

4.1 Topography and Bathymetry

Direct Impacts

The proposed redevelopment would alter the topography of the site in areas where stormwater retention ponds would be constructed. These ponds would consist of shallow depressions that would hold stormwater following rain events, but would be grassy dry depressions at other times. The retention ponds would be located within proposed green space areas; the size of these areas would be dependent on the actual amount of impervious area constructed on the property.

Dredging of accumulated sediment adjacent to Pier 8 near the south quay may be required to accommodate proposed ferryboats and to repair the southern bulkhead. This dredging would re-establish bottom contours within the harbor created by previous dredging events.

Because the property was artificially created by dredging and filling, these changes to the site's topography and bathymetry would not alter any natural conditions and, thus, would not be considered significant environmental impacts.

The No Action Alternative would not impact the topography or bathymetry of the site.

Indirect Impacts

Construction of a breakwater and piers for the proposed marinas would probably increase sedimentation rates and decrease depths in localized areas of the harbor. However, given the depth of the harbor relative to the drafts of vessels proposed to use the harbor, it is unlikely that this modest effect would increase the frequency of dredging needed to maintain navigable water depths.

Future maintenance dredging of Key West Harbor and/or the ship channel may be conducted to allow continued vessel use of all of the City's port facilities, including the Mole Pier and Truman Harbor. This dredging would not have a significant effect on bathymetric contours.

Cumulative Impacts

The topography and bathymetry of the Truman Waterfront site was significantly modified by extensive dredging and filling during construction of Truman Harbor in the 1940's. Future dredging

of Key West Harbor and/or the navigation channel would probably be limited to maintenance dredging and would not significantly change the historical bathymetry of the harbor or channel. Therefore, the proposed action, in combination with other past and potential future maintenance dredging of the harbor, would not have a cumulative effect on the site's contours, since each action is designed to restore the bathymetric contours to that which existed following the previous dredging.

4.2 Geology and Soils

Neither the proposed action nor the No Action Alternative would impact the geology and soils of the Truman Waterfront property.

4.3 Hydrology and Water Quality

4.3.1 Hydrology

Construction of a breakwater and piers for the proposed marinas would alter the hydrological circulation of Truman Harbor, primarily by decreasing wave action and currents in the areas of the marinas. These changes would not affect the hydrology of Key West Harbor or other open waters, and, therefore, the hydrological impact of the proposed action would not be considered significant.

No new harbor facilities would be constructed under the No Action Alternative, and therefore, no impacts to hydrology would occur from implementation of the No Action Alternative.

4.3.2 Water Quality

Direct Impacts

Reuse of the Truman Waterfront property would have both minor beneficial and adverse direct effects on water quality. Direct impacts to marine water quality could occur from the following aspects associated with redevelopment of the property:

- Stormwater runoff from residential, commercial, and light industrial areas;
- Construction of the port facilities and marinas;
- Petroleum spills from vessels and port/marina operations; and
- Illegal sewage disposal by boats moored in the marinas.

The No Action Alternative would not result in any of these activities; therefore, the No Action Alternative would not affect water quality.

Stormwater Runoff

Redevelopment of the site would have a beneficial impact on water quality by providing for better stormwater treatment than currently available on the property. As discussed in Section 4.13, stormwater conveyances and treatment systems would be installed to provide on-site retention or detention of stormwater and stop the historical discharge of untreated stormwater directly into Key West Harbor or Truman Harbor. The proposed Reuse Plan would also result in an increase in green space (approximately 60% of the property is designated as parks and open space) and potentially decrease the amount of impervious surface on the property. This would allow more infiltration of rainfall and thereby decrease the amount of stormwater runoff requiring treatment.

Recommended measures to minimize adverse impacts from stormwater runoff were identified during the scoping process. Potential measures would include constructing off-street parking areas of porous paving material to minimize runoff, restricting the use of synthetic pesticides and fertilizers in green areas to minimize contamination of stormwater runoff, and implementing integrated pest management in public buildings and grounds as an effective alternative to widespread pesticide use.

Construction of Harbor Facilities

Dredging, the construction of piers, bulkheads, and a breakwater, and other sediment-disturbing activities associated with construction of the marinas, mega-yacht docks, and the ferry terminal would generate turbidity and could release and/or disperse pollutants from the sediments into the water column.

Dredging of accumulated sediment adjacent to Pier 8 near the south quay of Truman Harbor may be required, depending on the size of ferries to be accommodated. Because dredging and other sediment-disturbing activities would be conducted within a semi-enclosed basin where currents are minimal, the extent of turbidity could be controlled by turbidity screens and other measures. Therefore, the impact on water quality from dredging and marine construction in Truman Harbor would be localized and short-term.

Although fine sediments typically accumulate heavy metals and organic compounds, the tidal flushing of Key West Harbor and regular dredging of Truman Harbor likely have minimized the potential for long-term accumulation of contaminated sediments. Limited recent sampling of sediments in the vicinity of Truman Harbor confirm the general absence of sediment contamination (Sandra Walters Consultant 1999). Therefore, sediment-disturbing activities associated with development of harbor facilities are not likely to cause exceedences of water quality standards for dissolved pollutants, but could cause violations of the state turbidity standard.

Construction and Operation of Marinas

Plans for the marinas would be extensively studied through the regulatory processes embodied in the City of Key West Comprehensive Plan and Land Development Regulations, the FDEP's Environmental Resource Permit, and the USACE's Department of the Army permit. Construction of the proposed ferry and mega-yacht docks and marinas would require submerged land leases for areas within Truman Harbor, where regulations for Class III waters require that the project must only be "not contrary to the public interest".

To comply with Key West Comprehensive Plan Policy 5-1.2.1(2)5.h., the marinas must provide treatment of stormwater runoff from upland areas to ensure that state water quality standards are met at the point of discharge to waters of the state. The City would seek assistance from FDEP and SFWMD in developing stormwater treatment systems that protect surface water quality to the maximum extent possible.

The marinas would also be designed in accordance with applicable strategies in the FKNMS Management Plan to reduce pollution from marina operations and ensure compliance with water quality standards. This includes establishing paved and curbed containment areas for boat maintenance activities, such as hull scraping, repainting, mechanical repairs, fueling, and lubrication; properly locating and constructing fueling facilities to minimize spillage; and providing facilities to dispose of wastewater. Furthermore, boat maintenance activities at the new marinas would be located as far as possible from the harbor to reduce surface water contamination by toxic substances commonly used for boat maintenance (Key West Comprehensive Plan Policy 5-1.2.1[2]5.i.).

Petroleum Spills from Vessels and Fueling Operations

Accidental petroleum and hazardous material spills from port-related activities or the light industrial area could cause short-term acute or long-term chronic impacts to water quality. If the marinas or ferry terminal are equipped with fueling capabilities, preparation and implementation of a spill contingency plan would be required in accordance with the Florida Pollutant Discharge Act (62N-16, FAC). The plan would provide for access to spill contaminant equipment that would be used to mitigate water quality impacts from potential fuel spills. Furthermore, the City of Key West is currently investigating the possibility of participating in the "Clean Marina" program with FDEP and other partners (Russell 2000). Under this program, all City marinas would have a spill contingency plan and spill response equipment.

As recommended by the FKNMS Management Plan, the contingency plan should investigate the feasibility of locating a spill response crew and equipment in the Keys to reduce response time and minimize the environmental impact of a major spill. The City would coordinate with FDEP and

the U.S. Coast Guard to post spill notification signs in the marinas and adjacent to Truman Harbor. This public information outreach would result in aggressive pollution response when a spill or release occurs or threatens to occur (Miles 1998).

Illegal Sewage Disposal from Boats

The increased use of Truman Harbor by boats with sewage-holding facilities would increase the potential for water quality contamination from illegal disposal of sewage. However, all marinas with 10 or more boat slips, as defined by the State of Florida, are required to install pump-out facilities to encourage proper sewage disposal practices. Therefore, adverse impacts to water quality from illegal sewage disposal in Truman Harbor would be minor.

NOAA and FDEP recommended that the City establish a mobile sewage pump-out facility to service liveaboard vessels moored around Key West. If implemented as part of the Truman Waterfront redevelopment, this service would have a major beneficial effect on surface water quality by reducing the cumulative amount of sewage discharged into the waters surrounding Key West (Causey 1998, Hall 1998).

Indirect Impacts

The proposed Reuse Plan would provide or create port and harbor facilities that would increase the number of vessels currently mooring and operating in the vicinity of Key West Harbor. These vessels would include cruise ships, ferryboats, mega-yachts, and commercial and recreational boats. Therefore, the proposed action would indirectly result in adverse impacts to water quality due to the presence and operation of these additional vessels. The primary impacts to water quality would be long-term, intermittent increases in turbidity generated by propeller wash of vessels suspending fine bottom sediments, primarily from deep-draft vessels using the Mole Pier and Truman Harbor.

The primary source of turbidity generated by vessels would be from cruise ships and other large vessels that would use the Mole Pier and Truman Harbor. Turbidity would be generated from propeller wash suspending fine bottom sediments during docking maneuvers in Key West Harbor as well as along the Key West Channel during transits to and from the Gulf Stream. Waters in Key West Harbor are OFW, a state designation that allows no appreciable water quality impacts. The waters within Truman Harbor are not OFW; therefore, only Class III water quality standards apply. As documented by FDEP, the levels of turbidity generated by cruise ships and large military vessels in Key West Harbor violate the water quality anti-degradation standards of OFW, as well as Class III standards. FDEP is currently pursuing an overall turbidity management plan, rather than enforcement actions, for turbidity exceedences of the Class III standard caused by these vessels.

Therefore, the increase in the number of port calls by large vessels caused by implementation of the Reuse Plan would result in short-term elevations of turbidity and increased violations of the state water quality standard in Key West Harbor and the ship channel. However, the impact of the incremental increase in turbidity on regional water quality and marine resources (e.g., seagrass and coral reef communities) due to the increased vessel operation associated with reuse of the Truman Waterfront is uncertain. This is due to insufficient information to conclusively determine the long-term ecological effects of vessel-generated turbidity in the Florida Keys, and opposing scientific opinions on the effects based on existing information. Therefore, in accordance with the CEQ regulations (40 CFR 1502.22), the following subsections summarize existing credible scientific evidence that is relevant and evaluate the potential impacts based on a theoretical empirical approach used by other coastal experts.

Existing Scientific Evidence

In response to concerns about impacts of boat traffic raised during the base reuse planning community meetings in late 1997, research was conducted by NOAA, FDEP, Florida International University, and the University of Miami Rosenstiel School of Marine and Atmospheric Science on the potential impacts of boat-generated turbidity in the Keys. This research did not reveal any conclusive data (City of Key West 1999). The research found that strong currents in the vicinity of Key West Channel suspend fine, white sediment that is predominant in the area and quickly flush these suspended sediments from the vicinity. Bathymetric data confirm that sediments have not accumulated appreciably in the Channel nor has dredging of the navigational channel been required in the past 20 years.

The effect of turbidity generated by cruise ships and other large vessels in Key West was investigated in 1999 by Sandra Walters Consultant, under contract to the Key West Bar Pilots Association, Inc. The report included a literature search, expert opinions from regional coastal scientists, review of existing water quality data for Key West Harbor, a reconnaissance-level assessment of bottom communities in Key West Harbor, and analytical testing of sediment from locations near the docks used by the cruise ships. The report concludes that there is no significant impact on water quality or sensitive marine resources (e.g., corals, seagrasses) caused by vessel-generated turbidity (Sandra Walters Consultant 1999).

There is also circumstantial evidence that elevated turbidity caused by ship traffic in Key West Harbor has not caused any long-term impact to the health of nearby seagrass beds or corals (Little 1998, Crusoe 1998). Historically, Key West Harbor and Truman Harbor were heavily trafficked by Navy and other vessels, and Truman Annex supported intensive industrial operations

with direct discharges to the harbor. During World War II, more than 14,000 ships came through Key West Harbor, and the Naval Station's industrial department handled an estimated 7,160 ship repair jobs, drydocking more than 1,700 vessels (Mickler 1945). All of these activities arguably had the potential to cause significant water quality impacts, yet many large, healthy coral heads, over 100 years in age occur in proximity to Key West Harbor (Little 1998).

Despite these preliminary conclusions on the effect of vessel-generated turbidity in Key West Harbor based on this anecdotal and reconnaissance-level information, there is an acknowledged need for additional data to conclusively determine the magnitude and extent of impact. The USACE is planning to evaluate the effects of turbidity generated by vessels as part of a planned USACE study of the need to perform maintenance dredging of the Key West ship channel and harbor. The City of Key West and the FKNMS will participate in the planning and implementation of this study. The study is expected to take several years and results will not be available in time for inclusion in this EA (Scarborough 2000).

The proposed action would indirectly cause long-term, adverse effects on water quality from increased vessel-generated turbidity. However, no significant impacts to water quality would occur from increases in vessel-generated turbidity because applicable federal and state regulatory permits and approvals (e.g., state sovereign submerged land lease, state Environmental Resources Permit [ERP]) must be granted before the cruise ship berth, ferry terminals, and marinas that would support such vessel traffic could be constructed and/or operated. According to FDEP, the City of Key West would have to obtain a state sovereign submerged land lease to continue operation of the Mole Pier cruise ship berth upon transfer of the Truman Waterfront property from the Navy. Because this submerged land is located within OFW, the lease could not be granted until the City demonstrated that the proposed project is "clearly in the public interest" and can comply with the antidegradation OFW standards. Construction and operation of the ferry terminals and marinas would require sovereign submerged land leases and ERPs. Because of their locations within Truman Harbor, where only Class III water quality standards apply, granting of these leases and ERPs would be contingent on the City demonstrating that the projects would be "not contrary to the public interest." The City would have to demonstrate that the proposed construction and operation of the facilities (including operation of vessels that use the facilities) would comply with the Class III water quality standards or provide adequate mitigation to compensate for impacts to water quality. These regulatory reviews and approvals would likely take into account information on the effects of vessel-generated turbidity from the proposed USACE study of Key West Harbor (assuming the study is completed prior to permit decisions.) Therefore, because of these regulatory approvals that require the City to demonstrate that the proposed projects can comply with applicable state water quality standards or to

provide adequate mitigation of impacts prior to receiving permits and/or leases, no significant impacts to water quality are anticipated from reuse of the Truman Waterfront.

In the near term, FDEP and the City of Key West are developing a turbidity management plan that would minimize vessel-generated turbidity or otherwise mitigate its effects on the marine environment. The City also has an agreement with the organization Reef Relief to study cruise ship impacts and viable mitigation measures. Implementation of the turbidity management plan and other mitigation measures would be integrated with future redevelopment of Truman Harbor and Mole Pier, thereby preventing significant impacts of vessel-generated turbidity associated with implementation of the Truman Waterfront Reuse Plan.

Cumulative Impacts

Cumulative impacts of water quality degradation on coral reefs and seagrass beds have been extensively documented (EPA 1992, NOAA 1996). The City of Key West Comprehensive Plan and the FKNMS Management Plan are aimed at controlling cumulative impacts to these resources.

Implementation of the Reuse Plan would contribute to cumulative impacts of turbidity on important marine resources, but whether the contribution exceeds a significance threshold would be determined by the planned USACE study of Key West Harbor (discussed above). Future regulatory approvals for the sovereign submerged land lease (needed for operation of the Mole Pier as a cruise ship berth) and construction and operation of the proposed marinas would likely be contingent on the findings of the USACE or other studies.

4.4 Air Quality

Direct Impacts

No significant, adverse, short-term or long-term air quality impact would result from the proposed action. Air emissions during proposed construction would result from the operation of vehicles and machinery and the generation of fugitive dust. The effects of these activities would be short-term and minor.

No industrial development that would be a source of air pollution is anticipated as part of the proposed reuse. Most air emissions would occur from additional mobile sources (vehicles and vessels).

Exhaust and crankcase emissions from motor vehicle use include nitrogen oxides, sulfur dioxide, particulate matter, carbon monoxide, and VOCs. Once released, nitrogen oxides and VOCs react, in the presence of sunlight, to produce ground level ozone, which is a regulated air pollutant.

Due to the relatively small increase in the number of vehicles, the increase in air pollutant loads would be negligible and unlikely to affect the current attainment status.

The cruise ships, ferryboats, and other motor vessels would also generate exhaust emissions, although less frequently than motor vehicles. The increase in vessel traffic anticipated as a result of the additional proposed harbor facilities would not significantly affect existing air quality.

The No Action Alternative would not impact air quality.

Indirect Impacts

The proposed action would have indirect effects on air quality associated with increases in visitors and residents induced by the Reuse Plan. These additional people would lead to increased emissions from the solid waste incinerator and power plant on Stock Island. However, given the minor increase in population expected as a result of implementation of the Reuse Plan (see Section 4.10.1), this indirect impact would be minor.

Cumulative Impacts

The City of Key West, through implementation of objectives and policies in its Comprehensive Plan, is implementing plans to reduce vehicle use within the City. Although the proposed action would increase vehicle use on the Truman Waterfront property in comparison to its current use, the overall amount of vehicle use in the City is not expected to increase or decrease significantly. Therefore, the cumulative effect of mobile sources (the primary source associated with the proposed action) on air quality would not be significant.

4.5 Environmental Contamination

Direct Impacts

Implementation of the proposed action would not likely result in any potential for significant, adverse environmental contamination. The proposed action would convert the historically industrial nature of past activity at the site to mixed-use and residential land uses with areas of green space and parks. Potential for environmental contamination exists at the proposed marina sites and at the Mole Pier from ship support services. These areas may store and use petroleum products such as fuels and lubricants. However, these sites would be developed and operated under all applicable environmental laws and regulations; therefore, no significant, adverse impact is expected from the proposed action.

Site preparation and construction of the proposed action would require conformance with all current land use restrictions at the Truman Waterfront. The *Decision Document for Ten Base*

Realignment and Closure (BRAC) Sites, NAS Key West, Florida, May 2000, (U.S. Navy 2000) identifies six sites within the Truman Waterfront property that have had environmental contamination.

Contamination at two of these sites (Truman Annex DRMO area between buildings 261 and 284 and Truman Annex buildings 102 and 104) has been sufficiently remediated and no further action is required. PCB-contaminated soils at the Truman Annex Building 103 site and arsenic-contaminated soils at the Truman Annex Building 223 site will be removed prior to conveyance of the property and replaced with clean fill; subsequent to backfilling, no further action will be required at these sites. Any development of these sites other than that consistent with the Reuse Plan would require conformance with all applicable laws and regulations governing the cleanup and disposal of any existing environmental contamination prior to redevelopment (U.S. Navy 2000). Cleanup is consistent with the proposed land uses of the Reuse Plan.

The Navy determined, in conjunction with EPA and FDEP, that land use restrictions prohibiting residential development will be required at two of the sites where environmental contamination may still exist at levels potentially unsafe for residential use. These sites are the Truman Annex DRMO Waste Storage Area and the Truman Annex Former Location of Building 136. Any development of these sites would require conformance with all applicable laws and regulations governing the disposal of any existing environmental contamination prior to redevelopment (U.S. Navy 2000).

Under the No Action Alternative, the existing environmental contamination on the property would still be cleaned up, although the level of clean up could be different than that under the proposed action because of differences in proposed land uses for the contaminated sites.

Indirect Impacts

The proposed action would not have indirect effects on environmental contamination.

Cumulative Impacts

The proposed action would not have any cumulative effects on environmental contamination.

4.6 Terrestrial Resources

Direct Impacts

The proposed action would not impact terrestrial vegetation or wildlife of the area. Under the No Action Alternative, some existing exotic vegetation, such as Australian pine trees (*Casuarina*

equisetifolia), would continue to grow and spread seeds. This would result in a minor, adverse effect on the terrestrial ecosystem.

Indirect Impacts

Landscaping of parks, greenways, residential parcels, and other areas of the Truman Waterfront property with invasive exotic vegetation would provide a seed source that could cause spread of exotic plant species to other areas. In particular, the USFWS is concerned that waterborne seeds of exotic species planted at Truman Waterfront could spread these species to nearby islands within the KWNWR and threaten the ecological integrity of these islands (Steiglitz 1998b).

Cumulative Impacts

The proposed action, in combination with past and future actions, is not expected to have cumulative impacts on terrestrial resources of the area.

Mitigative Measures

Landscaping of the property should be limited to native plant species to prevent the spread of exotic species, which disturb natural communities. Planting of invasive exotic plant species, which are defined by the Florida Exotics Pest Plant Council, should be prohibited during redevelopment of the property. Furthermore, planting of native plants would increase the use of the property by native wildlife. Australian pine trees and other exotic species should be removed during redevelopment to prevent their spread.

4.7 Marine Resources

Direct Impacts

The direct impact of the proposed Reuse Plan on marine resources would be negligible. The installation of pilings and breakwaters as part of construction of the ferry terminal and marinas would cause a minor loss of benthic habitat in Truman Harbor and would require consultation with NMFS under MSFCMA to determine the effect of the proposed activity on EFH. This habitat, which was originally created by dredging, contains relatively unproductive soft bottom communities that are not limited in distribution in the area. Therefore, the impact on EFH should not be considered significant. The pilings and breakwaters would provide hard substrate for sessile marine organisms, such as sponges, tunicates, and corals, resulting in a minor beneficial impact to the marine environment.

No direct impacts to marine resources would occur from implementation of the No Action Alternative.

Indirect Impacts

The proposed action would likely result in increased boat traffic in and adjacent to KWNWR, which lies only 1,500 feet (457 meters) west of the Mole Pier. The USFWS is concerned that boats using the proposed marinas in Truman Harbor could cause significant increases in Refuge visitation and public use, resulting in increased wildlife disturbance, loss of wilderness character, and degradation of wildlife habitat (Stieglitz 1998b). Great White Heron National Wildlife Refuge could also be subject to increased visitation from boats moored in Truman Annex Harbor. Although more distant than KWNWR (Great White Heron National Wildlife Refuge's closest boundary is more than 3 miles (4.8 km) north of the Truman Annex Harbor), Great White Heron National Wildlife Refuge is more protected from prevailing winds by the main keys and shallow waters than is KWNWR. Therefore, boaters tend to visit Great White Heron National Wildlife Refuge on days when winds create moderate to high wave conditions in boat channels to and within KWNWR (Stieglitz 1998c).

Increased visitation of sensitive marine resources in the vicinity of Key West by motorized private and commercial boats moored in Truman Harbor could also result in increased disturbance to bird rookeries and direct impacts to seagrass beds and coral reefs (primarily from anchoring and propeller scarring). Construction of the two marinas would undoubtedly increase boat traffic in the area, which would inevitably lead to an increase in vessel groundings and adverse effects on shallow marine habitats (Kruczynski 1998).

Cumulative Impacts

The increase in boat traffic associated with implementation of the proposed Reuse Plan would contribute to cumulative adverse impacts on seagrass and coral reef ecosystems. The primary impacts would include increased scarring of seagrass beds, reduced productivity of seagrasses due to turbidity/sedimentation, and reduced productivity and functioning of the coral reef ecosystem from increased nutrients and turbidity. These impacts would result, not only from the increase in the number of boat trips, but also from increases in the average vessel size and draft and operation by greater numbers of less experienced boat operators. These cumulative impacts have been extensively documented and studied in the Florida Keys, particularly since the designation of the FKNMS in 1990, and are discussed comprehensively in the Final Management Plan/EIS for the FKNMS (NOAA 1996).

Seagrass scarring by motorized boats operating in shallow waters has had a significant cumulative effect on benthic communities in the Florida Keys, affecting more than 30,000 acres (12,000 ha) of seagrasses. Moderately and severely scarred seagrass beds have been identified at 50 locations surrounding Key West (i.e., Marguesas Keys to Snipe Key), including two sites adjacent to Key West Channel within 1.0 mile (1.6 km) of Truman Harbor (Sargent *et al.* 1995). Seagrass scarring is generally caused by inexperienced or careless boaters, as well as by boaters who intentionally leave marked channels to take shortcuts through shallow seagrass beds. Scarring is also caused by liveaboard boats anchored over shallow seagrass beds. Liveaboard boats were identified as a contributing cause of seagrass scarring at both sites in Key West Harbor. The problem has worsened due to an increasing residential population; the increasing popularity of boating, fishing, diving, and other water sports; and increasing tourism. Sargent *et al.* (1995) recommended a combination of management options (new or improved navigation markers, education, better enforcement, and restricted areas) to reduce future occurrences of scarring.

The degree to which the proposed action would contribute to these cumulative impacts to seagrasses and coral reefs is dependent on how much the proposed development would increase the cumulative number of boats and boat trips, as well as the types of boats (shallow vs. deep draft) and boaters (experienced vs. inexperienced) over the baseline conditions. Even if the additional marina space does not increase the total number of boats operating in the Key West area, the proposed marinas would likely shift the mooring locations of approximately 180 commercial and recreational boats to the west end of Key West and promote additional boat trips into KWNWR, where pristine marine resources are more prevalent than in other areas.

The proposed NOAA environmental education center, in combination with other existing facilities, publications, and programs that promote environmental conservation and protection (e.g., nature stores, glass-bottom boat tours, school programs), would result in a cumulative increase in residents' and visitors' awareness of detrimental effects of their actions and user stewardship of the marine environment. This increase in environmental awareness and change in behavior would have cumulative long-term benefits on marine resource conservation.

4.8 Threatened and Endangered Species

Direct Impacts

Based on available information, the USFWS concluded that the proposed action is not likely to affect federally-listed threatened and endangered species. Furthermore, no designated critical habitat is present in the vicinity of the project site or would be affected (Slack 1998).

Demolition of buildings 102, 103, and 104 would result in the loss of nesting habitat for the least tern and roseate tern. These structures are not designated as critical habitat, and as long as demolition was conducted during non-nesting periods, no permits or approvals would be required by the USFWS or Florida Game and Freshwater Fish Commission (FGFWFC; now Florida Fish and Wildlife Conservation Commission [FFWCC]; Frank 1998, Cairns 1998). Buildings 112 and 113, which are also used by terns for nesting, would not be demolished. These two buildings, as well as five buildings on the portion of NAS Key West Truman Annex being retained by the Navy, would presumably provide sufficient nesting habitat for terns displaced by the demolition of buildings 102, 103, and 104.

The proposed action would not directly affect the West Indian manatee, sea turtles, or osprey.

Under the No Action Alternative, buildings 102, 103, and 104 would not be demolished, and therefore, would not result in the loss of least tern nesting habitat, as would occur if the proposed action were implemented. The No Action Alternative would not directly impact any of the other threatened or endangered species present in the vicinity of the property.

Indirect Impacts

As discussed for water quality and marine resources, indirect impacts to threatened and endangered species could result from increased boat traffic generated by the proposed redevelopment of Truman Waterfront. Increased boat traffic could cause higher incidences of collisions with manatees and sea turtles. In addition, increased visitation by boaters to relatively isolated islands with sandy beaches and mangroves could lead to increased disturbance of osprey and sea turtle nesting habitats.

Cumulative Impacts

The direct and indirect effects of the proposed action, in combination with past, present, and reasonably foreseeable actions, would not result in any significant cumulative impact to threatened or endangered species.

The loss of least tern nesting habitat would not cause a significant cumulative impact on the least tern population. The accidental death of 25 least terns in 1998 at Truman Annex has not resulted in any decline in the average number of terns nesting each year since the 1998 incident. NAS Key West has modified its best management procedures to prevent the same type of accident from reoccurring (requiring the use of fast drying mastic to prevent entrapment of terns landing on roofs that are being re-roofed).

It is anticipated that through the planning and permitting process for the proposed marinas, the concerns of the USFWS would be addressed to mitigate the potential adverse impact of boats from the Truman Waterfront marinas on nesting birds and sea turtles on wilderness islands in KWNWR (e.g., prohibiting boat rentals, use of educational signs and brochures). Thus, the proposed action would not have a significant cumulative effect on sea turtles or ospreys.

Mitigation Measures

FGFWFC recommended that recreational pavilions or other new or rehabilitated structures on the Truman Waterfront property be designed with rooftops to serve as suitable nesting habitat for least and roseate terns (Frank 1998).

Educational signs and brochures targeted at boaters using the proposed marinas could be used to minimize the potential for boat collisions with manatees.

4.9 Cultural Resources

Direct Impacts

In their report, Brockington and Associates, Inc., (1997) concluded that intact subsurface archeological deposits may be present within the Fort Taylor coverface area. Because the full extent and significance of these archeological deposits are not known, they recommended that Phase II testing be conducted prior to any subsurface activities in this area.

According to the proposed redevelopment plan, Fort Zachary Taylor would be restored and the existing state park enhanced to become a major site amenity and destination. The historical entrance to the Fort would be restored by demolishing two adjacent excessed Navy buildings (buildings 795 and 284) and relocating the ranger station to the northeast corner of the Fort (see Figure 2-1). A museum and administration office would be created near the new entrance by modifying Building 261. A portion of the coverface site east of the Fort would be designated an archeological preserve. The remainder of the coverface area would be subject to potential disturbance from construction of the proposed ranger station and parking lot; however, Phase II archeological investigations would be required and approval granted by the Florida SHPO prior to any subsurface disturbances.

The Seminole Battery is located adjacent to the Truman Waterfront property and the areas proposed for redevelopment under the Base Reuse Plan. Seminole Battery is also in close proximity to the City of Key West's historic district. This property is no longer included in the Navy's surplus property under this action. However, because of the historic and cultural significance of Seminole Battery and the adjacent historic district, care must be taken to ensure that activities associated with

the redevelopment of the Truman Waterfront property preserve the cultural and historic integrity of Seminole Battery and other surrounding historic properties. Redevelopment activities at the Truman Waterfront property should be closely coordinated with the SHPO.

Therefore, the proposed action would benefit the site's cultural resources by restoring and preserving them. Furthermore, by developing them as site attractions, the public would be educated about the military history of Key West.

Implementation of the No Action Alternative would preserve the existing archeological resources on the Truman Waterfront property, but would prevent the improvement of Fort Zachary Taylor and access to the Fort due to the continued presence of adjacent Navy structures and property. The historic elements of the Fort would continue to be diminished by the presence of buildings 795 and 284. The City would be unable to enhance access and entrance amenities or create an archeological preserve around the Fort's coverface. Therefore, the No Action Alternative would not affect the site's cultural resources, but would maintain the under-utilization and under-appreciation of the property's cultural resources by the public.

Indirect Impacts

The proposed action would have negligible indirect impacts on cultural resources.

Cumulative Impacts

The proposed action would have negligible cumulative impacts on cultural resources.

4.10 Socioeconomics

4.10.1 Population and Demographics

Direct Impacts

A minor increase in both the temporary and permanent workforce population would occur as a result of the proposed action. This is due to limited in-migration of people that are anticipated to fill the service/tourist-related jobs that would be created. However, the overall population and demographics of the City of Key West are not anticipated to change substantially as a result of implementation of the Reuse Plan.

Implementation of the No Action Alternative would not have an adverse impact to the population of Key West. The projected minor increases in workforce population that would potentially occur to fill jobs created as a result of the Base Reuse Plan would not occur and the population of Key West would not change.

Indirect Impacts

The proposed action would have negligible indirect effects on the population and demographics of Key West.

4.10.2 Economy, Employment, and Income

Direct Impacts

Implementation of the Reuse Plan would have a positive and long-term impact on the economy, employment, and income of the region. No significant, adverse impacts are anticipated.

As a result of implementation of the Reuse Plan, it is estimated that approximately 146 jobs would be created at the Truman waterfront property. Jobs generated would occur primarily in areas zoned to promote economic development activities. This includes 110 jobs generated from the planned land uses associated with three parcels included in the Navy's Economic Development Conveyance (EDC) Application (City of Key West 2000). These parcels include:

- The former Enlisted Dining Facility building (#1287) and its surrounding property which is targeted to be developed as a conference center and hospitality training institute;
- The parcel adjacent to and immediately east of the Enlisted Dining Facility parcel and west of DeKalb Avenue which will be developed as an extension of the adjacent Bahama Village commercial/residential neighborhood (i.e., neighborhood-oriented retail and service businesses); and
- The small strip of land between DeKalb Street and Fort Street which will also be developed for neighborhood-oriented retail and service businesses.

Zoning for the parcels to be conveyed under the EDC application is HNC-2 and Historic Limited Commercial (HCL) District. HNC-2 allows light retail, single and multiple family residential. HCL allows neighborhood- and tourism-related retail, and local residential. A fourth parcel identified in the EDC application is zoned HMDR, which allows residential uses and will be the site of 46 affordable housing units.

Additionally, it is anticipated that a limited number of jobs will be created by land use activities not included in the City's EDC application. Activities not included in the EDC application having the potential to generate jobs include the commercial and recreational marina, ferry boat operations, and the light industrial activities along the south quay. The Historic Residential Commercial Core (HRCC-4) District zoning of the light industrial area permits marine-related light industrial and services. Because the EDC application did not address job creation for areas other than those included within the application, the employment and earnings calculation factors from the

October 1997 Key West Base Reuse Plan (City of Key West 1997a) where used to calculate direct employment. Direct employment for activities not included in the application (i.e., commercial and recreational marina, ferry boat operations, and the light industrial) is expected to be 36 jobs. The continuation of cruise ships activities at Mole Pier is not expected to generate new jobs.

Implementation of the No Action Alternative would likely have a negative impact on the City of Key West, the surrounding area, and particularly Bahama Village. Economy, employment, and income would be directly and indirectly impacted. The estimated 146 jobs that would be created would not occur. Additionally, the anticipated direct and indirect economic benefits to businesses and residents of Bahama Village would not be realized under this alternative. Under this alternative there would be no substitute for the economic, employment, and income losses due to the non-implementation of the Truman Waterfront Reuse Plan.

Indirect Impacts

An adverse indirect impact that could occur as a result of increased employment through implementation of the Reuse Plan is the increased demand for additional affordable housing in Key West (see Section 4.10.3). It is anticipated that the unemployed segment of Key West/Monroe County could not be relied on to support the estimated labor requirements as stated in the Reuse Plan. Given the estimates in the Base Reuse Plan (City of Key West 1997a), many of the jobs created would be of relatively low wage (estimated \$17,400 in annual earnings). If the jobs that would be created required workers to reside in Key West or in areas nearby, there is concern as to the housing that would be required. Generally, market rate housing would not meet the projected demand and additional affordable housing would be required. Creation of additional low wage jobs that must be filled by increasing the area's labor force cannot be accomplished without increasing the burden to the current projected affordable housing deficit.

Taxes and Revenues

No adverse impacts to the region's taxes and revenues are anticipated as a result of the Reuse Plan. Implementation of the Reuse Plan would result in increased revenues from cruise ship passenger disembarkation fees, property taxes, and sales taxes. This would generally result in enhancements to the fiscal health of the City of Key West and overall quality of services provided to the public.

Recreation

The proposed action would have a beneficial effect on recreation in Key West. As of 1997, Key West had 392 acres (157 ha) of parks and open space land or land otherwise suitable for recreational purposes. Based on the 1996 estimated population of 27,009, the City has approximately 14.5 acres (5.8 ha) of recreational space per 1,000 population (City of Key West 1997b). Because implementation of the Reuse Plan would create an additional 30 acres (12 ha) of open space, while increasing the population by a maximum of approximately 173 residents (69 dwelling units x 2.5 persons per dwelling), the concurrency requirement for recreational space would be satisfied.

4.10.3 Housing

Direct Impacts

Implementation of the Truman Waterfront Reuse Plan would potentially have an adverse or beneficial impact on the overall affordable housing situation in Key West. The actual impact would depend on a number of factors, including: (1) the timing and number of jobs to be created; and (2) the timing of construction of the proposed housing units to be built on the Truman Waterfront property.

Under the Reuse Plan, up to 46 affordable housing units would be constructed. Based on the number of low-paying jobs expected to be filled by new Key West residents (see sections 3.10.2 and 4.10.2), the additional demand for local affordable housing created by the proposed action would exceed the number of affordable housing units proposed under the Reuse Plan. However, the creation of these jobs would be dependent upon the timing of development of the proposed facilities and revenue-generating land uses.

Because of the limitation on building permits imposed by ROGO, the availability of building permits would likely determine when the proposed housing units could be constructed. Delays in construction of the proposed housing units in the near term would create an increased demand for affordable housing; however, as building permits become available, development of the proposed houses would reduce the shortage of affordable housing.

The shortage of affordable housing in Key West has been prevalent since the 1980's and is likely to persist into the future regardless of implementation of the Truman Waterfront Reuse Plan. The City's expensive housing market and limited housing supply pose serious problems for residents seeking affordable housing.

The No Action Alternative could have both an adverse and positive impact on the housing market in the City of Key West. This alternative would eliminate 46 units of potentially affordable housing that would be built as part of the Base Reuse Plan. Elimination of these units would

adversely affect the already large deficit of affordable housing in Key West. This alternative could also have a beneficial impact on the housing market in Key West as projected low paying jobs generated as a result of the plan would not occur, thereby eliminating the potential demand for additional affordable housing generated as a result of the Base Reuse Plan.

4.10.4 Environmental Justice

Pursuant to Executive Order Number 12898, of February 8, 1994, it is the Navy's policy to identify and address disproportionately high and adverse human health and environmental effects of actions on minority and low-income populations.

The Truman Waterfront property is located adjacent to Key West's historic black community, Bahama Village. Bahama Village can be considered an environmental justice-sensitive community as it is predominantly (i.e., >50%) comprised of minority and low-income populations.

Through this EA, the Navy analyzed the proposed Truman Waterfront Reuse Plan on the Bahama Village community for environmental justice impacts. Through this analysis, it was determined that implementation of the Truman Waterfront Reuse Plan may potentially result in both short- and long-term economic and social benefits to the Bahama Village community, as well as some potential adverse impacts associated with traffic congestion and gentrification.

Implementation of the Truman Waterfront Reuse Plan generally would encourage both economic development and quality of life opportunities for Bahama Village residents. Most notably, through the community's connection to the Truman Waterfront property, access to prime waterfront and recreational land would be established. An overall theme stated in the plan is to remove the perceived boundary between the Bahama Village and the Truman Waterfront property and create a continuous transition between uses and neighborhoods.

The plan also stresses the potential spillover economic benefits to existing businesses and residents in Bahama Village that may be realized through implementation of the plan's programmed land uses on the waterfront. Through increased commercial/retail and tourist activities associated with the expanded use of the waterfront property, the plan asserts that jobs would be created in the community to meet the economic demand at the site and existing businesses would benefit as more citizens and tourists from surrounding areas are directed through Bahama Village. Additionally, other potential benefits to the Bahama Village community that may be realized as a result of the Reuse Plan include the establishment of a multi-use center providing social services (e.g., job training, community meeting and education programs, day care, church worship services) and economic development enterprises for Bahama Village and other Key West residents.

The Reuse Plan also seeks to meet a portion of Key West's demand for affordable housing by programming 46 housing units along the eastern edge of the property adjacent to Bahama Village between Angela and Petronia streets.

In addition to the potential benefits of implementation of the Reuse Plan, a potential adverse impact that could occur on the Bahama Village community would be from increased traffic. The existing compact streets that characterize Bahama Village do not have the physical capacity to accept even moderate increases in traffic. With the waterfront opened up for more public access and activity, there would be a potential for increased traffic on the streets of Bahama Village that lead to the waterfront. Therefore, continued use of Southard Street for two-way access to the Truman Waterfront property would be key to alleviating the potential traffic impacts in Bahama Village. The 1998 Bahama Village Redevelopment Plan clearly stipulates that although all public and private transportation supporting the cruise ships would be directed along Petronia and Angela streets in Bahama Village, Southard Street should continue to give access to and from the Truman Waterfront property. Additionally, the 80-space parking lot proposed adjacent to Bahama Village between Olivia Street and Truman Avenue (see Figure 2-1) would provide parking for the increased traffic in the vicinity of the commercial sector of the community.

In addition to traffic impacts that could occur in the Bahama Village community, there is also the potential for the Reuse Plan to cause housing gentrification and displacement of long-term businesses and residents. It has been observed in Bahama Village that as focused urban renewal and redevelopment efforts occur, market pressures have caused real estate prices to escalate beyond what residents of the neighborhood can typically afford (City of Key West 1997a). In some cases this may result in displacement of long-term Bahama Village residents and businesses. Implementation of the Reuse Plan, while benefiting some residents and businesses, may potentially result in similar gentrification and displacement impacts. As redevelopment of the Truman Waterfront property occurs, there is the indirect potential for real estate values to increase beyond the means of the average neighborhood residents.

In response to both the gentrification and urban decline issues, however, the Bahama Village Community Conch Trust is seeking to strike the balance between combating deteriorating urban conditions, ensuring that residents have access to quality, affordable housing, and preserving the historic, cultural, and spiritual nature of the community.

Implementation of the No Action Alternative could both adversely and beneficially impact the environmental justice-sensitive community located in Key West. Under the No Action Alternative the job creation opportunities and spillover economic benefits to the Bahama Village residents and merchants would not occur. This would adversely impact the expected socioeconomic

benefits to the community as a result of implementation of the plan. Implementation of the No Action Alternative could also have a beneficial impact on the environmental justice-sensitive community as projected traffic increases and gentrification impacts that would likely affect Bahama Village as a result of the plan would not occur.

Cumulative Impacts

Cumulative impacts to socioeconomic resources will occur primarily as a result of the Navy's current and planned upgrading of activities at the adjacent NAS Key West Truman Annex property.

The Navy anticipates that in the near future NAS Key West will host a number of Naval operations at the adjacent NAS Key West Truman Annex property, south of the Truman Waterfront, that will result in expanded or full utilization of existing facilities and substantially increase transient populations. Planned activities at the Truman Annex property include the completion of a multi-million dollar renovation of JIATF East's existing facilities and plans to expand the JIATF East mission areas on the site, including renovation of buildings and construction of additional facilities. This expansion, when completed, is anticipated to accommodate up to 1,000 personnel utilizing the JIATF East compound. Also, additional Naval vessel port calls expected in Truman Harbor in the near future and expanded MWR vacation activities and associated MWR special events are expected to cause an increase in temporary personnel accessing the JIATF East compound and the NAS Key West Truman Annex housing complex through the Truman Waterfront property. Due to increased ship usage of the Truman Waterfront, and the other planned activities associated with the Truman Annex property by Navy personnel, the Navy estimates that the peak daily number for current and future personnel utilizing their retained facilities could potentially reach over 4,000 (as compared to the current population of approximately 2,500). However, no substantial changes to the City's permanent population or demographics are anticipated as a result of the Navy's increased use of the adjacent property, and thus, no cumulative effect on population would occur.

Planned increases in Navy activity at the NAS Key West Truman Annex property will generally result in positive cumulative economic impacts to the Key West region. A more fully utilized and active Truman Annex property will have a short-term positive impact on the Key West economy as increased Navy transient populations coming to Key West purchase goods and services from local retail shops, restaurants, and other tourist-related businesses.

Cumulative impacts to Key West housing will be minimal as transient population increases will be short-term, and in most cases visitors will utilize the bachelor quarters and other Navy housing facilities and resources available at the NAS Key West Truman Annex facility, and will not impact the existing City housing stock.

4.11 Land Use and Aesthetics

The potential land use effects of the Reuse Plan were evaluated according to whether: (1) existing development constraints at the station would impede plan implementation; (2) the plan would result in on-site land use conflicts; (3) the plan would result in land use conflicts with existing or future land uses adjacent to the site; and (4) the plan could be implemented within the framework of regulatory constraints.

4.11.1 Development Constraint Analysis

On-site development constraints would not be a significant, adverse impediment to the proposed land use activity locations for the site. Potential constraints and issues considered in the evaluation include infrastructure and utilities, threatened or endangered species, and hazardous waste.

It has been determined by the Navy, in conjunction with EPA and FDEP, that land use restrictions prohibiting residential development will be required at two sites where environmental contamination may still exist at levels potentially unsafe for residential use. These sites are the Truman Annex DRMO Waste Storage Area and the Truman Annex Former Location of Building 136. Any development of these sites would require conformance with all applicable laws and regulations governing the disposal of any existing contaminated material prior to redevelopment (U.S. Navy 2000).

4.11.2 Land Use Consistency

No significant, adverse short-term or long-term internal or external land use conflicts would result from implementation of the Reuse Plan.

Implementation of the No Action Alternative assumes the Navy would maintain the Truman Waterfront property in a manner that would not generally facilitate rapid reuse. Maintenance would occur to ensure security, health, safety, and minimize physical deterioration. Implementation of this alternative would not result in internal or external land use conflicts, as the site would remain in its current undeveloped state with adjacent land uses not impacted.

Internal Land Use Consistency

Although a contiguous parcel, the proposed pattern of land uses under the plan basically splits the site into two land use components: a waterfront development and a commercial village/park mixed use development (see Figure 2-1). The primary waterfront activities would include cruise ship berthing, a ferry terminal, professional and public marinas, open and recreational space, and non-

cargo port-related activities. The commercial village/park development emphasizes the extension of Bahama Village into the Truman Waterfront property through the development of low intensity commercial retail, single-family and multiple-family dwellings, and community support structures.

Generally, proposed land uses along the waterfront would be compatible. Maritime land uses, characterized by large transport vessels and support infrastructure, would be confined to Pier 8 and the Mole Pier. These activities would be separated from recreational and educational activities along the south and east quays by non-cargo port-related land use activities. Potential land use activities for the non-cargo port area include light and medium industrial marine uses such as boat and skiff manufacture, customizing of boats, repair, dry dock, boat storage, rigging, chandlery, and other activities (City of Key West 1997a). Although the plan allows for a range of activities in the non-cargo area, development of the area at a light to moderate intensity would ensure compatibility with the recreational and educational centers to the east and the park area to the south.

The low intensity land use activities proposed for the commercial village/park development would be internally compatible and generally compatible with the waterfront development.

External Land Use Consistency

The Truman Waterfront Reuse Plan would be compatible with land uses adjacent to the Truman Waterfront. Non-intrusive recreational and open space lands would be adjacent to the Truman Annex planned unit development. The extension of the diverse character of Bahama Village into the boundaries of the site would present no external land use conflicts. The land uses and patterns of development proposed would be consistent with the Bahama Village character. At build-out, Bahama Village would extend along the northern boundary of the Navy's Truman Annex property. Although property uses would be different, no significant land use conflicts would be expected due to similar intensities of use.

The restoration of the entrance of Fort Zachary Taylor and the preservation of adjacent archeological sites would enhance land use compatibility between the Fort and site. The demolition of the buildings 795 and 284 would minimize the negative impact these structures currently have on the historic character of Fort Zachary Taylor.

4.11.3 Regulations and Plans

The Florida DCA has determined that the Chapter 288 Military Base Reuse Plan (Chapter 288 Plan; a refined version of the Base Reuse Plan) complies with Chapter 288, FS, Defense Conversion and Transition Act, and Chapter 380, FS, Development of Regional Impact. Through compliance with these statutes, the Chapter 288 Plan has been determined to be consistent with the

FCMP; Chapter 380 FS, ACSC; and Chapter 163 Part II, Local Government Comprehensive Planning and Land Development. As such, the Chapter 288 Plan has provided the guidance for updating the City of Key West Comprehensive Plan and land development regulations. Therefore, implementation of the Chapter 288 Plan would not be constrained by any state or local regulatory requirements.

Bahama Village

Implementation of the proposed action would not be expected to result in a significant conflict with future planning for Bahama Village. The 1998 Bahama Village Redevelopment Plan recognizes through its goals, objectives, and policies, the long-term importance to the community of the Truman Waterfront site. The Bahama Village Redevelopment Plan was developed in consideration of the Truman Waterfront Reuse Plan and recommends and encourages actions that would integrate Bahama Village physically and economically into the Truman Waterfront site.

The Bahama Village Redevelopment Plan, as well as the Chapter 288 Plan, recognizes the importance of Southard Street to provide two-way access to the land use activities proposed for the Truman Waterfront property. However, unlike the Bahama Village Redevelopment Plan, the Chapter 288 Plan does not recognize the directional distribution of roadway within Bahama Village to provide access to the land use activities of the Truman Waterfront property; nor does the Chapter 288 Plan recognize the Bahama Village Redevelopment Plan's expectation that all public and private transportation supporting the cruise ships docking at the Mole Pier would use Petronia and Angela streets through Bahama Village.

4.11.4 Aesthetics

Redevelopment of property, as proposed by the Reuse Plan, would generally enhance the aesthetic features of the site and provide a beneficial aesthetic impact to adjacent residential areas. The abandoned character of the site would be replaced by a system of recreational and open spaces connected by greenway belts, providing a measure of cohesion. The lack of conformity between the location and purpose of existing streets, building locations, and grassy areas would be replaced as building locations, street patterns, and opens space are designed so that each element services a specific need in the redevelopment of the site.

The proposed demolition of buildings 795 and 284 would help restore the aesthetic integrity of Fort Zachary Taylor; however, this aesthetic enhancement is limited by the continued presence of Building 261, which would remain to be modified to house a museum, artifact storage and an office. Even if the exterior of the tin fabricated building would be modified, the proximity of the building to the wall of the Fort would continue to be intrusive.

Cumulative Impacts

No significant, adverse cumulative impact would occur to land use from implementation of the Truman Waterfront Reuse Plan. The area surrounding the site is essentially built-out, and with no land use conflicts anticipated as a result of plan implementation, no future land use conflicts are foreseeable.

Other land use activities and plans in Key West, such as residential development along north and south Roosevelt streets, disposal and reuse of other Navy properties, and the Bahama Village Redevelopment Plan would not result in such a limited category of development that the combined actions would be detrimental to serving the City's land use needs.

Mitigation Measures

Because no significant, adverse land use conflicts would occur under implementation of the Reuse Plan, no mitigation measures would be necessary. However, the LRA should develop a strategy for plan implementation that is consistent with the Reuse Plan as amended to the Key West Comprehensive Plan and approved in accordance with Chapter 288. Once the property is transferred to the receiving entity(s) as adopted, land use deviation from the original plan would be subject to Chapter 163 and review under the requirements of the ACSC. The required review process for a plan deviation would impede the redevelopment process.

4.12 Transportation

4.12.1 Traffic Generation

Trip generation rates were determined using the Institute of Transportation Engineers (ITE) Trip Generation Manual, 6th Edition (1998). Vehicular trips were estimated for maximum and minimum build-out scenarios in order to capture the probable range of vehicular trips that would occur at the site as a result of the proposed action.

Determination of the number of net new vehicular trips that would be generated from redevelopment of the Truman Waterfront property requires three steps:

Step 1. The first step is to calculate the gross number of vehicular trips (two-way) for the activities expected to occur under the proposed action using trip generation rates or equations provided in the ITE Manual. Using the ITE Manual, the expected maximum number of gross vehicular trips would be 15,176 daily and 1,391 during the PM peak-hour (Table 4-1; Chapter 288 Plan). The minimum number of vehicular trips would be 9,355 daily and 767 during the PM peak-hour (Table 4-1; Kimball 2000).

Table 4-1

**CALCULATED MAXIMUM NUMBER OF DAILY AND PM PEAK-HOUR VEHICULAR TRIPS
BASED ON PROPOSED REDEVELOPMENT OF THE TRUMAN WATERFRONT PROPERTY**

Zoning/ Future Land Use	Land Use	ITE Code	Size	Gross Daily Trips	Gross PM Peak -Hour Trips	New Vehicular Trips ^b		Percent Other Mode ^c	Net Vehicular Trips ^c	
						Daily	PM Peak- Hour		Daily	PM Peak- Hour
HNC-2	Dwelling Units	220	24	278	31	278	31	16	233	27
	Office	710	29,079 ft ²	514	112	514	112	16	432	94
	Retail	814	58,158 ft ²	2,365	151	2365	151	40	1,419	90
	Social/Economic Services	730	25,000 ft ²	1,723	157	1723	157	40	1,034	94
HCL	Dwelling Units	220	13	212	26	212	26	16	178	22
	Retail	814	20,950 ft ²	852	54	852	54	40	511	33
	Office	710	15,712 ft ²	320	97	320	97	16	269	81
HPS	Dwelling Units	220	32	326	36	326	36	16	274	30
	Park	412	24.8 ac	57	1	57	1	40	34	1
	NOAA/Education Center	730	25,000 ft ²	1,723	157	(a)	(a)	40	(a)	(a)
	National Park Service	418	5.7 ac	31	2	31	2	40	18	1
	Marina	420	150 Slips	694	29	694	29	16	583	24
HRCC-4	Industrial/Office	110	66,382 ft ²	394	65	394	65	16	331	55
	Office	710	66,382 ft ²	969	154	969	154	16	814	129
	Retail	814	66,382 ft ²	2,700	172	2,700	172	40	1,620	103
	Ferry Terminal	730	20,000 ft ²	1,379	125	(b)	(b)	40	(b)	(b)
	Cruise Ship Berth	010	1 berth	172	16	(b)	(b)	40	(b)	(b)
	Professional Marina	420	30 slips	468	6	468	6	16	393	5
Totals				15,176	1,391	11,902	1093		8,143	789

Source: Chapter 288 Plan (City of Key West 1999).

Notes: Land use size numbers are from the Key West Chapter 288 Military Base Reuse Plan.
Vehicular trips calculated using ITE Trip Generation Manual, 6th Edition (see text).

- Key:
- (a) – New trips would not be generated from this land use activity, because the activity is existing.
 - (b) – The Reuse Plan expects that new vehicular trips will not be generated by these land use activities. Although, some vehicular trips will be generated by the land use activities, such as taxis, vendors, and tourist vehicles, the number of trips would be expected to be minimal and not significant in determining the overall impact of vehicular traffic.
 - (c) – Percent other mode shows the estimated percentage of trips made by bicycle, walking, moped or mass transit for each land use.
- ac = Acres
ft² = Square feet
ITE = Institute of Transportation Engineers

Table 4-2

**CALCULATED MINIMUM NUMBER OF DAILY AND PM PEAK-HOUR VEHICULAR TRIPS
BASED ON PROPOSED REDEVELOPMENT OF THE TRUMAN WATERFRONT PROPERTY**

Zoning/Future Land Use	Land Use	ITE Code	Size	Gross Daily Trips	Gross PM Peak-Hour Trips	New Vehicular Trips ^b		Percent Other Mode	Net Vehicular Trips ^c	
						Daily	PM Peak-Hour		Daily	PM Peak-Hour
HNC-2	Dwelling Units	220	10	194	24	194	24	16	163	20
	Office	710	0	0	0	0	0	16	0	0
	Retail	814	14,000 ft ²	569	36	569	36	40	342	22
	Social/Economic Services	730	25,000 ft ²	1,723	157	1,723	157	40	1,034	94
HCL	Dwelling Units	220	13	212	26	212	26	16	178	22
	Retail	814	20,950 ft ²	852	54	852	54	40	511	33
	Office	710	0	0	0	0	0	16	0	0
HPS	Dwelling Units	220	32	326	36	326	36	16	274	30
	Park	412	24.8 ac	57	1	57	1	40	34	1
	NOAA/Education Center	730	25,000 ft ²	1,723	157	(a)	(a)	40	(a)	(a)
	National Park Service	418	5.7 ac	31	2	31	2	40	18	1
	Marina	420	150 slips	694	29	694	29	16	583	24
HRCC-4	Industrial/Office	110	60,000 ft ²	346	59	346	59	16	291	49
	Office	710	0	0	0	0	0	16	0	0
	Retail	814	15,000 ft ²	610	39	610	39	40	366	23
	Ferry Terminal	730	20,000 ft ²	1,379	125	(a)	(a)	40	(a)	(a)
	Cruise Ship Berth	010	1 berth	172	16	(a)	(a)	40	(a)	(a)
	Professional Marina	420	30 slips	468	6	468	6	16	393	5
Totals				9,355	767	6,082	469		4,178	324

Source: Chapter 288 Plan, (City of Key West 1999); land use size numbers were provided by The Curtis & Kimball Company (Kimball 2000).

Note: Trip ends calculated using ITE Trip Generation Manual, 6th Edition (see text).

- Key:
- (a) – Vehicular trips would not be generated from this land use activity, because the activity is existing.
 - (b) – The Reuse Plan expects that new vehicular trips will not be generated by these land use activities. Although, some vehicular trips will be generated by the land use activities, such as taxis, vendors, and tourist vehicles, the number of trips would be expected to be minimal and not significant in determining the overall impact of vehicular traffic.
 - (c) – Percent other mode shows the estimated percentage of trips made by bicycle, walking, moped or mass transit for each land use.
- ac = Acres
ft² = Square feet
ITE = Institute of Transportation Engineers

Step 2. The second step is to avoid the double-counting of vehicular trips by taking into consideration vehicular trips being generated by current land use activities (e.g., NOAA building) at the site. To avoid double-counting, gross vehicular trips calculated above were reduced by a factor equal to the number of existing trips. Based on this reduction, the maximum number of new vehicular trips would be 11,902 daily and 1,093 during the PM peak-hour. The minimum number of vehicular trips would be 6,082 daily and 469 during the PM peak-hour vehicular trips.

Step 3. The third step is to apply vehicular trip reduction factors. The ITE Manual notes that vehicular trips should be adjusted to reflect alternative modes of transportation. Because modes of transportation other than the automobile represent a large percentage of travel in Key West (see Section 3.12.3), reduction factors of 40 % for tourist and 16 % for residential-based trips were applied to the daily trips and PM peak-hour trips calculated using the ITE manual. After application of the trip reduction factors, the maximum number vehicular trips would be 8,143 daily and 789 during the PM peak-hour. The minimum amount of trips would be 4,187 daily and 324 during the PM peak-hour vehicular trips.

The ITE Manual provides entering and exiting percentage factors for traffic by land use activities. Daily vehicular trips are split with 50 % of the trips entering and 50 % exiting the site in a 24-hour period. Therefore, it is expected that between 2,093 and 4,071 vehicular trips would enter the site during an average 24-hour period and the same number of trips would exit the site. During the PM peak-hour, the percentage of entering and exiting trips is dependent upon the type of land use activity generating the trips. It is expected that under the maximum development scenario 242 trips would enter the site and 547 trips would exit the site during the PM peak-hour. Under the minimum development scenario, it is expected that 122 trips would enter and 202 trips would exit the site.

4.12.2 Trip Distribution

Regional Roadways

The Key West Chapter 288 Military Base Reuse Plan establishes trip distribution percentages for roadways based on existing PM peak-hour turning movement counts and existing daily traffic on the streets adjacent to the Truman Waterfront area. The percentages were used to distribute vehicular trips to roadways in the project impact area. In the Chapter 288 Plan, a contingency factor of 10% was added to the net number of trips show in Table 4-1 to allow for modifications to the maximum build-out scenario without requiring the need for additional transportation analysis. Consistent with this methodology, a contingency factor of 10% was applied to the number of trips that would be expected under the minimum build-out scenario. The expected maximum and minimum numbers of new daily and PM peak-hour trips as a result of the proposed action for functionally classified roadways are shown in Table 4-2. Nearly all roadway segments listed in Table 4-3 are already operating at a LOS below what the City adopted as part of their Comprehensive Plan.

Implementation of the proposed action would contribute additional traffic to roadways already adversely affected by existing traffic.

Table 4-3					
INCREASE IN DAILY AND PM PEAK-HOUR VEHICULAR TRIPS FOR FUNCTIONALLY CLASSIFIED ROADWAYS IN KEY WEST^a					
Roadway^d	Roadway Segment	Maximum Number of New Daily and PM Peak-Hour Vehicular Trips^b		Minimum Number of New Daily and PM Peak-Hour Vehicular Trips^c	
		PM Peak-Hour	Daily Trips	PM Peak-Hour	Daily Trips
Truman Avenue	Eisenhower to White Street ^d	190	1790	76	918
	White Street to Simonton	246	2327	98	1195
	Simonton to Duval	388	3135	131	1608
	Duval to Whitehead	469	4388	185	2252
Eaton Street	White to Simonton ^d	211	2417	90	1241
	Simonton to Duval ^d	285	3224	121	1654
	Duval to Whitehead ^d	248	2597	102	1332
Palm Street	North Roosevelt to White ^d	113	1342	49	690
Duval Street	Eaton to Southard ^d	37	626	19	321
	Southard to Truman ^d	45	761	23	391
	Truman to United ^d	79	760	31	390
Whitehead	Eaton to Southard ^d	340	3583	140	1838
	Southard to Truman ^d	187	1388	69	712

- a The distribution percentages of the Chapter 288 Plan (City of Key West 1999) were established for the PM peak-hour. These distribution percentages were also used to distribute daily trips.
- b Distribution percentages were applied to the net daily and PM peak-hour trips reported in Table 4-1. Prior to trip distribution, a 10% contingency factor was added to the net trips.
- c Distribution percentages were applied to the net daily and PM peak-hour trips reported in Table 4-2. Prior to trip distribution, a 10% contingency factor was added to the net trips.
- d Functional roadways already operating below the adopted LOS during the PM peak-hour.

Local Roadways

In the Chapter 288 Plan, it is estimated that 56% of the PM peak-hour trips would enter the site via Southard Street and 44% would enter the site via Petronia Street in Bahama Village. Similarly, it is estimated that 69% of the PM peak-hour trips would exit the site from Southard Street and 31% of the trips would exit through Bahama Village at the southern end of the site. In distributing trips to the roadways in Bahama Village, as well as to Southard Street, this analysis recognizes that 56% and 69% of the entering and exiting trips, respectively, would use Southard Street and that 44% and 31% of the entering and exiting trips, respectively, would use the streets of Bahama Village. Trip distribution to the local roadway was, in part, based on existing traffic use of roadways determined as a result of the June 2000 traffic survey, as well as proposed access points for

the Truman Waterfront property (see Section 3.12.2). Table 4-4 shows existing trips and projected trips (existing plus new) to non-functionally classified roadways adjacent to the Truman Waterfront property. As shown in Table 4-4, Southard Street would be expected to experience the greatest increase in traffic volumes. Daily trips would be expected to increase by 106% to 207%, while PM peak-hour trips would be expected to increase by 113% to 281%. Daily traffic on roadways within Bahama Village would be expected to increase anywhere from 41% to 89%. The PM peak-hour traffic would be expected to increase anywhere from 26% to 79%. Figure 4-1 and Figure 4-2 show new daily and PM peak-hour trips, respectively, distributed to local roadway adjacent to the Truman Waterfront property.

As noted in Section 3, the survey location from which baseline traffic data were collected was considered to represent an average amount of existing traffic traversing the roadways listed in Table 4-4. It is expected that if traffic counts were collected from a point much closer to the Truman Waterfront property, the baseline numbers of trips would have been noticeably lower. Therefore, it is expected that for the areas closer to the Truman Waterfront property, the percentage increases in traffic by roadway would be higher than those reported in Table 4-4. Similar to the expected impact to functionally classified roadways of Key West, it is expected that implementation of the proposed action would decrease the operating LOS for the roadways identified in Table 4-4 and increase roadway travel time. However, for these local roadways, LOSs have not been established by the City to help understand and evaluate the overall impact to the operating conditions on the roads. Because there are limited options and opportunities for increasing roadway capacity in Key West (e.g., building new streets, adding additional lanes), and trip distance is relatively short, it is believed that drivers do not have a high expectation (nor a desire) for acceptable operating LOSs (LOS D or higher). Therefore, a determination of significance impact using LOS is not discussed further in this EA. However, a qualitative evaluation, based on quantitative data, was conducted to determine the potential indirect impacts that additional traffic would have on those areas adjacent to the Truman Waterfront property. Adjacent areas are considered those areas adjacent to or in proximity to the streets listed in tables 4-3 and 4-4. The evaluation focused on indirect effects of additional traffic that may potentially impact the residents or the character of the community: air, noise, safety, and aesthetic impacts.

Table 4-4
DAILY AND PM PEAK-HOUR VEHICULAR TRIPS FOR NON-FUNCTIONALLY
CLASSIFIED ROADWAYS ADJACENT TO THE TRUMAN WATERFRONT PROPERTY, KEY WEST

Roadway	Roadway Segment	Existing		Maximum Trips				Minimum Trips			
		Daily Trips ^a	PM Peak-hour	Estimated New Trips ^b		Total Trips (existing plus new)		Estimated New Trips ^b		Total Trips (existing plus new)	
				Daily Trips	PM Peak-hour	Daily Trips (%)	PM Peak-hour (%)	Daily Trips	PM Peak-hour	Daily Trips (%)	PM Peak-hour (%)
Southard Street	Whitehead to Thomas	2702	201	5598	564	8300 (207%)	765 (281%)	2873	228	5575 (106%)	429 (113%)
	Thomas to Front	c	c	5598	564	8,300	765	2873	228	5575	429
Angela Street	Whitehead to Thomas	1171	124	1030	98	2201 (88%)	222 (79%)	529	40	1700 (45%)	164 (32%)
	Thomas to Emma	c	c	1030	98	na	na	529	40	na	na
Petronia Street (westbound)	Whitehead to Thomas	703	74	627	37	1330 (89%)	111 (50%)	321	19	1024 (46%)	93 (26%)
	Thomas to Fort	c	c	1075	64	na	na	551	32	na	na
Olivia Street (eastbound)	Whitehead to Thomas	618	48	493	29	1111 (79%)	77 (60%)	252	24	870 (41%)	72 (50%)
	Thomas to Fort	c	c	671	40	na	na	344	33	na	na
Truman	Whitehead to Thomas	1320	141	1164	99	2484 (88%)	240 (70%)	598	43	1918 (45%)	184 (30%)
	Thomas to Fort	c	c	537	49	na	na	276	20	na	na

na – not applicable

(%) – percent increase in traffic from existing condition.

a Daily trips were estimated by increasing the June 2000 (Section 3.12.2) counts by 20%.

b Include entering and exiting trips.

c Traffic counts were not conducted for this segment of the roadway. It is expected that if traffic counts had been conducted, the number of recorded vehicle trips would have been lower than the number of trips recorded and shown in Table 4-4.

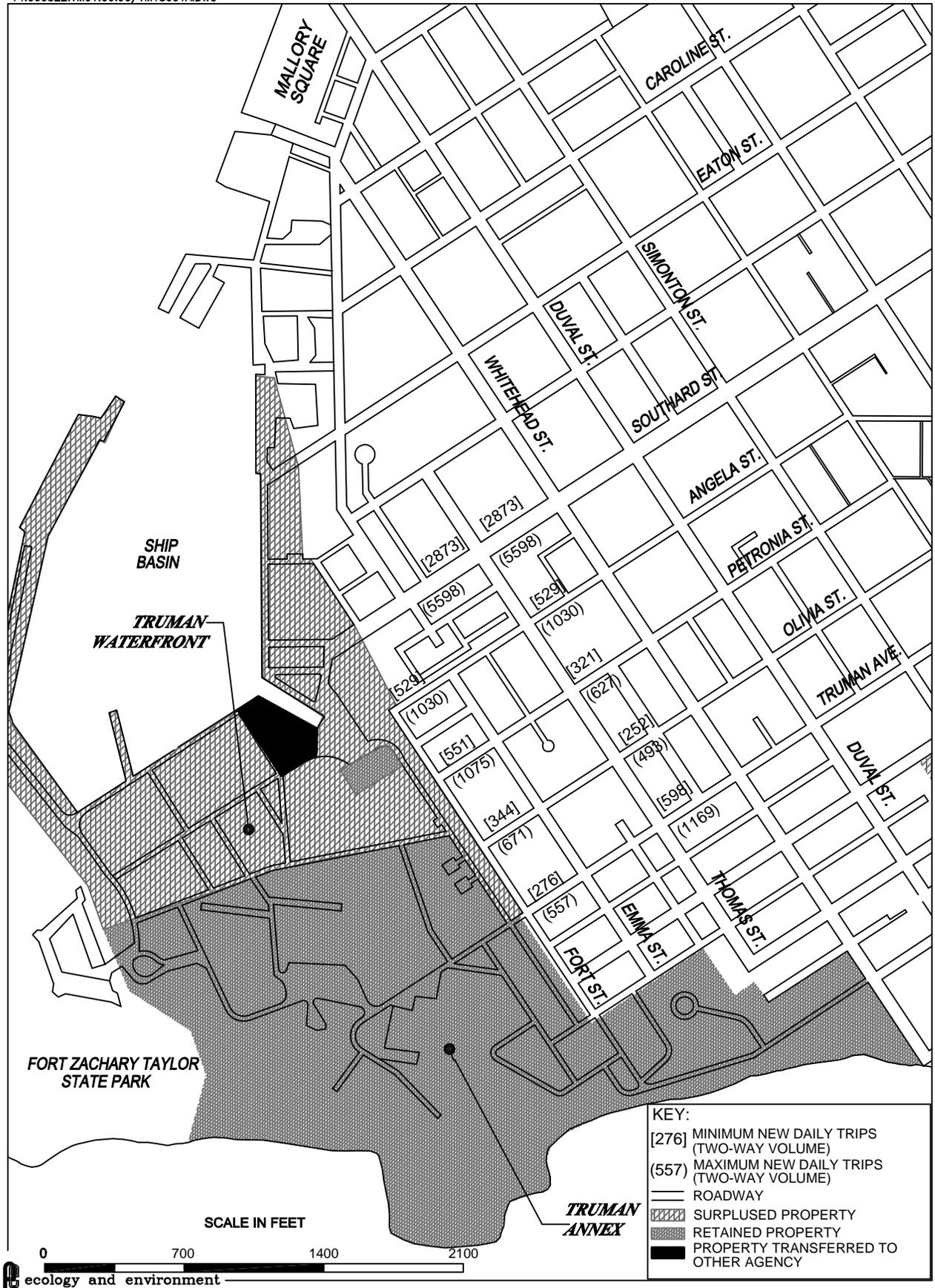


Figure 4-1 MAXIMUM AND MINIMUM TWO-WAY VOLUMES FOR NEW DAILY TRIPS FOR ROADWAY ADJACENT TO THE TRUMAN WATERFRONT PROPERTY NAS KEY WEST, FLORIDA

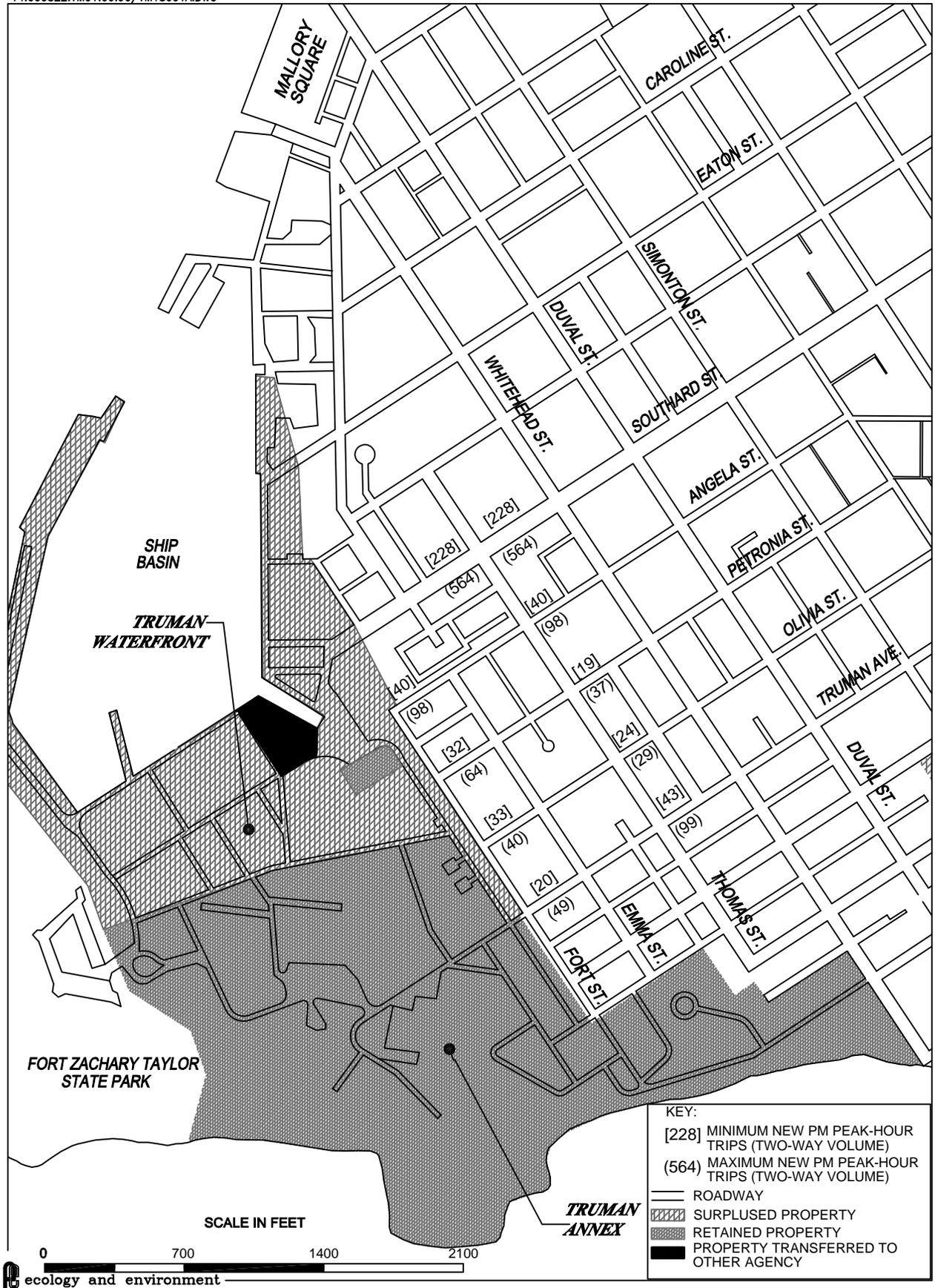


Figure 4-2 MAXIMUM AND MINIMUM NEW TWO-WAY VOLUME FOR PM PEAK-HOUR TRIPS FOR ROADWAY ADJACENT TO THE TRUMAN WATERFRONT PROPERTY NAS KEY WEST, FLORIDA

When evaluating the significance of the indirect impacts the following conditions were considered:

- Southard Street is a privately owned roadway (U.S. Navy Quitclaim Deed 1987; the Navy retained rights of ingress and egress) which runs through the Truman Annex planned unit development. The Truman Annex Development is a 46-acre (18.4-ha) development of primarily high-end, single-family, attached homes with some transient housing, and historic sites. Southard Street is approximately 24 feet (7.3 meters) wide and constructed of brick. The Truman Annex has a guardhouse situated in the middle of the Southard Street. The posted speed limit is 15 miles (24 km) per hour (and there are pedestrian crossings).
- Bahama Village is a 22-block area east of the site characterized by dense residential development, including single-family homes, blocks of multi-family homes, and public housing. Bahama Village can be considered an environmental justice sensitive community, as it is predominantly (i.e., >50%) comprised of minority and low-income populations. In Bahama Village, on-street parking is generally permitted; and where permitted, automobiles often straddle the roadway and sidewalk because of the lack of available space for complete on-street or off-street parking. The roadways of Bahama Village have various right-of-way and pavement widths. North-south roadways generally have a 50-foot (81-meter) right-of-way width with an average pavement width of 24 to 32 feet (39 to 52 meters). Major east-west roadways generally have a 30-foot (48-meter) right-of-way width with pavement widths of 14 feet (23 meters; see Figure 4-3). Most east-west roads dead-end into Fort Street.

Factors to be considered that would impact the quality of life for residents of Bahama Village and Truman Annex Development include the following:

- On Southard Street, daily trips would be expected to increase by 106% to 207% while PM peak-hour trips would be expected to increase by 113% to 281%. Daily traffic on roadways within Bahama Village would be expected to increase anywhere from 41% to 89%. PM peak-hour traffic would be expected to increase anywhere from 26% to 79%.
- As shown in Table 4-5, on Southard Street, emissions of VOCs would increase by 1.24 to 2.39 tons (1.13 to 2.17 tonnes) per year; nitrogen oxide emission would increase by 1.21 to 2.36 tons (1.1 to 2.14 tonnes) per year; and daily traffic noise levels would increase by 3.15 to 4.87 decibels (“A” weighted; [dBA]).
- As shown in Table 4-5, on the streets of Bahama Village, emissions of VOCs would increase by 0.11 to 0.57 tons (0.1 to 0.52 tonnes) per year; nitrogen oxide emission would increase by 0.11 to 0.56 tons (0.1 to 0.51 tonnes) per year; and daily traffic noise levels would increase by 1.48 to 2.77 dBA.



Facing East on Truman Avenue from West of Whitehead Street



Facing East on Petronia Street at Intersection with Fort Street

Figure 4-3 CURRENT ROADWAY CONDITIONS, BAHAMA VILLAGE, KEY WEST, FLORIDA

- As discussed in Section 3.4.3, other modes of travel are an important component in the movement of people in Bahama Village and along Southard Street. As the number of vehicular trips increase, the potential for conflicts between vehicular traffic and other modes of travel increase. Approximately 1,690 movements by other modes were recorded on Southard Street; on the residential streets of Bahama Village between 500 and 600 movements by other modes were recorded within a 12-hour period.

Table 4-5

EMISSION AND TRAFFIC NOISE INCREASES FOR MAXIMUM AND MINIMUM VEHICULAR TRIPS ALONG NON-FUNCTIONALLY CLASSIFIED ROADWAYS, KEY WEST

Roadway	Estimated POV Annual Vehicular Miles and Emission Levels (tons/year) ^a				Traffic Noise ^{b, c} dBA	
	Maximum		Minimum		Maximum	Minimum
	VOCs	NO _x	VOCs	NO _x		
Southard Street	2.39	2.36	1.24	1.21	4.87	3.15
Angela Street	0.45	0.44	0.23	0.22	2.74	1.62
Petronia Street	0.27	0.26	0.14	0.13	2.77	1.63
Olivia Street	0.27	0.26	0.11	0.11	2.55	1.48
Truman Avenue	0.57	0.56	0.26	0.25	2.75	1.62

Key:

- dBA = decibels (A-weighted)
- NO_x = nitrogen oxide
- POV = privately owned vehicle
- VOC = volatile organic compound

- Assumes a one-mile trip over the local roadway and 365 trip days per year. Emission standards used were: 1.076 grams/mile of VOCs and 1.048 grams/mile of NO_x. Sources: United States Environmental Protection Agency (EPA), 1985, *Compilation of Air Pollutant Emission Factors*, Volume II: Mobile Sources including Supplement A issued January 1991 and EPA, 1995, AP-42 *Compilation of Air Pollution Emission Factors*, Volume II: Mobile sources, Appendix H, Table 1.1.1B *Exhaust Emission Rates for Low Altitude Light Duty Gasoline Powered Vehicles at Various mileage Levels (Adjusted for Industry Average Fuel. Rates Include Tampering)*.
- The increase in traffic noise was determined using the following formula: Factor of Increased Traffic = {(Projected Increase) + (Existing Traffic Volume)}/Existing Traffic. Volume Increase in Noise Level (dBA) = 10 Log (Factor in Increased Traffic).
- When examining the results of dBA increases, it is helpful to employ the following:
 - Sound heard by the human ear is measured in units of decibels in the “A” weighted scale, expressed dBA.
 - Decibels are logarithmic units and therefore cannot be added by ordinary arithmetic means
 - Doubling the sound energy (or source) results in a 3-dBA increase of noise levels. (Example: The difference between 10 vehicles and an addition of 10 similar vehicles results in a 3-dBA increase in noise levels.)
 - Based upon the logarithmic scale, a doubling of the actual noise level is represented by an increase of 10 dBA.
 - In reality, a 3-dBA difference in noise levels is only moderately detectable by the human ear.

Although additional traffic through the streets of Bahama Village and on Southard Street may be considered by some residents as a source of interest, the aesthetic contribution of additional traffic would be expected to be largely negative.

The 1998 Bahama Village Redevelopment Plan includes four goals for the neighborhood:

1. Maintain Bahama Village as a residential community for the existing residents;
2. Improve the quality of life for Bahama Village residents;
3. Improve the economic well being of the existing residents; and
4. Preserve and build on the unique physical features of the Bahama Village community, and thus insure the survival of the diversity of community features including view; landmarks; open space; residential character; and commercial space with land uses that promote the health, safety, and welfare of the community.

As noted in Section 4.10.3, the proposed action is expected to provide economic opportunities for the residents of Bahama Village, while improving upon some of the unique physical features of the Village. In this respect, the proposed action would help attain certain goals established by the Bahama Village Redevelopment Plan. However, implementation of the Truman Waterfront Reuse Plan would also have other impacts that are contrary to other goals of the Bahama Village Redevelopment Plan. Essentially, the benefits of the Reuse Plan would come at a cost in loss of community character and indirect impacts expected from the increase in traffic. The significance of the cost versus the benefits of the proposed action for the residents of Bahama Village is subjective, and is based on each individual's perception and value for a certain quality of life and community character.

Implementation of the No Action Alternative would not impact traffic in Key West. No new vehicular trips would be generated by the No Action Alternative, but continuing and expanding Navy vessel usage of Truman Harbor would result in continued transient use of Southard and Eaton streets.

Other Modes of Travel

No significant, adverse impact to other modes of travel would be expected as a result of the proposed action. It is expected that other modes of travel (e.g., mass transit, pedestrian, bicycle, moped) would increase as the roadways become more congested and additional pedestrian and bicycle/skating paths are constructed. As all modes of travel increase, there is a greater potential for conflict.

Indirect Impacts

Implementation of the Reuse Plan would result in an indirect impact to transportation facilities within and to the residents of the Truman Annex Planned Unit Development. Implementation of the plan would be expected to result in an increase in pedestrian and bicycle, and possibly vehicular, traffic along Eaton Street within the confines of the Planned Unit Development. Besides acknowledgement in the Reuse Plan that pedestrians and bicyclists may use Easton Street for access to the Truman Waterfront, the Navy, as a holder of an access easement for vehicular and pedestrian ingress and egress along Eaton Street between Whitehead Street and the Truman Waterfront property, may be expected to use Eaton Street as an access route to Navy vessels berthed along the north part of the east quay wall in Truman Harbor. The Navy would use the north part of the east quay for berthing vessels in response to the proposed development of a commercial ferry terminal and public and private marina in the areas where the Navy currently berths its vessels.

Cumulative Impacts

The cumulative effects of the proposed action would contribute to an adverse impact to the operating conditions to the functionally classified roadways in Key West. As discussed in Section 3.12.2 and 4.12.2, most of the functionally classified roadways in the City of Key West impacted by the proposed action are already operating at LOSs below those adopted as part of the City's Comprehensive Plan. The poor operating condition of the roadways can be attributed to past development in Key West. Although implementation of the proposed action would contribute additional traffic to already adversely affected roadways, the cumulative impact would not be expected to be significant. In addition, full-utilization by the Navy of facilities at NAS Key West Truman Annex, when combined with past, present, and future actions, would not be expected to result in a significant, adverse impact to the functionally classified roadways in Key West.

The cumulative effect of the proposed action would contribute to a direct adverse impact to the operating conditions on impacted local roadways adjacent to the Truman Waterfront property. In addition, traffic generated by the proposed action is expected to contribute to an adverse, indirect impact to the character of the communities adjacent to the impacted local roadways. As discussed in Section 4.12.2, the significance of the indirect impact is subjective and based on each individual's perception and value for a certain quality of life and community character. Reasonably foreseeable future actions in the vicinity of the proposed action site would not contribute to a significant, adverse cumulative impact to the operating conditions on the local roadways or the character of the community.

The proposed action would not contribute to a significant, adverse cumulative impact to other modes of travel.

Mitigation Measures

It is not anticipated that the proposed action would require the implementation of mitigation measures.

4.13 Public Utilities

Although implementation of the Reuse Plan is expected to occur over a 10- to 15-year period, the impacts to infrastructure and utilities service were evaluated under present conditions for the following reasons. First, the 10- to 15-year timeframe is only a projection and activities may occur sooner. Secondly, there are no foreseeable infrastructure capacity building improvements that would have a significant impact on this evaluation. Finally, it is believed that evaluating the impacts to existing conditions may identify future infrastructure needs.

The proposed action would not result in significant adverse impacts on existing infrastructure systems. The additional demands on utilities generated by the proposed redevelopment would be within the existing or planned capacities of all of these systems. The effects of the proposed redevelopment on each utility system is discussed in the following subsections.

Under the No Action Alternative, use of the infrastructure and utility systems at the Truman Waterfront property would be consistent with existing use and demand would not increase beyond current levels. Therefore, no impacts to infrastructure would occur from implementation of the No Action Alternative.

Potable Water

Implementation of the proposed action would increase water consumption on the property and necessitate the extension of potable water lines to the newly constructed buildings. Implementation would not have a significant, adverse, short-term or long-term impact on FKAA's potable water system (Watson 1998).

Based on the potable water LOS standard for residential and non-residential land uses presented in Section 3-9.8 of the City's LDRs, water use for the land use components of the plan was calculated. Based on a projected occupancy of 162 people (69 units X 2.34 persons/unit) at the Truman Waterfront site, and a 93-gallon/capita/day (gcd; 352-liter/capita/day [lcd]) LOS standard, water use by residents would be approximately 15,066 gpd (57,025 lpd).

The LOS standard in the City's LDRs for non-residential land uses is 650 gallons/acre/day (984 liters/hectare/day). It was estimated that approximately 32 acres (12.8 ha) of land would be used for non-residential activities; therefore, approximately 20,800 gpd (78,728 lpd) of potable water would be used for non-residential-related activities.

Based on the proposed residential and non-residential land uses, total water consumption would be approximately 35,866 gpd (137,146 lpd) or 0.036 mgd (0.137 mld). Cruise ship consumption would be approximately 100,000 gpd (378,500 lpd). Although capacity for average and maximum daily withdrawal rates based on the FKAA's existing consumptive use permit is currently being exceeded (see Table 3-9), FKAA expects to have approval soon from the SFWMD to increase the permitted average and maximum daily well field withdrawal to 21.4 mgd (81 mld) and 26.0 mgd (98.4 mld), respectively. Additionally, FKAA is planning an approximately 5-year capacity expansion program to upgrade water treatment plant capacity to 30 mgd (113.6 mld). This will be accomplished through a series of system upgrades. It is anticipated that these future capacity increases would create the capacity to support the phased development of Truman Waterfront and meet concurrency requirements.

Sanitary Sewer

Implementation of the proposed action would increase the demand for sewage conveyance and disposal and necessitate the extension of sanitary sewer lines to the newly constructed buildings; however, this action would not have a significant, adverse, short-term or long-term impact on the City's wastewater conveyance and treatment system (Fernandez 1998).

Based on the sanitary sewer LOS standard for residential and non-residential land uses presented in Section 3-9.8 of the City's LDRs, wastewater generated by the land use components of the plan was calculated. Based on a projected occupancy of 162 people and a 100 gpd (378.5 lpd) LOS standard, wastewater generated by residents would be 16,200 gpd (61,317 lpd).

The LOS standard for non-residential land uses in the City's LDRs is 660 gal/acre/day (999 liters/hectares/day). It was estimated that approximately 32 acres (12.8 ha) of land would be used for non-residential land uses; therefore, approximately 21,120 gpd (79,939 lpd) of wastewater would be generated from non-residential land use activities.

Based on residential and non-residential land uses, total wastewater generated would be approximately 0.037 mgd (0.140 mld). Minimum available capacity upon completion of system rehabilitation would be 1.03 mgd (3.90 mld). Therefore, in the long-term, no adverse impact to the system would occur.

In the short-term, redevelopment of the Truman Waterfront site would increase wastewater flow to the treatment plant, which is already in excess of the limit permitted by FDEP. However, the physical capacity of the treatment plant would not be exceeded. The City's current effort to rehabilitate the wastewater conveyance system and eliminate inflow problems would be expected to result in a wastewater flow to the treatment plant within the limit permitted by FDEP.

The Truman Waterfront property is within Sanitary Sewer District "A," and conveyance of wastewater to the treatment plant would be through lift station "A." Lift station A has sufficient capacity to handle wastewater generated under the Reuse Plan as this lift station previously conveyed all wastewater on the island to the wastewater treatment plant (Fernandez 1998). Wet well salinity readings at the District A lift station have historically been the highest in Key West. However, since sanitary sewer rehabilitation efforts began in the District, salt water as a percentage of flow through the lift station has decreased from 53% in January 1997 to 36% through February 1998 (Fernandez 1998).

Because wastewater effluent from the treatment plant is currently at or near the State Advance Wastewater Treatment standards (Fernandez 1998), and most wastewater to be generated at the site would be from non-industrial sources (e.g., retail and domestic use), degradation of wastewater effluent from the wastewater treatment plant would not be expected.

Stormwater

No significant, adverse, short-term or long-term impact to stormwater management systems would be expected from implementation of the Reuse Plan, provided that new stormwater facilities at the site are designed and constructed to meet the requirements of Article IX (Concurrency) and Article XII (Surface Water Management) of the City's LDRs and the Environmental Resource Permit requirements as implemented by the SFWMD pursuant to Chapter 373 Part IV, FS.

Implementation of the Reuse Plan would result in new impervious surfaces and introduce potentially hazardous materials for transport as stormwater runoff. Therefore, proper treatment and containment of stormwater runoff would be essential for the protection of the surrounding OFW and the KWNMS. Potential stormwater runoff hotspots would include toxic and hazardous by-products from unspecified port-related and light industrial activities proposed for the south quay, the unspecified location of fueling facilities required for marina and ferry terminal activities, and general urban runoff from parking lots and commercial centers.

Potential off-site impacts would be primarily related to reconfiguration of the on-site system and the related impact to the Truman Annex planned unit development. Stormwater from certain portions of the planned unit development is conveyed through and discharged at outfalls in the

Truman Harbor. According to the Reuse Plan, the harbor outfalls not associated with Navy easements would be removed.

Solid Waste

Implementation of the Reuse Plan would not have a significant, adverse, short-term or long-term impact on the City's WTEF, the landfill in Okeechobee that receives the City's ash, or the City's recycling contractors (Fernandez 1998). There are two LOS standards for residential and non-residential uses presented in Section 3-9.8 of the City's LDRs for solid waste: total waste generations and WTEF facility capacity. Based on a projected residential occupancy of 108 people at Truman Waterfront and a total residential waste LOS of 2.66 pounds (lb)/capita/day (1.21 kilogram [kg]/capita/day), 287 lb/day (130 kg/day) of waste would be generated (including recyclable materials). Using the WTEF LOS standard of 2.05 lb/capita/day (0.93kg/capita/day), residential waste would be 221 lb/day (100 kg/day).

The Reuse Plan is expected to create 146 total jobs in the Key West area. The LOS standard is 6.37 lb/capita/day (2.90 kg)/capita/day for total solid waste per employee and 4.90 lb/capita/day (2.22 kg)/capita/day for WTEF. Therefore, total non-residential solid waste generated would be approximately 930 lb (422 kg) per day while WTEF solid waste capacity would be 715 lb (324 kg) per day.

Total solid waste generated would be 0.61 tons (0.55 tonnes) per day while WTEF waste would be 0.47 tons (0.43 tonnes) per day. With an available capacity at the WTEF of 43 tons (39 tonnes) per day, there is sufficient capacity at the WTEF to dispose of the 1.08 tons (0.98 tonnes) per day of additional generated waste.

Fuel

Implementation of the Reuse Plan would not have a significant, adverse, short-term or long-term impact on fuel source in Key West. Although the Reuse Plan allocates areas for a cruise ship berth, ferry terminal operations, and professional and public marinas, the plan does not address refueling methods or specify the location of fueling facilities, which are essential to ferry operations and marinas (O'Neil 1998). The City of Key West does not currently permit refueling of cruise ships in Key West, nor is it expected that cruise ships would be permitted refueling rights in the future (Hamlin 1998).

It is expected that the Navy would continue to use berthing facilities at the property, and fuel trucks would be dispatched from NAS Key West, Boca Chica to refuel military vessels at Mole Pier and all other berths covered under the Navy/City continued use agreement for the harbor.

Electricity

Implementation of the proposed action would not have a significant, adverse, short-term or long-term impact on the electric power distribution system in Key West. CES provides electricity to the site and has more than adequate capacity to provide electrical service to the site (Key West 1997a). An electrical easement(s) across the waterfront property may have to be maintained to provide electrical service to the NAS Key West Truman Annex. However, the Navy is investigating potential alternative routes to relocate their electrical lines so that they do not cross the Truman Waterfront property (Hill 2000).

Telecommunication

Implementation of the Reuse Plan would not have a significant, adverse, short-term or long-term impact on the telecommunication distribution system in Key West. A telecommunication easement(s) across the waterfront property may have to be maintained to provide service to the NAS Key West Truman Annex. However, the Navy is investigating potential alternative routes to relocate their telecommunication lines so that they do not cross the Truman Waterfront property (Hill 2000).

Fire Suppressant System

Implementation of the Reuse Plan would not be expected to have a significant, adverse, short-term or long-term impact on the existing fire suppressant system. A new fire suppressant system would be designed according to City standards (City of Key West 1997a)

Cumulative Impacts

Implementation of the Reuse Plan would not result in any short- or long-term significant, cumulative, adverse impacts to infrastructure facilities. Past actions have resulted in a nearly complete build-out of Key West and adverse impacts to the City's stormwater management system and wastewater treatment system. These systems are presently being rehabilitated to meet the demand of past, present, and future actions. Upon completion, these systems should pose no impediment to future development actions, including the proposed redevelopment of the Truman Waterfront. In addition, stormwater management facilities at the Truman Waterfront are proposed to be independent of the City's system and would be governed by the ERP authority of the SFWMD. Also, all existing and planned Navy wastewater quantities are well within current contracted limits that the City has constructed for Navy use.

With the projected amount of excess capacity in the water and solid waste systems, and no identified impact to electrical, telecommunication, and fire systems, no cumulative, adverse impact would be expected.

Although fueling facilities are not identified in the Reuse Plan, but would be expected for plan implementation, no cumulative impact to off-site fuel facilities would be expected.