIAL SERVICES AND LOCAL ECONOMICS

Affected Environment

This section on commercial services and local economics (socioeconomics) studies the basic attributes and interconnections associated with the human environment, including economic activity, employment, income, and commercial growth and how they are affected by operation of the park by the NPS in the local community and region.

The USS *Arizona* Memorial is located within the Pearl Harbor Naval Base at Pearl Harbor, within the City and County of Honolulu, O'ahu, Hawai'i. Hawai'i has over 1.2 million residents of which over 875,000 reside in the City and County of Honolulu (DBEDT 2006). The population of the state, as well as Honolulu, has been steadily increasing from the year 2000 at a rate of about 1 percent per year. The state and local economy is growing, with expansion of the job market at over 3 percent, and unemployment among the lowest in the nation at 2.7 percent (DBEDT 2006).

Three main industries are the largest employers in the state: general services (44 percent), government (22 percent), and the trades sectors (14 percent) (DBEDT 2006). The general services sector includes accommodation, food services, and recreation; the government sector includes government employees at the local, state, and national levels; and the trade sector includes retail sales and construction. As the largest population center and hub of state economic activity, the City and County of Honolulu provided approximately 417,500 jobs, or 73 percent, of the state's 569,500 jobs in 2003 (Enterprise Honolulu 2006).

During 2005, approximately 7.5 million visitors came to the state of Hawai'i. The national parks are integral parts of this tourist trade, with annual visitation of 1.5 million at the USS *Arizona* Memorial and 1.7 million at Haleakala National Park on Maui. Thus, parks are major contributors to the local tourist economy, supporting retail trade, services, and jobs. The National Park Service tracks the economic impacts of parks and reports their findings in an annual report *Economic Impacts of Visitor Spending in Parks* (NPS 2006d). The following information on the economic impact of the memorial is summarized from the 2003 data for this site.

In 2003, 1.5 million visitors spent an average of $93 per party per day in the local area for a total of $51 million spent. The direct effects of such spending also generate indirect economic activity in sales, jobs, and related services. Visitation to the park generated hotel stays, restaurant and refreshment purchases, visits to other attractions, and retail sales. The total value of the park to the local economy is estimated at $63.4 million and 1,221 jobs supported (NPS 2006d). The number of jobs related to economic activity at the USS *Arizona* Memorial is 0.3 percent of the total number of jobs in Honolulu.

Arizona Memorial Museum Association

The bookstore in the USS *Arizona* Memorial visitor center is operated by the memorial's cooperating association, the Arizona Memorial Museum Association (AMMA). AMMA is a non-profit organization, authorized by Congress, that supports the interpretation and related visitor service activities of the National Park Service at four sites across the Pacific region: the USS *Arizona* Memorial, the War in the Pacific National Historical Park on Guam, the American Memorial Park on Saipan, and Kalaupapa National Historic Park on Molokai (AMMA 2005).

AMMA makes interpretive and educational materials available to park visitors by sale through bookstores, mail order, and membership programs. They also support the research, interpretation, and conservation programs of the National Park Service. The organization provides for the display and sales of historical theme related educational materials. The book store at the memorial visitor center is 500 square feet in size and did approximately $6.1 million in book sales and $0.9 million in audio tour sales in 2005 (Shawe 2006). AMMA also has a Category III Concessions Contract that allows them to sell a very limited selection of visitor convenience items such as t-shirts, hats, and coffee mugs.

AMMA is currently leading a nationwide fund-raising campaign to support the major portion of the construction costs for the new visitor center at the USS *Arizona* Memorial and the shared arrival plaza for the Pearl Harbor Historic Partners.

Concessions

The park has one concession operator that provides refreshments in the visitor center. This vendor is authorized under the Randolph-Sheppard Act to provide services in a federal installation. The Randolph-Sheppard Act was enacted "for the purposes of providing blind persons with remunerative employment, enlarging the economic opportunities of the blind, and stimulating the blind to greater efforts in striving to make themselves self-supporting" (U.S. Code 6A Title 20).

The vendor operates in a 100 square foot area adjacent to the bookstore and is open during visitor center hours. Soft drinks, water, and light snacks are available. Currently, the concessioner does not pay any portion of profits or a franchise fee to the memorial.

Other Commercial Service Providers

Presently there are 27 tour companies that bring in approximately 30 percent of the visitors (approximately 500,000) to the park (Doyle 2006). Most of these visitors arrive early in the morning on tour buses or in vans and are dropped off to wait for their ticket and then visit the memorial. The tour company vehicles and drivers wait in the parking lots designated for them (southeast corner of the property) or leave the site and return to pick up their charges after a designated amount of time.

The cluster of commercial service arrivals in the early morning hours is a primary cause of the visitor and site crowding that occurs in and near the visitor center. Currently, the park does not currently maintain commercial service agreements with these operators. Thus, they are unregulated and have little accountability to the park for quality of service and/or interpretation. The National Park Service is planning to implement a commercial services plan to address such needs at the USS *Arizona* Memorial.

The Department of the Navy entered into a commercial lease agreement with Flour Hawaii, LLC Corporation for approximately 6.4 acres on Halawa Landing. The lease agreement allowed for the development of the property for commercial use. Flour subsequently subleased a smaller portion of the Halawa land to the Pearl Harbor Visitor Center, who currently provide their services in large white tents between the USS *Bowfin* Submarine Museum and the USS *Arizona* Memorial visitor center. The Department of Navy will terminate the lease with Flour effective April 2007. Following termination of the lease, the Department of Navy will amend the current use agreement with the National Park Service to include the current 6.4-acre parcel of land on Halawa Landing.

Impacts of Alternative A, the No Action Alternative

Park visitation rates would generally determine the effect of the park on the local economy. Other effects to consider are those that could affect the financial operations of the park. Alternative A proposes no actions that would measurably affect economic activity. Overall, the park provides a long-term, minor, beneficial effect on the local economy.

Under Alternative A, overall access and visitation to the USS *Arizona* Memorial would vary annually, as has been the historic pattern. The 1,221 local jobs supported by park visitation would not likely be noticeably increased or diminished. By generating $63.38 million in local revenue, the park has a long-term, minor beneficial effect on local economic activity. Because this contribution would not be anticipated to change more than slightly from year to year, this benefit would continue throughout the life of the plan.

The AMMA bookstore and concession operator would continue to provide services and amenities at the visitor center. However, as the section of the visitor center where they are located is highly unstable and continues to shift, operations in the current locations could be limited to the next 3 to 8 years (2009 to 2014). After such time, an alternate location for their operations would need to be identified. In the interim, occasional repairs conducted on an as-needed basis would not likely affect operations, as they would be generally confined to the basement/crawlspace and other areas not open to the public.

Over time, the effects from continued settling could lead to closure of areas of the visitor center. The NPS has committed to maintaining operation of the AMMA bookstore and the concession operator, and would work with them and adjacent historic partners to ensure that their operations continue. Relocating and adjusting operations as the visitor center ages would likely generate notable effects for the AMMA bookstore, but these would translate into short-term, negligible to minor, adverse effects on commercial operations in the Pearl Harbor locale.

Tour operators and other off-site commercial service providers would not likely be affected under Alternative A for the next 3 to 8 years as foundation renovation is expected to extend the life of the visitor center for that period of time. Over the very long term, these service providers may need to make operational adjustments if conditions at the visitor center change dramatically. Such changes would be anticipated to produce no more than short-term, minor, adverse economic effects on these companies as visitation to the memorial itself would be expected to continue in the long-term.

Cumulative Effects. Several related plans or actions have the potential to affect local and commercial service provider economic activity in conjunction with Alternative A: the

Commercial Services Plan for the USS *Arizona* Memorial, the Pearl Harbor Historic Partners Site Master Plan (including the memorials for the USS *Oklahoma*, USS *Utah*, and the Pacific Aviation Museum), the Honolulu High Capacity Transit Plan, and the King Kamehameha Beatification Project. Overall, the cumulative effects of these projects and plans would be long-term, local to regional, minor, and beneficial.

The Commercial Services Plan for the USS *Arizona* will determine the services that are necessary and appropriate for the site. However, the new visitor center would be designed to accommodate the AMMA bookstore, refreshment concessioner, and vendors that will affect future commercial operations at the park and produce beneficial, localized, local, minor economic effects.

The Pearl Harbor Historic Partners Site Master Plan will develop the shared arrival plaza and provide centralized information about and ticketing for all Pearl Harbor historic venues. This plan could potentially increase visitor activity in the area, a negligible to minor, long-term, beneficial economic result. In addition, the Navy lease for the Pearl Harbor Visitor Center (large white tents located between the USS *Bowfin* Submarine Museum and Park and the USS *Arizona* Memorial visitor center) is due to expire and is not to be renewed. This facility provides visitor amenities such as food and refreshment, bag storage, and information. The facility employs 150 crewmembers and offers 15 vendor services. The discontinuance of this operation would result in a negligible to minor, long-term, adverse economic effects in the vicinity of Pearl Harbor; however the effect may be off-set by new concessions offered under the above mentioned Commercial Services Plan.

The Honolulu High Capacity Transit Plan and King Kamehameha Highway Beatification Project have the potential to add a regional rail transit stop at the memorial and improve the access route to the memorial from the King Kamehameha Highway to the memorial. This plan and project would have the potential to increase visitation to the region adding long-term, minor economic benefits.

In combination with the long-term, localized, minor beneficial effects of Alternative A, cumulative effects on socioeconomics would be long-term, local to regional, minor, and beneficial.

Conclusion. Because overall visitation rates are not expected to vary above the historical range under Alternative A, the long-term, minor, beneficial economic effects currently generated by the park would be anticipated to continue in the future. In combination with the long-term, minor, local to regional benefits of other projects and plans, overall cumulative effects would be long-term, minor, local to regional, and beneficial.

Impacts of Alternative B, the Preferred Alternative

As in Alternative A, park visitation rates would generally determine the effect of the park on the local economy. The capacities of the memorial itself and the shuttle launches are currently near their maximum, so construction of a new shoreside visitor center would not result in a measurable increase in visitation. Thus, the current long-term, minor benefits the memorial provides to the local economy would continue.

The AMMA bookstore and concessions areas would be modified to better accommodate visitor needs. The new facility would have enhanced areas for product display, and the

AMMA and refreshment concessioner would likely benefit. This would result in long-term, negligible to minor benefits in local commercial activities.

Under Alternative B, the visitor center would be open and in use as long as practical during the two-year construction period. In addition, the National Park Service has committed to providing space for uninterrupted operation of the bookstore and refreshment concession throughout project implementation. Thus, another site nearby may need to be provided for them. Relocating to another facility could cause some business interruption, producing short-term, minor to moderate, adverse effects on the operators that would not likely be detectable at the level of the local economy.

Because the new visitor center would not greatly change overall visitation rates, measurable long-term economic changes would not be expected for off-site commercial service providers. However, during construction changes in operations such as changing tour times, and bus routes, could be required. Any resulting adverse effects would not likely be measurable on the local level.

Construction of the new visitor center would generate benefits associated with construction activities. Crew salaries, equipment costs, locally supplied materials, and fuel purchases would be paid during project implementation. Some local economic benefits would result, but they may be difficult to quantify. Honolulu is a thriving urban area with many large-scale construction efforts and over 36,000 employed in the construction trades (Bank of Hawaii 2006). Therefore, the beneficial effects of construction activities would be negligible to minor, and of short-term duration.

Cumulative Effects. The effects of other projects and plans would be as described for Alternative A (long-term, localized to regional, minor and beneficial). In combination with the effects of Alternative B (long-term, minor, and beneficial to the local and regional economy), cumulative economic effects on the local economy would be long-term, minor, and beneficial.

Conclusion. Overall visitation to the park may not increase under this alternative, but the long-term, minor benefits the park provides to the local economy would continue. The beneficial effects of construction activities would be negligible to minor, and of short-term duration. In combination with the long-term, minor, local to regional benefits of other projects and plans, overall cumulative effects would be long-term, minor, local to regional, and beneficial.

Impacts of Alternative C

As described for Alternative B, construction of a new visitor center with improved interpretative experience and visitor amenities would not increase visitation. Because the capacity of the memorial itself is near its maximum, any increase would be small, and the current long-term, minor benefits the memorial provides to the local economy would continue.

The AMMA bookstore and concessions areas would be modified in the new visitor center to better accommodate visitor needs. The new facility would enhance areas for product display, and the AMMA and refreshment concessioner would likely benefit. This would result in long-term, negligible to minor benefits in local commercial activities.

Because the location for the visitor center under Alternative C does not include the footprint of the existing building, the existing facility visitor center would remain open and operational throughout the construction period. The bookstore, refreshment vendor, and commercial tour providers would continue operations without interruption, producing no short-term effects on local economic activity. Once the new facility were complete, commercial operators would relocate to their new locations, a short-term, minor, adverse effect on their business operations.

Construction of the new visitor center would generate benefits associated with construction activities as described for Alternative B. These benefits would be negligible to minor, and of short-term duration.

Cumulative Effects. The effects of other projects and plans would be as described for Alternative A (long-term, localized to regional, minor, and beneficial). In combination with the effects of Alternative C (long-term, minor, and beneficial to the local and regional economy) cumulative economic effects would be long-term, local and regional, minor, and beneficial.

Conclusion. Overall visitation to the park could increase slightly under this alternative, and the long-term, minor benefits the park provides to the local economy would continue. The beneficial effects of construction activities would be negligible to minor, and of short-term duration. In combination with the long-term, minor, local to regional benefits of other projects and plans, overall cumulative effects would be long-term, minor, local to regional, and beneficial.

CONSULTATION AND COORDINATION

National Park Service agency scoping included contacting the Hawai'i State Historic Preservation Office, the Advisory Council on Historic Preservation, U.S. Army Corps of Engineers, National Marine Fisheries Service, the U.S. Fish and Wildlife Service, and native Hawaiian groups interested in the memorial.

On May 5, 2006, the park contacted eight federal, state, and Native Hawaiian groups by letter regarding the visitor center replacement project. These included:

Federal	Native Hawaiian	State of Hawai'i
Advisory Council on Historic Preservation	Office of Hawaiian Affairs	State Historic Preservation Officer
U.S. Fish and Wildlife Service, Pacific Islands Office	Hui Malama I Na Kupuna 'O Hawaii Nei	
NOAA Fisheries, Pacific Islands Regional Office	O'ahu Island Burial Council	
U.S. Army Corps of Engineers, Hawaii Regulatory District		

The park received a response from the U.S. Fish and Wildlife Service on June 9, 2006 addressing the threatened Newell's shearwater, which has the potential to occur near the project area. Potential effects to this species are discussed in "Impact Topics Dismissed from Further Analysis" (page 18).

To date, no written responses have been received from the Hawai'i State Historic Preservation Officer. However, park staff have met regularly with the Hawai'i State Historic Preservation Officer to keep his office informed about the project. No other written responses have been received.

In May 2006, approximately 500 newsletters were distributed to the public, elected officials, and other parties who have expressed interest in activities at the USS *Arizona* Memorial. During this phase of scoping the public and interested parties were asked to identify issues, concerns, and ideas related to the project to replace the visitor center.

In August 2006, the National Park Service held two public open houses at the memorial in which the public was invited to share their concerns, if any, about the project and to provide input on preliminary alternatives. All of the public and agency comments received were considered in the development of this environmental assessment.

Public outreach for the project generated a range of comments on both the long-term and short-term effects of the project to replace the shoreside visitor center. Those responding to the newsletter and participating in the public meetings expressed desires that the new facility:

- Broaden the perspective of the interpretive message to include a the larger story of Hawaii in WWII such as Native Hawaiian history and culture, stories of other ships and crews, and information on the sunken Japanese midget sub
- Protect valuable artifacts and artwork for long-term enjoyment of visitors

- Provide food and drink services,
- Have improved and expanded restroom facilities, and
- Continue to house the AMMA bookstore.

Questions arose about construction activities and the operation of the site once the new visitor center is complete. These included: Public meeting participants were interested in:

- How will the Pearl Harbor Historic Partners shared arrival plaza function?
- Will a reservation system be implemented?
- How will construction activities be managed to limit effect to local traffic flow, visitors, and commercial service providers?
- How does the plan address the new transit line along King Kamehameha Highway and the new historic trails bike path?

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Planning Team Participants		
Douglas A. Lentz	Superintendent	USS *Arizona* Memorial
John Teichert	Project Manager	NPS Pacific West Region Office
Lynn Nakata	Interpretive Specialist	NPS Pacific West Region Office
The Portico Group	Architects	Seattle, Washington
Aldrich Pears Associates	Exhibit and Interpretive Programming	Vancouver, British Columbia
ORCA Consulting	Visitor Flow Analysis and Planning	
Space Options	Accessibility Consultant	Kula, Hawai'i
Paladino Green Building Strategies	Sustainability and Green Design	Seattle, Washington
Baldridge Associates	Structural Engineers	Honolulu, Hawai'i
Elaine Rideout	NEPA Compliance Specialist	NPS Denver Service Center
Greg Cody	Cultural Resource Specialist	NPS Denver Service Center
Mark Matheny	Project Manager	NPS Denver Service Center
Preparers		
Jacklyn Bryant	Environmental Scientist/Project Manager	Parsons
Diane Rhodes	Cultural Resource Specialist	Parsons
Lee Monnens	Environmental Scientist/Geologist	Parsons
Timberley Belish	Environmental Scientist/Technical Director	Parsons

LIST OF RECIPIENTS

This document will be sent to the agencies, governments, and native Hawaiian groups listed below, as well as numerous individuals and organizations.

U.S. Environmental Protection Agency
Region 9
Pacific Islands Contact Office

NOAA Fisheries, Pacific Islands Regional Office
Honolulu, HI

Regulatory Branch, CEPOH-EC-R
U.S. Army Engineer District Honolulu
Fort Shaffer, HI

U.S. Fish & Wildlife Service
Pacific Islands Office
Honolulu, HI

RADM Jeffrey Cassias, Commander
Submarine Forces US Pacfic Fleet
Pearl Harbor, HI

Pearl Harbor Survivors Association

Office of U.S. Senator
Daniel K. Inouye
Honolulu, HI

Honorable Dirk Kempthorne
Secretary of the Interior
US Department of the Interior
Washington, DC

Regional Public Safety Director,
Navy Region Hawaii
Pearl Harbor, HI

Hawaii Visitors and Conventions Bureau
Honolulu, HI

Hawaii Tourism Authority
Ko Olina, HI

Chamber of Commerce
Honolulu, HI

Tourism Liaison, Governor's Office,
Executive Chambers
Hawaii State Capital
Honolulu, HI

State Historic Preservation Officer
Department of Land & Natural Resources
Kapolei, HI

Advisory Council on Historic Preservation
Washington, DC

Intergovernmental Community Affairs Officer
Navy Region Hawaii
Pearl Harbor, HI

Hawaii Coastal Zone Management Program
Honolulu, HI

REFERENCES

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APPENDIX A

CONSULTATION CORRESPONDENCE

May 5, 2006

Martha Catlin
Advisory Council on Historic Preservation
1100 Pennsylvania Avenue, NW
Suite 809
Washington, DC 20004

Subject: Section 106 Consultation, Environmental Assessment for the Project to Replace the USS *Arizona* Memorial Visitor Center at Pearl Harbor

Dear Ms. Catlin:

The NPS has initiated planning for a project to replace the visitor center at the USS *Arizona* Memorial. The structure is located at Pearl Harbor Naval Base, and is owned and operated by the National Park Service. Currently, the building is deteriorating due to foundation failure and differential settling of footings. Structural engineers estimate that the building has a life expectancy of 3 to 8 years. For this reason, the NPS is planning for options to replace the facility.

Pearl Harbor is a National Historic Landmark, and this project will take place within the landmark viewshed. This letter is to provide your office with notice about the proposed project and to advise you that an environmental assessment (EA) will be prepared. The EA will meet the requirements of the National Environmental Policy Act and will be used to comply with §106 of the National Historic Preservation Act. In accordance with section 800.8(c) of the Advisory Council on Historic Preservation's regulations, I am notifying your office in advance that the NPS intends to use the EA to meet its obligations under §106.

Similar notification letters have been sent to Peter Young, Hawaii's State Historic Preservation Officer, and Native Hawaiian groups, to identify any initial issues and concerns and ensure that mutually held goals for management of important resources are met.

A copy of the EA will be forwarded to you during the public comment period. Should you have any questions or desire additional information, please contact me.

Sincerely,

Douglas A. Lentz, Superintendent
USS *Arizona* Memorial

Cc: NPS, Denver Service Center (E. Rideout)
Parsons, Denver (J. Bryant)

May 5, 2006

Jeff Newman
Assistant Field Supervisor for Habitat Conservation
U.S. Fish and Wildlife Service
Pacific Islands Office
300 Ala Moana Boulevard
Room 3-122, Box 50088
Honolulu, HI 96850

Subject: Section 7 Consultation, Environmental Assessment for the Project to Replace the USS *Arizona* Memorial Visitor Center at Pearl Harbor

Dear Mr. Newman:

The NPS has initiated planning for a project to replace the visitor center at the USS *Arizona* Memorial. The structure is located at Pearl Harbor Naval Base, and is owned and operated by the National Park Service. Currently, the building is deteriorating due to foundation failure and differential settling of footings. Structural engineers estimate that the building has a life expectancy of 3 to 8 years. For this reason, the NPS is planning for options to replace the facility.

In accordance with the consultation requirement of Section 7 of the Endangered Species Act and NPS policy, we wish to notify you that the planning process has begun and invite your participation. In order to meet our Section 7 consultation requirements for the EA, we respectfully request that you provide us with the current listing and locations of endangered, threatened, and proposed and candidate species and their associated critical habitats specific to the area. We also request your input regarding any potential impacts on listed or candidate species from exterior site lighting during construction and at completion.

As soon as the EA is completed, we will send it to you for your review. We look forward to your participation and input on the planning process and on the protection and preservation of the memorial's resources. Should you have any questions or need information, please contact me.

Sincerely yours,

Douglas A. Lentz
Superintendent
USS *Arizona* Memorial

Cc: NPS, Denver Service Center (E. Rideout)
Parsons, Denver (J. Bryant)

May 5, 2006

Mr. Edward Halealoha Ayau
Office of Hawaiian Affairs
711 Kapi'olani Boulevard, Suite 500
Honolulu, HI 96813-5249

Subject: Consultation for the USS *Arizona* Memorial Visitor Center Environmental Assessment

Dear Mr. Ayau:

The NPS has initiated planning for a project to replace the visitor center at the USS *Arizona* Memorial. The structure is located at Pearl Harbor Naval Base, and is owned and operated by the National Park Service. Currently, the building is deteriorating due to foundation failure and differential settling of footings. Structural engineers estimate that the building has a life expectancy of 3 to 8 years. For this reason, the NPS is planning for options to replace the facility.

The memorial is aware that Native Hawaiians value both natural and cultural resources, and we want to ensure that the project will meet mutually identified goals for management of important resources in and near the memorial. We also want to be sure that the project will not affect ethnographic resources valued by Native Hawaiians. This letter is to formally invite you to comment on the project. We believe that your participation will result in better planning, and will help ensure that resources valued by your group are adequately considered during the compliance process.

We have begun the planning process required by Section 106 of the National Historic Preservation Act, and we have begun work on an Environmental Assessment (EA) that will assess the impacts to park resources. We plan to use the EA to accomplish compliance for both Section 106 and the National Environmental Policy Act [as described in 36 CFR 800.8 (a-c)]. The draft EA will include any required mitigation, and will be forwarded to you for your review and comment as soon as it is completed.

We look forward to receiving your input about the project. We would be pleased to discuss this project further, either by telephone or in a meeting. Should you have any questions or desire additional information, please contact me.

Sincerely yours,

Douglas A. Lentz
Superintendent
USS *Arizona* Memorial

Cc: NPS, Denver Service Center (E. Rideout)
Parsons, Denver (J. Bryant)

May 5, 2006

Mr. Kunani Nihipali
Hui Malama I Na Kupuna 'O Hawaii Nei
P.O. Box 967
Kailua, HI 96734

Subject: Consultation on the USS *Arizona* Memorial Visitor Center Environmental Assessment

Dear Mr. Nihipali:

The NPS has initiated planning for a project to replace the visitor center at the USS *Arizona* Memorial. The structure is located at Pearl Harbor Naval Base, and is owned and operated by the National Park Service. Currently, the building is deteriorating due to foundation failure and differential settling of footings. Structural engineers estimate that the building has a life expectancy of 3 to 8 years. For this reason, the NPS is planning for options to replace the facility.

The memorial is aware that Native Hawaiians value both natural and cultural resources, and we want to ensure that the project will meet mutually identified goals for management of important resources in and near the memorial. We also want to be sure that the project will not affect ethnographic resources valued by Native Hawaiians. This letter is to formally invite you to comment on the project. We believe that your participation will result in better planning, and will help ensure that resources valued by your group are adequately considered during the compliance process.

We have begun the planning process required by Section 106 of the National Historic Preservation Act, and we have begun work on an Environmental Assessment (EA) that will assess the impacts to park resources. We plan to use the EA to accomplish compliance for both Section 106 and the National Environmental Policy Act [as described in 36 CFR 800.8 (a-c)]. The draft EA will include any required mitigation, and will be forwarded to you for your review and comment as soon as it is completed.

We look forward to receiving your input about the project. We would be pleased to discuss this project further, either by telephone or in a meeting. Should you have any questions or desire additional information, please contact me.

Sincerely yours,

Douglas A. Lentz
Superintendent
USS *Arizona* Memorial

Cc: NPS, Denver Service Center (E. Rideout)
Parsons, Denver (J. Bryant)

May 5, 2006

A. Van Horn Diamond
O'ahu Island Burial Council
98-161 Pahemo St. #A
Aiea, HI 96701

Subject: Consultation for the USS *Arizona* Memorial Visitor Center Environmental Assessment

Dear Mr. Diamond:

The NPS has initiated planning for a project to replace the visitor center at the USS *Arizona* Memorial. The structure is located at Pearl Harbor Naval Base, and is owned and operated by the National Park Service. Currently, the building is deteriorating due to foundation failure and differential settling of footings. Structural engineers estimate that the building has a life expectancy of 3 to 8 years. For this reason, the NPS is planning for options to replace the facility.

The memorial is aware that Native Hawaiians value both natural and cultural resources, and we want to ensure that the project will meet mutually identified goals for management of important resources in and near the memorial. We also want to be sure that the project will not affect ethnographic resources valued by Native Hawaiians. This letter is to formally invite you to comment on the project. We believe that your participation will result in better planning, and will help ensure that resources valued by your group are adequately considered during the compliance process.

We have begun the planning process required by Section 106 of the National Historic Preservation Act, and we have begun work on an Environmental Assessment (EA) that will assess the impacts to park resources. We plan to use the EA to accomplish compliance for both Section 106 and the National Environmental Policy Act [as described in 36 CFR 800.8 (a-c)]. The draft EA will include any required mitigation, and will be forwarded to you for your review and comment as soon as it is completed.

We look forward to receiving your input about the project. We would be pleased to discuss this project further, either by telephone or in a meeting. Should you have any questions or desire additional information, please contact me.

Sincerely yours,

Douglas A. Lentz
Superintendent
USS *Arizona* Memorial

Cc: NPS, Denver Service Center (E. Rideout)
Parsons, Denver (J. Bryant)

May 5, 2006

Marilyn Luipold
NEPA Coordinator
NOAA Fisheries, Pacific Islands Regional Office
1601 Kapiolani Boulevard
Suite 1110
Honolulu, HI 96814

Subject: Section 7 and Essential Fish Habitat Consultation, Environmental Assessment for the Project to Replace the USS *Arizona* Memorial Visitor Center at Pearl Harbor

Dear Ms. Luipold:

The NPS has initiated planning for a project to replace the visitor center at the USS *Arizona* Memorial. The structure is located at Pearl Harbor Naval Base, and is owned and operated by the National Park Service. Currently, the building is deteriorating due to foundation failure and differential settling of footings. Structural engineers estimate that the building has a life expectancy of 3 to 8 years. For this reason, the NPS is planning for options to replace the facility.

In accordance with the consultation requirement of Section 7 of the Endangered Species Act and NPS policy and the Magnuson-Stevens Fishery Conservation and Management Act, we wish to notify you that we have initiated the EA process for replacing the visitor center and invite your participation. As part of the scoping for the proposed project we are requesting any information regarding listed or proposed threatened or endangered species or critical habitats that might occur in the project vicinity, and any special management considerations for such species.

As soon as the Environmental Assessment is completed, we will send it to you for your review.
We welcome your comments and advice regarding protection and preservation of the memorial's resources. Should you have any questions or need additional information, please contact me.

Sincerely yours,

Douglas A. Lentz
Superintendent
USS *Arizona* Memorial

Cc: NPS, Denver Service Center (E. Rideout)
Parsons, Denver (J. Bryant)

(This correspondence sent via e-mail to park individuals on the park's mailing list who had previously provided an electronic address.)

May 15, 2006

Subject: Environmental Assessment for the Project to Replace the USS *Arizona* Memorial Visitor Center at Pearl Harbor

Aloha,

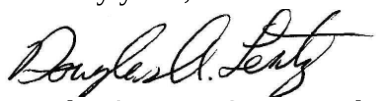
The National Park Service (NPS) has initiated planning for a project to replace the visitor center at the USS *Arizona* Memorial. The structure is located at Pearl Harbor Naval Base, and is owned and operated by the NPS. Currently, the building is sinking due to foundation failure and differential settling of footings. The torque placed on the building has produced metal fatigue that is creating cracks in the concrete, which in turn exposes internal reinforcing steel to the environment. Structural engineers estimate that the building would have to be closed in 3 to 8 years, due to poor structural integrity. For this reason, the NPS is planning for options to replace the current visitor center.

Addressing these concerns provides the NPS with an opportunity to design a visitor center and interpretive program to better meet the needs of the memorial and the public. Over-crowding is of concern, as the building was designed to accommodate up to 750,000 visitors per year and current visitation is double that. Visitor flow is a big consideration. Improvements to exhibits and interpretive messages need to be made to enhance visitor understanding and appreciation. Also, artifacts and photographs contained in the memorial's collection would be better protected from humidity and termites that are present in the existing building. The restrooms and other facilities are also inadequate. The planning and compliance effort for this project will address these concerns. In addition, planning for future commercial services at the memorial will soon begin. This plan will determine what types of concession operations are necessary and appropriate at the memorial.

We recognize that you and your constituents may have ideas for or concerns about the project and would like to hear from you. Public meetings will be held as part of the planning and compliance process. The dates and locations of these meetings will be posted on the NPS website at http://parkplanning.nps.gov/. If you are interested in commenting on this project you may do so at the NPS planning website or send a letter to:

Superintendent
Attn: Visitor Center Environmental Assessment
USS *Arizona* Memorial
1 Arizona Memorial Place
Honolulu, HI 96818

Should you have any questions or desire additional information, please contact me at 808-422-2771.
Sincerely yours,



Douglas A. Lentz, Superintendent
USS *Arizona* Memorial

May 5, 2006

Peter T. Young
State Historic Preservation Officer
Department of Land & Natural Resources
601 Kamokila Boulevard, Suite 555
Kapolei, HI 96707

Subject: Section 106 Consultation, Environmental Assessment for the Project to Replace the USS *Arizona* Memorial Visitor Center at Pearl Harbor

Dear Mr. Young:

The NPS has initiated planning for a project to replace the visitor center at the USS *Arizona* Memorial. The structure is located at Pearl Harbor Naval Base, and is owned and operated by the National Park Service. Currently, the building is deteriorating due to foundation failure and differential settling of footings. Structural engineers estimate that the building has a life expectancy of 3 to 8 years. For this reason, the NPS is planning for options to replace the facility.

Pearl Harbor is a National Historic Landmark, and this project will take place within the landmark viewshed. This letter is to provide you with notice about the project and to advise you that an environmental assessment (EA) will be prepared. The EA will meet the requirements of the National Environmental Policy Act and will be used to comply with §106 of the National Historic Preservation Act. In accordance with section 800.8(c) of the Advisory Council on Historic Preservation's regulations, I am notifying your office in advance that the NPS intends to use the EA to meet its obligations under §106.

We appreciate your participation in the recent planning for work at the USS *Arizona* Memorial Visitor Center. We look forward to your continued involvement in the planning process. We believe that your participation will result in better cultural resource management, and will help ensure that cultural resources are adequately considered during preparation of the plans and the accompanying environmental document.

Similar letters have been sent to the Advisory Council for Historic Preservation and Native Hawaiian groups. This consultation is intended to ensure that mutually held goals for management of important resources are met. Consultation and coordination with other governmental agencies and with interested publics also is underway. As soon as the EA is complete, we will send it to you for review, comment, and concurrence that the §106 process has been completed.

Sincerely,

Douglas A. Lentz, Superintendent
USS *Arizona* Memorial

Cc: NPS, Denver Service Center (E. Rideout)
Parsons, Denver (J. Bryant)

May 5, 2006

Regulatory Branch, CEPOH-EC-R
U.S. Army Engineer District, Honolulu
Building 230 PSC 455, Box 188
Fort Shafter, Hawaii 96858-5440

Subject: Initial Consultation, Environmental Assessment for the Project to Replace the USS *Arizona* Memorial Visitor Center at Pearl Harbor

Dear Sir or Madam:

The NPS has initiated planning for a project to replace the visitor center at the USS *Arizona* Memorial. The structure is located at Pearl Harbor Naval Base, and is owned and operated by the National Park Service. Currently, the building is deteriorating due to foundation failure and differential settling of footings. Structural engineers estimate that the building has a life expectancy of 3 to 8 years. For this reason, the NPS is planning for options to replace the facility.

This letter is the first step in the consultation process for this project to ensure that the planning effort adequately addresses U.S. Army Corps of Engineers' requirements related to the environmental assessment and project. When the draft EA is complete, a copy will be sent to you with an official transmittal letter requesting your review and comment.

We look forward to working cooperatively with you on the planning and implementation of this project. If you have any questions or desire additional information, please contact me.

Sincerely,

Douglas A. Lentz, Superintendent
USS *Arizona* Memorial

Cc: NPS, Denver Service Center (E. Rideout)
Parsons, Denver (J. Bryant)

APPENDIX B

COASTAL ZONE MANAGEMENT ACT CONSISTENCY DETERMINATION FOR THE PREFERRED ALTERNATIVE

HAWAI'I CZM PROGRAM

FEDERAL CONSISTENCY ASSESSMENT FORM

RECREATIONAL RESOURCES

Objective: Provide coastal recreational opportunities accessible to the public.

Policies:

1) Improve coordination and funding of coastal recreation planning and management.

2) Provide adequate, accessible, and diverse recreational opportunities in the coastal zone management area by:

   a) Protecting coastal resources uniquely suited for recreational activities that cannot be provided in other areas;

   b) Requiring replacement of coastal resources having significant recreational value, including but not limited to surfing sites and sandy beaches, when such resources will be unavoidably damaged by development; or requiring reasonable monetary compensation to the State for recreation when replacement is not feasible or desirable;

   c) Providing and managing adequate public access, consistent with conservation of natural resources, to and along shorelines with recreational value;

   d) Providing an adequate supply of shoreline parks and other recreational facilities suitable for public recreation;

   e) Encouraging expanded public recreational use of county, State, and Federally owned or controlled shoreline lands and waters having recreational value;

   f) Adopting water quality standards and regulating point and non-point sources of pollution to protect and where feasible, restore the recreational value of coastal waters;

   g) Developing new shoreline recreational opportunities, where appropriate, such as artificial reefs for surfing and fishing; and

   h) Encouraging reasonable dedication of shoreline areas with recreational value for public use as part of discretionary approvals or permits by the land use commission, board of land and natural resources, County planning commissions; and crediting such dedication against the requirements of section 46-6.

Check either "Yes" or "No" for each of the following questions:

1. Will the proposed action involve or be near a dedicated public right-of-way? **Yes**
2. Does the project site abut the shoreline? **Yes**
3. Is the project site near a State or County park? **Yes**
4. Is the project site near a perennial stream? **Yes**

5. Will the proposed action occur in or affect a surf site? **No**

6. Will the proposed action occur in or affect a popular fishing area? **No**

7. Will the proposed action occur in or affect a recreational or boating area? **No**

8. Is the project site near a sandy beach? **No**

9. Are there swimming or other recreational uses in the area? **No**

Discussion:

The actions proposed under the NPS USS *Arizona* Memorial Visitor Center Replacement EA are consistent with the applicable Hawai'i Coastal Management Program (HCZMP) Recreational Resources objectives and policies. A summary of the actions relative to HCZMP Recreational Resources policies is provided below and discussed in detail in the attached Environmental Assessment for Replacement of the USS *Arizona* Memorial visitor center.

The USS *Arizona* visitor center project site is situated entirely within the active Pearl Harbor U.S. Naval Reservation boundaries and is located outside of the CZMA. The only recreational area in the vicinity of the USS *Arizona* visitor center project area and within the CZMA is Makalapa Park. Potential indirect effects from construction of the new visitor center facilities include potential impacts on the environment such as water quality and air quality associated with construction. As documented in the EA such impacts will be negligible as actions will be conducted within the framework of existing laws, regulations, and standards that have been established to minimize impacts, and with implementation of specific mitigation measures identified in the EA. Given the distance from the nearest recreational resource within the CZMA, these construction activities will have no effect.

The proposed program could attract additional visitors to the project area, but this increase is not expected to be significant and is not expected to affect existing recreational resources. There will not be an increase in traffic or alterations in traffic flow as a result of implementation of development of the new visitor center facilities.

HISTORIC RESOURCES

Objective: Protect, preserve, and where desirable, restore those natural and man-made historic and pre-historic resources in the coastal zone management area that are significant in Hawaiian and American history and culture.

Policies:

1) Identify and analyze significant archaeological resources;

2) Maximize information retention through preservation of remains and artifacts or salvage operations; and

3) Support State goals for protection, restoration, interpretation, and display of historic resources.

Check either "Yes" or "No" for each of the following questions:

1. Is the project site within a historic/cultural district? **Yes**

2. Is the project site listed on or nominated to the Hawaii or National register of historic places? **No**

3. Does the project site include undeveloped land which has not been surveyed by an archaeologist? **No**

4. Has a site survey revealed any information on historic or archaeological resources? **No**

5. Is the project site within or near a Hawaiian fishpond or historic settlement area? **No**

Discussion:

The actions proposed under the NPS USS *Arizona* Memorial visitor center Replacement EA are consistent with the applicable HCZMP Historic Resources objectives and policies. The NPS has initiated consultation under Section 106 of the National Historic Preservation Act (NHPA) with Advisory Council on Historic Preservation (ACHP), the State Historic Preservation Officer (SHPO), Native Hawaiian organizations, and other consulting parties. A summary of the actions relative to the HCZMP Historic resources policies is provided below and discussed in detail in the attached EA.

The shoreside visitor center is situated within the Pearl Harbor National Historic Landmark District. However, no historic structures will be affected under the proposed action associated with this plan/assessment, as the existing visitor center and associated buildings were constructed in 1978, and, therefore, are currently ineligible for listing on the National Register of Historic Places. Furthermore, the entire project area is comprised of fill added during the war-time construction of Pearl Harbor and only fill will be disturbed under the proposed action. As such, there will be no effect to archeological resources.

Development of the new visitor center facilities under the proposed action will include enhanced protection of historic artifacts and collections from environmental conditions such as temperature, humidity, and insects. New facilities will have climate controlled spaces to further protect historic objects and archival materials allowing for continued display and interpretation.

There are no historic resources within the CZMA that will be adversely affected by the actions at the proposed location of the new visitor center facilities.

SCENIC AND OPEN SPACE RESOURCES

Objective: Protect, preserve and where desirable, restore or improve the quality of coastal scenic and open space resources.

Policies:

1) Identify valued scenic resources in the coastal zone management area;

2) Insure that new developments are compatible with their visual environment by designing and locating such developments to minimize the alteration of natural landforms and existing public views to and along the shoreline;

3) Preserve, maintain and where desirable, improve and restore shoreline open space and scenic resources; and

4) Encourage those developments that are not coastal dependent to locate in inland areas.

Check either "Yes" or "No" for each of the following questions:

1. Does the project site abut a scenic landmark? **Yes**
2. Does the proposed action involve the construction of a multi-story structure or structures? **Yes**
3. Is the project site adjacent to undeveloped parcels? **No**
4. Does the proposed action involve the construction of structures visible between the nearest coastal roadway and the shoreline? **Yes**
5. Will the proposed action involve construction in or on waters seaward of the shoreline? On or near a beach? **No**

Discussion:

The actions proposed under the NPS USS *Arizona* Memorial Visitor Center Replacement EA are consistent with the applicable HZMP Scenic and Open Space Resources objectives and policies. Coastal scenic and open space will be protected. A summary of the actions relative to the HCZMP Scenic and Open Space Resources policies is provided below.

The location of the proposed action is located outside of the State of Hawai'i CZMA and in the Navy developed area in Pearl Harbor. Proposed development will be limited to a single structure that is no more than two stories which will serve to minimize potential effects on view planes and coastal scenic resources from public viewing areas within the coastal zone. The ferry dock location under the proposed action will not be relocated; therefore there will be no construction in or on marine waters.

COASTAL ECOSYSTEMS

Objective: Protect valuable coastal ecosystems from disruption and minimize adverse impacts on all coastal ecosystems.

Policies:

1) Improve the technical basis for natural resources management;
2) Preserve valuable coastal ecosystems of significant biological or economic importance;
3) Minimize disruption or degradation of coastal water ecosystems by effective regulation of stream diversions, channelization, and similar land water uses, recognizing competing water needs; and
4) Promote water quantity and quality planning and management practices, which reflect the tolerance of fresh water and marine ecosystems and prohibit land and water uses, which violate State, water quality standards.

Check either "Yes" or "No" for each of the following questions:

1. Does the proposed action involve dredge or fill activities? **No**

2. Is the project site within the Shoreline Setback Area (20 to 40 feet inland of the shoreline)? **Yes**
3. Will the proposed action require some form of effluent discharge into a body of water? **No**
4. Will the proposed action require earthwork beyond clearing and grubbing? **Yes**
5. Will the proposed action include the construction of special waste treatment facilities, such as injection wells, discharge pipes, or cesspools? **No**
6. Is an intermittent or perennial stream located on or near the project site? **Yes**
7. Does the project site provide habitat for endangered species of plants, birds, or mammals? **No**
8. Is any such habitat located nearby? **Yes**
9. Is there a wetland on the project site? **No**
10. Is the project site situated in or abutting a Natural Area Reserve? **No**
11. Is the project site situated in or abutting a Marine Life Conservation District? **No**
12. Is the project site situated in or abutting an estuary? **Yes**

Discussion:

The actions proposed under the NPS USS *Arizona* Visitor Center Replacement EA are consistent with the applicable HCZMP Coastal Ecosystems objectives and policies. Infrastructure (e.g., wastewater and drainage) upgrades or provisions will be made to accommodate development. Environmental impacts will be avoided or minimized by complying with existing regulatory requirements, adopting Best Management Practices (BMPs) to minimize construction-related impacts, and implementation of specific mitigation measures. A summary of the actions relative to the HCZMP Coastal Ecosystems policies is provided below and in the attached EA.

The NPS USS *Arizona* Memorial visitor center is located outside of the State of Hawai'i CZMA. No indirect effects on nearby coastal ecosystems will occur with the controls identified in the EA. The proposed action does not involve dredge and fill activities. No effluent discharge would be expected as a result of the proposed action. The development of the visitor center will require earthwork beyond clearing and grubbing, however no significant impacts are anticipated to occur as construction and development activity impacts will be mitigated to negligible by existing laws and regulations pertaining to construction activities. Implementation of BMPs, as required by the NPDES permitting process, will minimize the risk of impacts.

The project is near an area where the federally threatened Newell's shearwater (*Puffinus auricularis newelli*) is known to fly. Several other species which are not listed under the Endangered Species Act but which are protected under the Migratory Bird Treaty Act may also transit the area. Mitigation of impacts to these birds from light will include redirection downward of shielded outdoor lighting so that the bulb is not visible except from below. As a result there will be no adverse effects to these species.

ECONOMIC USES

Objective: Provide public or private facilities and improvements important to the State's economy in suitable locations.

Policies:

1) Concentrate in appropriate areas the location of coastal dependent development necessary to the State's economy;

2) Insure that coastal dependent development such as harbors and ports, visitor industry facilities, and energy generating facilities are located, designed, and constructed to minimize adverse social, visual, and environmental impacts in the coastal zone management area; and

3) Direct the location and expansion of coastal dependent developments to areas presently designated and used for such development and permit reasonable long-term growth at such areas, and permit coastal dependent development outside of presently designated areas when:

   a) Utilization of presently designated locations is not feasible;

   b) Adverse environmental effects are minimized; and

   c) Important to the State's economy.

Check either "Yes" or "No" for each of the following questions:

1. Does the project involve a harbor or port? **Yes**
2. Is the project site within a designated tourist destination area? **Yes**
3. Does the project site include agricultural lands or lands designated for such use? **No**
4. Does the proposed activity relate to commercial fishing or seafood production? **No**
5. Does the proposed activity related to energy production? **No**
6. Does the proposed activity relate to seabed mining? **No**

Discussion:

The actions proposed under the NPS USS *Arizona* Visitor Center Replacement EA are consistent with the applicable HCZMP Economic Use objectives and policies. The replacement of the visitor center will help support the NPS, USS *Bowfin*, USS Battleship *Missouri*, the Pacific Aviation Museum of Ford Island and the Pearl Harbors Historic Partners, and other tourist attractions within the State of Hawai'i. With development, additional private opportunities are expected to attract employees and visitors that will increase revenues within the state. A summary of the actions relative to the HCZMP Economic Uses policies is provided below and in the attached EA

The proposed location of the NPS USS *Arizona* Memorial Visitor Center Replacement is outside of the State of Hawai'i CZMA. Construction of a new visitor center with improved interpretative experience and visitor amenities could result in a slight increase in visitation. Because the new visitor center will not greatly change overall visitation rates, measurable long-term economic changes would not be expected for off-site commercial service providers. Direct and indirect effects resulting from the proposed action will be positive

because it will support to a small degree visitor operations that serve to support the State's economy.

COASTAL HAZARDS

Objective: Reduce hazard to life and property from tsunami, storm waves, stream flooding, erosion, and subsidence.

Policies:

1) Develop and communicate adequate information on storm wave, tsunami, flood erosion, and subsidence hazard;

2) Control development in areas subject to storm wave, tsunami, flood, erosion, and subsidence hazard;

3) Ensure that developments comply with requirements of the Federal Flood Insurance Program; and

4) Prevent coastal flooding from inland projects.

Check either "Yes" or "No" for each of the following questions:

1. Is the project site on or abutting a sandy beach? **No**

2. Is the project site within a potential tsunami inundation area as depicted on the National Flood Insurance Program flood hazard map? **No**

3. Is the project site within a potential flood inundation area according to a flood hazard map? **Yes**

4. Is the project site within a potential subsidence hazard area according to a subsidence hazard map? **No**

5. Has the project site or nearby shoreline area experienced shoreline erosion? **No**

Discussion:

The actions proposed under the NPS USS *Arizona* Memorial Visitor Center Replacement EA are consistent with the applicable HCZMP Coastal Hazards objectives and policies. A summary of the actions relative to the HCZMP Coastal Hazards policies is provided below.

The proposed USS *Arizona* Memorial visitor center site is located in the Navy developed area in Pearl Harbor and outside of the State of Hawai'i CZMA. No indirect effects associated with coastal hazards will occur as a result of the proposed action at the USS *Arizona* visitor center. The proposed visitor center will replace existing structures within the same location. As with the existing structures, with appropriate disclosure and planning, the risk of flood loss will not increase, and human safety, health and welfare, will not be jeopardized. As the proposed location for replacement of the current deteriorating visitor center is within a developed naval area within Pearl Harbor, the proposed action will not further degrade the values of floodplains within this area. Federal Emergency Management Agency Flood Insurance Rate Maps (FIRM) do not cover federal lands in Pearl Harbor. Civil Defense indicates that the water level in the area may rise 4 feet as a result of a tsunami. Based on the tsunami occurring at high tide, the flood elevation is estimated to be at

elevation of between 6 and 7 feet. Consequently, the buildings to be constructed will be on foot at elevation of 7 to 8 feet. Therefore, hazard to life and property from tsunami, storm waves, stream flooding, erosion, and subsidence will be reduced.

MANAGING DEVELOPMENT

Objective: Improve the development review process, communication, and public participation in the management of coastal resources and hazards.

Policies:

1) Effectively utilize and implement existing law to the maximum extent possible in managing present and future coastal zone development;

2) Facilitate timely processing of application for development permits and resolve overlapping or conflicting permit requirements; and

3) Communicate the potential short- and long-term impacts of proposed significant coastal developments early in their life cycle and in terms understandable to the general public to facilitate public participation in the planning and review process.

Check either "Yes" or "No" for each of the following questions:

1. Will the proposed activity require more than two (2) permits or approval? **Yes**

2. Does the proposed activity conform with the State and County land use designations for the site? **Yes**

3. Has or will the public be notified of the proposed activity? **Yes**

4. Has a draft or final environmental impact statement or an environmental assessment been prepared? **Yes**

Discussion:

The actions proposed under the NPS USS *Arizona* Visitor Center Replacement EA are consistent with the applicable HCZMP Managing Development objectives and policies. A summary of the actions relative to the HCZMP Managing Development policies is provided below and discussed in detail in the attached EA.

The proposed USS *Arizona* Memorial visitor center site is located in the Navy developed area in Pearl Harbor and outside of the State of Hawai'i CZMA. The development of new visitor center facilities will be in compliance with applicable Federal, State, and County land use designations for the site. Construction activities to replace the existing visitor center may require NPDES permits. The public has been notified of the proposed activity through news releases and public workshops held in August 2006. The Environmental Assessment for Replacement of the USS *Arizona* Memorial visitor center, Pearl Harbor, Hawai'i has been prepared for the proposed action.

PUBLIC PARTICIPATION

Objective: Stimulate public awareness, education, and participation in coastal management.

Policies:

1) Maintain a public advisory body to identify coastal management problems and to provide policy advice and assistance to the coastal zone management program;

2) Disseminate information on coastal management issues by means of educational materials, published reports, staff contact, and public workshops for persons and organizations concerned with coastal-related issues, developments, and government activities; and

3) Organize workshops, policy dialogues, and site-specific mediations to respond to coastal issues and conflicts.

Discussion:

The actions proposed under the NPS USS *Arizona* Visitor Center Replacement EA are consistent with the applicable HCZMP Public Participation objectives and policies. A summary of the actions relative to the HCZMP Public Participation policies is provided below.

The proposed USS *Arizona* Memorial visitor center site is located in the Navy developed area in Pearl Harbor and outside of the State of Hawai'i CZMA. The proposed action will not have significant adverse effects on coastal zone resources given consideration of the location within the developed naval area of Pearl Harbor and that environmental impacts will be avoided or minimized by complying with existing regulatory requirements and implementation of specific mitigation measures. The indirect and direct affects of the proposed action on the natural, cultural, and human environment has been evaluated in Environmental Assessment for Replacement of the USS *Arizona* Memorial visitor center. The public has been notified of the project and the proposed action via news releases and public workshops that were held at the Memorial in August 2006. The impacts of the proposed action will be provided to the public in the environmental assessment. The environmental assessment will be on public review for 30 days following its release. A record of decision or notice of intent to prepare an environmental impact statement will be prepared following evaluation of public input.

APPENDIX C

STATEMENT OF FINDINGS FOR FLOODPLAINS

STATEMENT OF FINDINGS FOR EXECUTIVE ORDER 11988
(FLOODPLAIN MANAGEMENT)

USS Arizona Memorial
Visitor Center Replacement

Recommended

_____ _____
Superintendent, USS *Arizona* Memorial Date

Certified for Technical Adequacy and Servicewide Consistency

_____ _____
Chief of Water Resources Department Date

Concurrence

_____ _____
Regional Safety Officer, Pacific West Region, National Park Service Date

Approved

_____ _____
Regional Director, Pacific West Region, National Park Service Date

STATEMENT OF FINDINGS FOR EXECUTIVE ORDER 11988 (FLOODPLAIN MANAGEMENT)

USS Arizona Memorial
Visitor Center Replacement

Introduction

In accordance with Executive Order 11988 (Floodplain Management), Director's Order #77-2, and the National Park Service guideline for implementing these orders, including Procedural Manual #77-2, the National Park Service (NPS) has reviewed alternatives for the replacement of the visitor center at the USS *Arizona* Memorial with respect to the impact of the project on floodplain values. This Statement of Findings describes the reasons why encroachment into the floodplain is required to implement the project, the site-specific flood risks involved, and the measures that will be taken to mitigate floodplain impacts.

Justification for Use of Floodplain

The National Park Service is proposing to replace the existing deteriorating visitor center structures at the USS *Arizona* Memorial. The alternatives for the development include constructing new visitor center buildings adjacent to the existing facility to the east and north and relocate the existing boat launch 100 feet west, or moving the visitor center structures to the north of the current location. Location of the visitor center facilities outside of the floodplain was found to be unreasonable as the NPS leases the property from the US Navy and the Navy does not have other properties outside of the floodplain available for use by the National Park Service. The development of new visitor center facilities would occur therefore in the existing Navy developed area in Pearl Harbor. As this area is previously disturbed and developed, the proposed action would not further degrade the nature and values of floodplains within this area.

Flood Risk

Federal Emergency Management Agency Flood Insurance Rate Maps (FIRM) do not cover federal lands in Pearl Harbor. Halawa Stream is a perennial stream located adjacent to the proposed visitor center location that carries stormwater runoff from the urban areas of west metro Honolulu. This stream has been engineered and channelized during development of the naval station to carry stormwater from upstream areas. The stream bed is stabilized with riprap at the location of the boat launch. Conditions would have to be extreme to cause this stream to exceed bank-full. Civil Defense indicates that the water level in the area may rise 4 feet as a result of a tsunami. Based on the tsunami occurring at high tide, the flood elevation is estimated to be at elevation of between 6 and 7 feet.

Mitigation of Risk to People and Structures

Based on the risk of flooding, the buildings to be constructed would be on foot at elevation of 7 to 8 feet. Therefore, hazard to life and property from tsunami, storm waves, stream flooding, erosion, and subsidence would be reduced.

Summary

Because the USS *Arizona* Memorial visitor center would continue to be located within the Pearl Harbor Naval Base, the NPS would comply with the Department of Defense emergency preparedness and disaster plans that would direct emergency actions and evacuations in the event of flooding. With appropriate disclosure and planning, the risk of flood loss would not increase, and human safety, health and welfare, would not be jeopardized as a result of replacement of the USS *Arizona* Memorial visitor center in the proposed location.

As the nation's principal conservation agency, the Department of the Interior has the responsibility for most of our nationally owned public lands and natural resources. This includes fostering sound use of our land and water resources; protecting our fish, wildlife, and biological diversity; preserving the environmental and cultural values of our national parks and historical places; and providing for the enjoyment of life through outdoor recreation. The department assesses our energy and mineral resources and works to ensure that their development is in the best interests of all our people by encouraging stewardship and citizen participation in their care. The department also has a major responsibility for American Indian reservation communities and for people who live in island territories under U.S. administration.

NPS February 2007