

FINAL ENVIRONMENTAL ASSESSMENT

(File No. 200800886)

Applicant: Knoxville South Waterfront Development Department

Proposed Waterfront Public Improvements
Miles 647.4 – 649.1, Left Bank, Tennessee River (Fort Loudoun Reservoir)
In Knoxville, Knox County, Tennessee, U.S. Geological Survey, Knoxville, Tennessee, 7.5-Minute Series
Quadrangle Map, Latitude 35°, 57 feet 43 inches, Longitude 83°, 54 feet 17 inches

Prepared by:

U.S. ARMY CORPS OF ENGINEERS
Nashville District, Regulatory Branch
and
TENNESSEE VALLEY AUTHORITY

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Date

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CHAPTER 1.0. Proposed Activity**1.1. Background**

The U.S. Army Corps of Engineers (USACE) and the Tennessee Valley Authority (TVA) received a joint permit request from the City of Knoxville (City) to develop portions of the waterfront along the Tennessee River in Knoxville, Tennessee (Figure 1). The City worked closely with the local community and stakeholders throughout the South Waterfront (SW) Improvement Project Visioning and Design Process, and the Knoxville City Council adopted the SW Vision Plan, SW Action Plan, SW Urban Renewal and Redevelopment Plan, and the Form-Based Development Code in 2006. A series of public workshops, open houses, and community meetings were held between 2005 and 2007 to explain and formalize the plans and develop the proposed public improvement (PPI) project. The proposal plans form part of a series of Phase 1 PPI project plans.

The 20-year goal of the SW Vision Plan is to transform the south side of the downtown Tennessee riverfront with a balance of development, preservation, and enhancement. The overall plan for the project includes a riverwalk along the shoreline, several parks and other water access points, public improvements for streets, sidewalks, bikeways, parking, and private development that would add new housing units, retail and office space, and entertainment opportunities over 20 years.

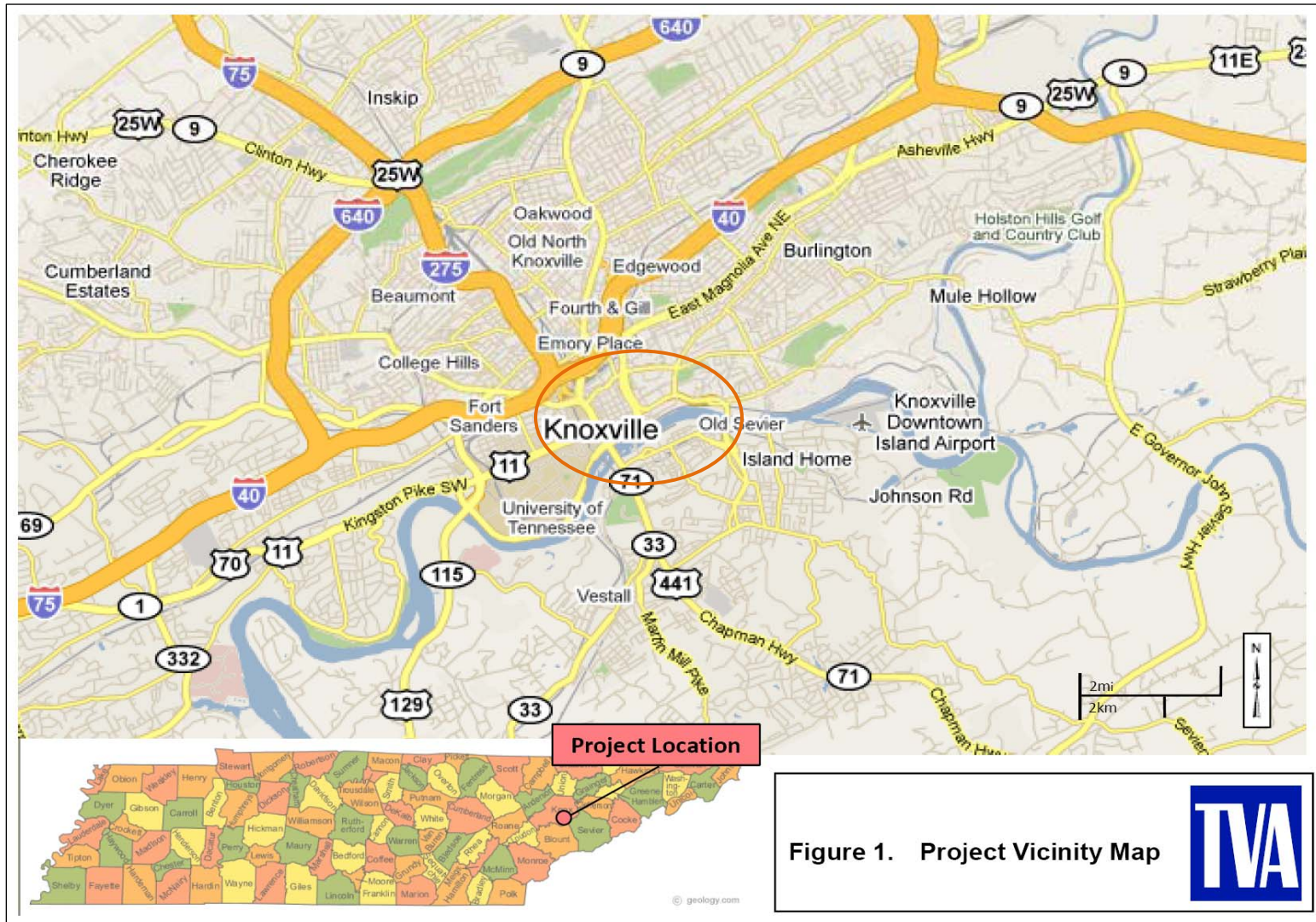
1.2. Initial Proposal

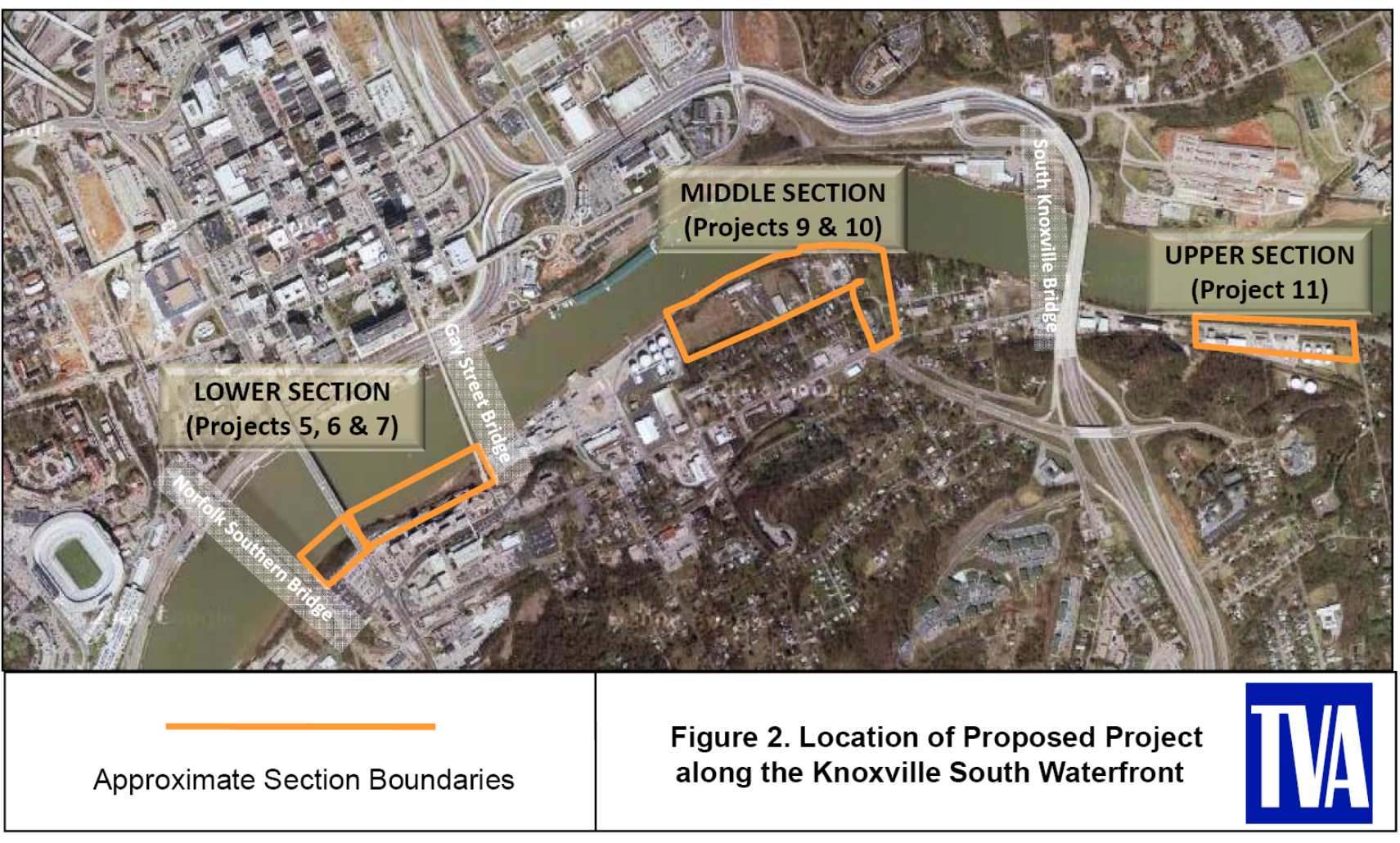
The City's Knoxville South Waterfront Development (KSWD) Department proposes a series of public improvement projects recommended in Phase 1 of the SW Action Plan. Phase 1 of the SW Action Plan involves the development of the Lower, Middle and Upper Sections of the downtown Knoxville riverfront area. For details regarding the City's plans, see Appendix A; further details of the City's riverfront plans are available at <http://www.cityofknoxville.org/southwaterfront/default.asp>.

As part of its comprehensive development process, the City submitted a joint permit application (JPA) 16 July 2008 to the USACE and TVA for a Department of the Army (DA) permit approval pursuant to Section 10 of the Rivers and Harbors Act, Section 404 of the Clean Water Act (CWA), and Section 26a of the TVA Act for proposed waterfront improvements from east of the Norfolk Southern Railroad bridge at Tennessee River Mile (TRM) 647.36 to Baker Creek at TRM 649.13 (see Figures 2 and 3). The proposed actions described in the scope of the JPA and environmental assessment (EA) are based on Phase 1 of the SW Action Plan (proposal). These proposed actions are considered in this jointly prepared EA; USACE is the lead federal agency.

Phase 1 of the SW Action Plan consists of the Lower Section, Middle Section, and Upper Section (see Figure 2) of the riverfront. Each of the three "sections" contains smaller individual "projects," and the property within these projects is divided into 14 "plan areas" (see Table 1).

- (1) Lower Section - Project 5: Henley Riverwalk; Project 6: Shoals Riverwalk; Project 7: Gay Street Stair, Plan Areas 1-5
- (2) Middle Section - Project 9: River Plain Park; Project 10: Lincoln Landing, Plan Areas 6-11
- (3) Upper Section - Project 11: Baker Creek Landing, Plan Areas 12-14





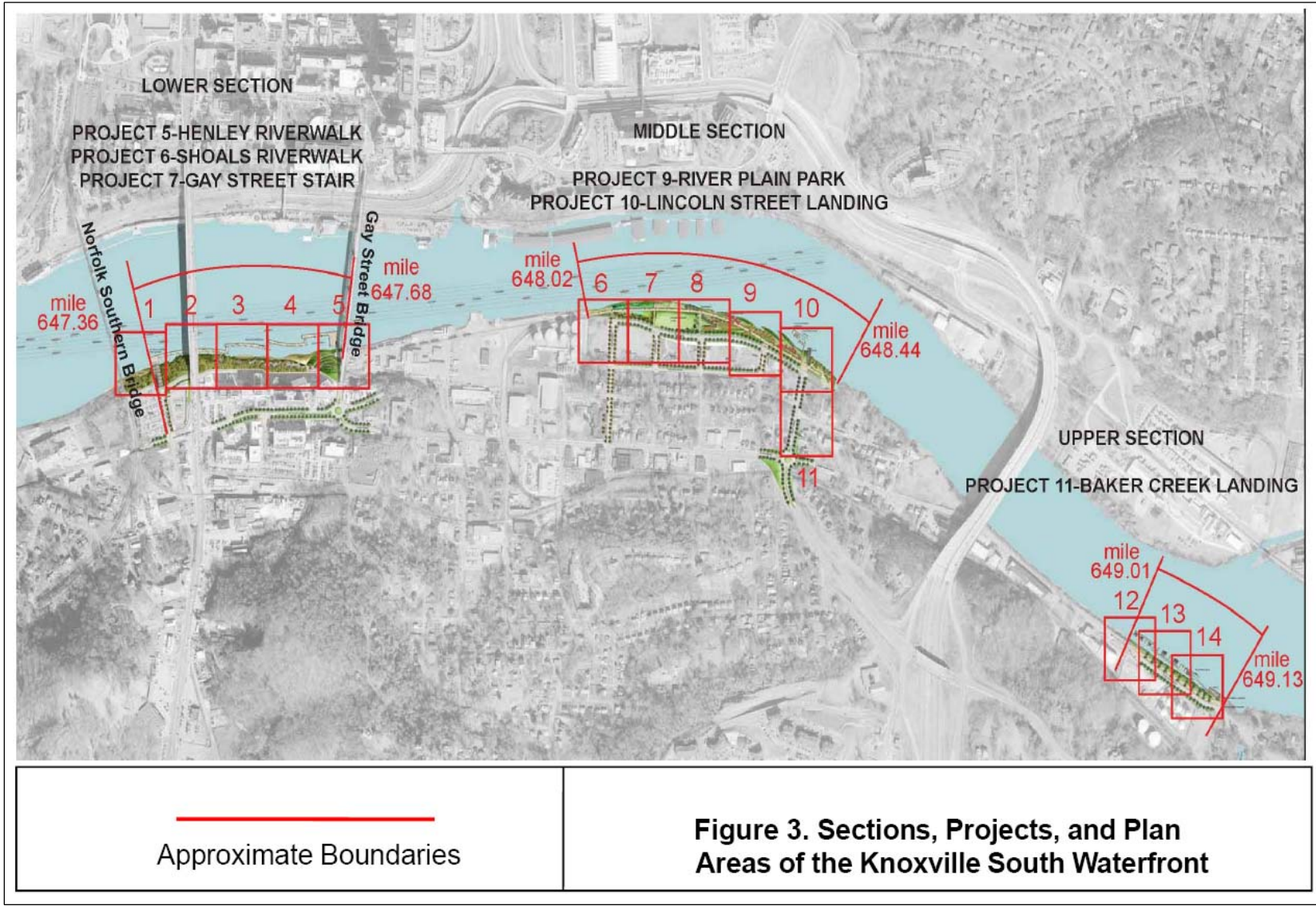


Table 1. Summary of Proposed Actions in Lower, Middle, and Upper Sections of Project Area

Section	Plan Area	Primary Actions	Associated Actions
Lower Section (TRMs 647.36-647.68) (Projects 5-7)	Plan Area 1	Excavation of the existing bank and installation of new concrete staircase, concrete landing, and timber deck.	Approximately 314 cubic yards (CY) of fill material would be placed riverward of normal summer pool (NSP) to create landing area. In addition, 462 CY of fill would be placed between the NSP and the 100-year flood elevation.
	Plan Areas 1-5	A 95-foot by 64-foot floating dock would define a kayak training area located landward of the walkway.	Approximately 635 CY of fill material would be placed riverward of the NSP shoreline, and 1,142 CY of fill would be placed between the NSP and the 100-year flood elevation.
	Plan Areas 1-5	Install four 20-foot-wide pile-supported floating walkways spanning a total length of 1,544 feet	
	Plan Areas 2-4	Remove of invasive plant species from 2.35 acres of existing riverbank east of the Henley Street Bridge.	Following removal, stabilize 930 linear feet of riverbank and revegetate with native woody plant species.
	Plan Areas 4-5	Stabilize 575 linear feet of riverbank in the vicinity of the riverside viewing area.	Grasses and native woody species would be planted along riverbank.
	Plan Area 5	Build an at-grade paved overlook in the vicinity of the Gay Street Bridge to provide a landing point for an ADA accessible gangway connecting to the floating dock.	Approximately 311 CY of fill would be placed riverward of the NSP shoreline. An additional 967 CY of fill would be placed between the NSP and the 100 year flood elevation.
Middle Section (TRMs 648.02-648.44) (Projects 9-10)	Plan Areas 6- 7	Rehabilitate/enhance approximately 0.14 acre of existing degraded wetland through creation of a 0.484-acre wetland.	The wetland would serve as a storm water retention facility capturing run-off from associated development.
	Plan Areas 6-10	Construct 1,920 feet of at-grade riverfront walkway extending from the eastern boundary of Marathon Petroleum to the proposed kayak landing north of Lincoln Street (TRM 648.02 – 648.44)	
	Plan Areas 7-10	Create a series of landforms and recreational lawn areas by regrading and stabilizing 2,354 feet of shoreline in the existing river floodplain. Area would be vegetated with native and ornamental tree species, grasses, and lawn.	A net fill of 770 CY of fill material would be placed riverward of the NSP contour, and a net cut of 308 CY of fill would be removed between the NSP contour and the proposed right-of-way.
	Plan Area 10	Construct a 115-foot by 25-foot pile-supported timber pier and an 80-foot by 30-foot concrete kayak ramp. Kayak storage would be created under the proposed pier.	106 CY of fill would be placed riverward of the NSP behind a sheet pile wall to create the kayak ramp. The ramp would provide row boat, kayak and scull lay down facilities.
	Plan Area 10	Construct a 30-foot by 120-foot pile-supported dock for transient row boat, scull and kayak docking, connected to the proposed kayak ramp by an ADA accessible gangway.	A boathouse structure would be built on the dock for single scull storage.
	Plan Area 11	Build 1,600 feet of road and sidewalk parallel to Langford Avenue and connect to Lincoln Street's north end.	Lincoln Street from Sevier Avenue north to the river would be upgraded and a parking area for 20 cars would be built.
Upper Section (TRMs 649.01-649.13) (Project 11)	Plan Area 12-14	Build 835 feet of at-grade walkway and plant native plant species on the existing riverbank (TRM 649.01 to 649.13).	Adjacent Island Home Avenue would be aligned and widened.
	Plan Area 14	Build a 20-foot by 94-foot 5-inch pile-supported timber fishing pier.	

1.3. Project Changes

In response to questions and issues raised during the public involvement process (see Section 2), revised drawings and supplementary information were submitted to the USACE and TVA by Hargreaves Associates on behalf of KSWD. The information was provided in four separate letters dated 18 November 2008, 13 and 30 January 2009, and 12 March 2009.

18 November 2008

- On Sheets 17, 23, and 30 of 53, dimensions on key plans were corrected to match the dimensions on detailed plans.
- On Sheets 35-44 of 53, dimensions were either added, revised, or both.
- Sheet S26A/404_SI_DWG 15 was created to show the floating dock at Baker Creek Landing and its location in relation to the shoreline and the channel buoy line.

13 January 2009

- The City revised cut/fill quantities.
- The City discussed with USACE alternative options to reduce cut/fill and aquatic habitat losses.
- The City revised Sheets 18, 21, 22, 24-28, and 33 of 53 to update site plans for Plan Areas 1 and 4-11.

30 January 2009

- Sheets 33 and 44 of 53 were updated to show a revised layout plan and section for Plan Area 14 eliminating the transient floating dock and replacing it with a reoriented fixed fishing pier. The proposed fishing pier design would not include mooring cleats and would neither encourage nor allow any docking, mooring, storing, or launching of boats and/or other watercraft.

For purposes of the evaluation contained in this document, the KSWD's initial request (see Section 1.2.), as modified by changes described in this section, is considered the "Applicant's Final Proposal." Revised project drawings are presented in Appendix A.

12 March 2009

A boundary delineation was conducted revealing that the initial measurements were incorrect and the actual size of the existing wetland located within the proposed River Plain Park (Project 9 and Plan Areas 6 and 7) was 0.14 acre. As mitigation, KSWD proposes to create a new wetland, 0.4835 acre in size (i.e., 3.45:1 ratio), that would function as a storm water filtration system for street and park runoff. The KSWD anticipates that the aquatic resource value of this new habitat would be considerably increased from its current degraded state.

1.3.1. Minimization of Adverse Impacts

A number of measures to reduce fill material amounts have been used in the final planning stages of the project. The project plan was revised in order to minimize impacts from the planned cut and fill activities. As a result, there would be 3,431 CY of cut and 6619 CY of fill placement in the permit area, resulting in a total net fill of 3,188 CY instead of 14,788 CY, the amount depicted in the draft EA. Further information regarding the project changes are included below.

- The proposed grade of slopes at the riverside viewing area has been increased where possible to reduce the amount of fill material in the river.
- The location of the riverfront viewing landforms has been carefully considered to ensure they do not extend into the river any further than the existing riverbanks wherever possible.
- The elevation of areas of land adjacent to the landforms has been reduced to help balance cut and fill quantities and reduce net fill in the floodplain.
- The elevation of the proposed road adjacent to River Plain Park has been lowered to reduce fill material requirements in the vicinity of the park.
- Decks at Lincoln Street and Baker Creek Landing would be installed as pile supported structures to minimize fill and promote potential for shaded aquatic habitat.

The volume of soil that would be cut along the river bank below the normal pool elevation (807 feet above msl) would be 145 CY and the volume filled would be 1769 CY. Between the normal pool elevation and the 100-year flood elevation, 3286 CY of material would be cut and 4850 CY would be filled. Fill material would be placed over 0.46 acre of existing open-water area, while 0.04 acre of existing upland areas would be converted to open-water.

Within the Lower Section (projects 5,6,7) and Upper Section (Project 11) all net fill quantities are associated with water dependent uses and qualify as repetitive actions under the TVA flood control storage loss guidelines. Within the Middle Section (Projects 9 and 10), net fill quantities would be 770 CY (0.47 acre feet) between elevation 807 feet above msl and 813 feet above msl and there would be no fill material between 807 feet above msl and 822 feet above msl. About 124 CY (0.08 acre feet) of fill within these sections are associated with the boat dock at Lincoln Landing.

1.4. Decision Required

1.4.1. U.S. Army Corps of Engineers. Under Section 10 of the Rivers and Harbors Act of 1899, alteration or obstruction of any navigable waters of the United States (NWUS) is prohibited unless authorized by the Secretary of the Army acting through the Chief of Engineers. The Tennessee River from its mouth to its head at TRM 652.1 is an NWUS as defined by 33 Code of Federal Regulations (CFR) Part 329. In addition, Section 301 of the CWA prohibits the discharge of dredged or fill material into waters of the United States (WUS) unless authorized by the DA pursuant to Section 404 of the same act. The Tennessee River in its entirety is a WUS as defined by 33 CFR Part 328. Because the proposed action is located in both an NWUS and a WUS, a DA permit under Section 10 and Section 404 is required for the work.

1.4.2. Tennessee Valley Authority. TVA holds flowage easement rights over land associated with these developments that allow TVA to flood property to elevation 822 feet above mean sea level (msl). The 100-year floodplain elevation at this location is also 822 feet above msl. Under Section 26a of the TVA Act (16 United States Code §831y-1), TVA requires that no dam, appurtenant work, or other obstructions affecting navigation, flood control, public lands, or reservations be constructed and thereafter operated or maintained across, along, or in the Tennessee River or any tributaries, unless plans for such construction, operation, and maintenance have been submitted to and approved by TVA. Because TVA has jurisdiction over the area of the PPI project as a result of its flowage easement and the location of the area within the 100-year floodplain, TVA would either issue Section 26a permit approval for the

project proposed in the City's JPA or deny Section 26a permit approval. TVA is a cooperating agency in the preparation of this EA.

1.4.3. Summary. DA permits and Section 26a permit approvals are required for the proposed work; therefore, the agencies will decide on one of the following:

- Issuance of a DA permit and Section 26a permit approval for the proposal
- Issuance of a DA permit and Section 26a permit approval with modifications or conditions
- Denial of a DA permit and Section 26a permit approval requests

1.5. Other Approvals Required

As required by the 1977 Tennessee Water Quality Control Act §69-3-101 et seq., authorization is necessary from the Tennessee Department of Environment and Conservation, Division of Water Pollution Control (TWPC), for the proposed discharges of dredged or fill material into WUS. Specifically, a water quality certification is required from TWPC in accordance with Section 401(a)(1) of the CWA. A draft 401 permit application was made available to the public for a 30-day review and comment period on 16 March 2009. The final permit was issued on 29 April 2009 and is presented in Appendix B.

1.6. Scope of Analysis

The USACE must determine the proper scope of analysis for National Environmental Policy Act (NEPA), National Historic Preservation Act (NHPA), Endangered Species Act (ESA), and any other laws related to its permit actions. Once the scope of analysis is established, USACE can address the impacts of the specific activity requiring a DA permit and those portions of the entire project over which it has sufficient control and responsibility to warrant federal review. This is generally coincidental with the definition for "Permit Area." NEPA Implementation Procedures for the USACE Regulatory Program (33 CFR Part 325, Appendix B, Paragraph 7b) list the typical factors to be considered in determining whether sufficient control and responsibility exist to warrant federal review: (a) whether the regulated activity comprises merely a link in a corridor-type project, (b) whether there are aspects of the upland facility in the immediate vicinity of the regulated activity that affect the location and configuration of the regulated activity, (c) the extent to which the entire project would be within USACE jurisdiction, and (d) the extent of cumulative federal control and responsibility. In determining whether sufficient cumulative federal involvement exists to expand the scope of federal action outside the Permit Area, the USACE should consider whether other federal agencies are required to take federal action under other environmental review laws and/or executive orders (EOs).

Once the scope of analysis is determined, the USACE must, in the appropriate NEPA analysis, analyze the alternatives to the proposed action and consider primary, secondary, and cumulative impacts (see Section 3.5). However, when analyzing secondary impacts, the strength of the relationship between those impacts and the regulated portion of the activity should be considered, i.e., whether the impacts are likely to occur even if the permit is not issued, in deciding the level of analysis and what weight to give these impacts in the decision. This analysis should consider whether another project not requiring a permit could likely occur at the site or in the vicinity and whether its impacts would be similar to impacts of the project requiring a permit.

The proposed activities consist of the construction of waterfront public improvements projects along the river to provide recreational opportunities to reservoir users and pedestrians. In light of the above discussion, USACE has determined that the scope of this analysis should be

limited to the Permit Area, which includes the shoreline and near-shoreline affected by riprap placement and the construction of water use facilities and other structures as well as the immediate upland areas directly impacted by the construction of the parking lots, roads, and passive recreational facilities. TVA concurs with this approach.

1.7. Site Inspection

A site inspection is generally performed in connection with the processing of all standard DA permit applications. Several site visits have been conducted since 2006 by both USACE and TVA regulatory and navigation staffs. The last joint inspection conducted by these offices was on 16 October 2008; Debbie Ruth (TVA) and Wayne Ligon, Bob Taphorn, Cathy Elliott, and Ruben Hernandez (USACE) participated. An inspection report of the 16 October 2008 visit with representative photographs is included in Appendix C.

CHAPTER 2.0. Public Involvement Process**2.1. General**

USACE and TVA issued a joint public notice (JPN) to advertise the proposed activities, and KSWD hosted a public open house to discuss the proposal. A draft EA was released by USACE and TVA on 1 May 2009 for public review and comment. Four written comments were received. Three commenters favored the project; one commenter opposed the project. Comments received and specific information regarding the JPN and open house are discussed below.

2.2. Public Involvement Prior to Draft EA Release

On 18 September 2008, USACE and TVA issued JPN No. 08-51 (Appendix D) to advertise the applicant's proposed activities (see Table 1). The JPN was distributed to a variety of interested parties that included federal, state, and local agencies, elected officials, private/public organizations, news agencies, commercial navigation interests, adjacent property owners, and individuals.

A public open house meeting was hosted by KSWD on 16 October 2008 to discuss the proposal at Knoxville South Elementary School; three members of the public attended. Project Manager, J. Ruben Hernandez, represented USACE, while TVA was represented by several staff members. One member of the public asked both USACE and TVA if they would require a "no-wake zone" throughout the development area. The agencies indicated that authorizations for no-wake zones start with the Tennessee Wildlife Resources Agency (TWRA), and if obtained, USACE and TVA would then have to evaluate/approve actual buoy placements and dimensions. A second question concerned the status of the 0.95-acre riverine wetland located in the vicinity of Plan Areas 6 and 7 (see Section 1.3). USACE advised that a final mitigation decision had not been made, and could not comment on the final disposition of this resource. No other relevant questions or comments were directed at the agencies.

2.2.1. Public Notice Comments

Comments on the JPN were received from the U.S. Fish and Wildlife Service (USFWS), Tennessee Historical Commission (THC), Knoxville Community Development Corporation (KCDC), Ingram Barge Company (IBC), Magnolia Marine Transport Company, and six individuals (mostly area residents). The comments have been summarized below and a copy is included in Appendix E. Where a response to a comment was warranted, one is provided to clarify the issue(s) raised.

2.2.1.1. U.S. Fish and Wildlife Service. By letter dated 24 October 2008, the USFWS commented that it did not anticipate significant adverse impacts to federally listed species or their habitats and that ESA requirements under Section 7 of the act had been fulfilled.

Response: No issues requiring a response were identified.

2.2.1.2. Tennessee Historical Commission. In a letter dated 30 September 2008; the THC concurred with USACE and TVA that in order to complete its review of the undertaking, an archaeological report of the area of potential effects (APE) will be necessary.

By letter dated 2 October 2008, THC added that the agency needed a detailed and clearly marked topographic map showing the exact location of all project activities along with a clear project narrative.

In a letter dated 30 December 2008, THC indicated that based on currently available information, its office finds that the project as currently proposed "may adversely affect"

properties eligible for listing in the National Register of Historic Places (NRHP) and requested that TVA begin consultation with its office. Response: TVA responded to the request and initiated consultation with the Tennessee State Historic Preservation Officer (TN SHPO). A programmatic agreement (PA) has been prepared in consultation with the City and the TN SHPO and will be executed to address anticipated effects on historic properties and archaeological resources (see Appendix F).

2.1.3. Knoxville Community Development Corporation. By letter dated 15 October 2008, KCDC explained that it assists KSWD in administering redevelopment powers in this area. Services provided by KCDC include acquiring real property, redevelopment planning, market site analysis, relocation planning/services, building demolition and site clearance, environmental remediation, and tax increment financing, among others. In addition, specific KSWD goals mandated by the City to be implemented by KCDC include uniting South Knoxville with downtown Knoxville, new park development on the SW, increased boat accommodations, new private development opportunities, and SW vision implementation. KCDC stated full support for the redevelopment efforts and requested that the improvements be permitted by USACE and approved by TVA. Response: Comments noted.

2.2.2. Commercial Navigation Interests.

2.2.2.1. Ingram Barge Company. In a 23 October 2008 e-mail message, Mr. Joe Vancil, manager of vessel operations, listed two concerns regarding the KSWD proposal. The first concern was the use of the term “variable distance” on Exhibits G and I of the JPN. The second issue involved the location of the structures in Project 11, which would place them very near the Tennessee River navigation channel and could possibly restrict it. In addition, IBC stated the direction of wash from commercial craft may create a safety problem. Response: Based on information obtained from KSWD, USACE e-mailed a response to IBC on 17 February 2009 clarifying that the variable distances applicable to Exhibit G (i.e., Cross Section B) and Exhibit I (Cross Section D) were approximately 18 feet and 111 feet, respectively. USACE communicated that KSWD had withdrawn its request to build the transient floating dock at Project 11 and had reoriented the fishing pier to bring it closer to the shoreline and provide greater separation from the navigation channel (see Appendix A, Sheets 33 and 44 of 53). USACE also confirmed that a potential marina shown immediately adjacent to Project 11 on the JPN plans was not part of the current request. If an application for this marina were submitted in the future, USACE and TVA would coordinate the proposal with IBC and other barge transportation companies to obtain help in assessing the potential navigation effects. In a 17 February 2009 e-mail, IBC indicated that it was satisfied with the changes.

2.2.2.2. Magnolia Marine Transport Company. In an e-mail dated 23 October 2008, Captain Lester Cruse expressed the same concerns as Mr. Vancil of IBC. Of particular interest to Captain Cruse were the transient floating dock and fishing pier at Project 11. Company tows moving southbound with up to three empty jumbo barges (measuring 297 feet long by 54 feet wide by 13 feet tall) could potentially collide with the structures. Magnolia Marine Transport Company would not object to the construction of these structures if protective cells were built around them to stop a barge before it could make contact with them. Response: These navigation safety issues are similar to those identified by IBC. See response provided to IBC's comments in Paragraph 2.2.2.1 above.

2.2.3. Adjacent Property Owners and Individuals. Two adjacent property owners and four interested individuals commented on the proposal. The four interested individuals, Messrs. Jim McAfee, Jeffrey G. Arbital, and Richard Belz Jr., and Ms. Marion L. Plemons,

expressed full support for the revitalization effort and asked that the USACE DA permit and the TVA Section 26a permit approval for the facilities be issued. One of the two adjacent property owners, Mr. W. Michael Conley, indicated support for permit issuance citing the following benefits: unity, connectivity, new park development, boating accommodations, and new private development opportunities. Mr. Ronald L. Conley, the second adjacent property owner, offered conditional support for the development because the City has not purchased or made offers for his property. He would like to receive assurance that granting of the DA permit would not place a binding limitation on the use and/or development of his property, which could include sale to others. Response: The comment is noted. In response to this comment, KSWD indicated that it understands that DA permit and TVA 26a permit approvals do not grant any property rights or exclusive privileges or authorize any injury to the property or rights of others.

2.2.4. Internal Comments. After participating in a 16 October 2008 joint boat inspection with TVA navigation staff, USACE's navigation staff contacted the IBC and Magnolia Marine Transport Company about their concerns for the location of the transient floating dock and fishing pier at Baker Creek Landing (Project 11) and the future marina just below the transient dock. USACE's navigation staff agrees that construction of structures at Project 11 could pose a potential navigation hazard. The river channel is narrow there, and the navigation channel is only about 250 feet from the left-descending shoreline. Furthermore, this project is on the outside of a bend where wash from any vessel, especially a towboat, could be a problem. Fog and bad weather could intensify already poor conditions. Finally, excessive wake and accumulation of trash and debris along the riverbank would likely be a continual problem. At the field inspection on 16 October 2008, navigation representatives from both the USACE and TVA agreed further that the docks and structures in the middle and lower sections of the PPIs would not extend an unacceptable distance into the river channel. The project plan was revised on 30 January 2009 (see Section 1.3) to accommodate the barge companies' concerns while still moving forward with the project at the upper section of Baker Creek Landing project area. TVA concurred with this approach.

2.3. Applicant's Rebuttal

On 10 November 2008, USACE sent the comments/objections that were received in response to the JPN to KSWD for resolution or rebuttal. In a letter dated 3 December 2008 (Appendix G), KSWD addressed the substantive issues raised as follows:

2.3.1. Property Ownership. Since the JPN was issued, the City has made an offer to Mr. Ronald Conley and adjacent landowners to purchase their properties.

2.3.2. Cultural Resources and Floodplain Management. To comply with these requirements, KSWD indicated that it is working with TVA to provide the necessary reports, models, plans, and supplemental information to complete necessary evaluations. Surveys for historic properties will proceed in accordance with the executed PA.

2.3.3. Navigation Issues. The City is willing to revise the location of the courtesy dock shown in Plan Areas 12-14 based on USACE/TVA suggestions. KSWD later clarified in a letter that the marina location was provided only as information and is not a part of its application request.

2.4. Supplemental Public Notice

The basic precept of the public notice process is to include sufficient information to give a clear understanding of the nature and magnitude of the proposed activity to generate meaningful comment. A supplemental notice is issued whenever there is a change in the application data

that would affect the public's review of the proposal or when the probable impacts to the aquatic environment resulting from the changes are substantially greater from those described in the original notice. The changes and/or commitments described in Section 1.3 would not increase the scope of work and are intended to address some of the issues that were identified during the public involvement project scoping phase. These changes/commitments would not result in additional project impacts. USACE believes that advertisement of the changes would not have substantially affected the public's review of the proposal. Therefore, issuance of a revised JPN for this purpose is not warranted. The environmental evaluation conducted in Section 3 of this document is based on the final proposal including all changes. TVA concurs with this approach.

2.5. Release of Draft Environmental Assessment

USACE and TVA released a draft EA on 1 May 2009 for public review and comment. The public comment period ended on 30 May 2009.

2.5.1. Draft Environmental Assessment Public Comments

Four written comments were received on the draft EA. Three commenters favored the project and one opposed the project. The commenters in favor of the project indicated that the proposed project would enhance aesthetics in the area and might instill pride in residents to beautify their properties. Response: Comment noted.

The commenter not in favor of the project expressed concern that property owners who would have to sell their SW property might not receive just compensation. Response: Commented noted. Neither the USACE nor TVA is involved in any real estate transactions in the SW area.

TVA received four telephone inquiries: three individuals requested copies of the draft EA, and one caller asked how the project would affect his property value. Response: Property values are addressed in the *economics* paragraph of Section 3.4.

2.5.2. Draft Environmental Assessment Agency Comments

In a letter dated 17 August 2009, the THC office indicated that it had received the archaeological survey report and addendum and requested more details. Additionally, THC indicated that it would withhold assessments of eligibility and effect until the PA has been ratified and executed. Response: TVA consulted with the TN SHPO during the collaborative development of the PA and sent a copy and concurrence sheet August 2010.

CHAPTER 3.0. Environmental and Public Interest Factors Considered**3.1. Introduction**

The decision whether to issue a DA permit and Section 26a permit approval would be based on an evaluation of the probable impacts, including cumulative impacts, of the proposed activity and its intended use on the public interest. All factors that may be relevant to the proposal are considered (JPN 08-51, Appendix D). The following sections describe the relevant factors identified and provide a concise description of the probable impacts of the proposed action. The baseline data discussed in this section have been obtained from information provided by the applicant, other agencies, field investigations, input to the JPN, and other sources.

3.2. Physical/Chemical Characteristics and Anticipated Changes

The relevant blocks are checked with a description of the impacts. An unchecked block denotes that no adverse effects are expected.

(x) substrate – The existing substrate consists of sand, silty clay, and fine sediment, which provide shallow-water habitat for fish spawning and feeding. The proposed activities would not include any excavation or dredging below the NSP. Discharge of fill material would result in the loss of 1,420 linear feet of shallow water habitats within the area being permitted.

(x) currents, circulation, or drainage patterns – The proposed floating docks, piers, and kayak ramps would be exposed to high flows and to debris/drift accumulation. KSWD has stated that the design of these structures was carefully considered to reduce the opportunity for debris and drift accumulation. No considerable changes in water circulation are expected as a result of the proposed activities.

(x) suspended particulates, turbidity – Filling and bank excavation operations would result in minor temporary impacts. To reduce adverse impacts to a minimum, special conditions would be added to the DA permit requiring the applicant to implement best management practices (BMPs) to control siltation and erosion. Measures such as rock check-dams and silt fences would be used during construction to reduce potential impacts to a minimum. Turbidity levels would likely return to normal after construction ceases. KSWD has indicated that, whenever practicable, excavation would be carried out during winter pool, and silt control structures would be installed prior to any soil-disturbing activities. In addition, floating silt screens extending from the water surface to the reservoir bottom would be installed prior to activities and silt control measures would be left in place until sediment has visibly settled. Temporary and minor impacts are expected.

(x) water quality (temperature, color, odor, nutrients, etc.) – Water quality on Fort Loudoun Reservoir from the dam up to the headwaters of the Tennessee River was assessed by the Tennessee Department of Environment and Conservation (TDEC) in reporting year 2006, and it classified Fort Loudoun Reservoir according to six possible uses: domestic water supply, fish and aquatic life, industrial water supply, irrigation, livestock watering and wildlife, and recreation. The reservoir supported all of its uses except recreation. Recreation was listed as impaired due to the presence of legacy polychlorinated biphenyls (PCBs) in reservoir sediment. The proposed activities do not include any dredging and the proposed actions are not expected to disturb any sediment containing PCBs.

BMPs would be used during construction to reduce these impacts to a minimum (see measures outlined in the *suspended particulates, turbidity* paragraph above), and water quality would likely return to normal condition post construction. Special conditions in the DA and Section 26a

permits would require KSWD to perform all work in a manner that would prevent violations of water quality standards. Examples of these special conditions include the employment of effective erosion and sedimentation control measures. KSWD proposes storm water retention facilities to improve the quality of runoff prior to discharge into the river. In addition, storm drainage best practices are proposed for the City's storm drains discharging into the river within the project area. Filling and bank excavation activities would have a minor temporary impact on water quality.

(x) flood control functions – The proposed project involves the construction of floating docks, decks, storage structures, ramps, staircases, walkways, bank stabilization, and other recreational amenities within the 100-year floodplain. Consistent with EO 11988 (Floodplain Management), these are considered repetitive actions. To reduce adverse impacts to a minimum, special conditions requiring the applicant to securely anchor all floating facilities to prevent them from floating free during major flood events would be added to any permit issued. With the implementation of the special conditions, floodplain impacts would be minor.

(x) storm, wave, and erosion buffers – The existing and proposed bank stabilization would serve as an erosion buffer. Motorboat use would be restricted at the proposed docks and landings by allowing only short-term, temporary use of the docks and landings. Therefore, only a minor increase in wave action is anticipated in these areas. The proposed construction of docks, boathouses, piers, ramps, and floating walkways is not expected to have a measurable effect on wave action or erosion intensity.

(x) shore erosion and accretion patterns – KSWD indicates that severe shoreline erosion has occurred in much of the area being considered. If any accretion pattern currently exists, it would not likely be affected by the proposed water use facilities or riprap placement. Throughout the project area, approximately 3,751 feet of riverbank would be stabilized, and riprap would be installed below elevation 818 feet msl to protect the riverbank from erosion. Because of the planned bank stabilization activities, impacts would be minor.

() baseflow – No adverse effects.

3.3. Biological Characteristics and Anticipated Changes

The relevant blocks are checked with a description of the impacts. An unchecked block denotes that no adverse effects are expected.

(x) special aquatic sites (wetlands, mudflats, pool and riffle areas, vegetated shallows, sanctuaries, and refuges, as defined in 40 CFR 230.40-45) – A functionally limited 0.14-acre scrub-shrub wetland area is located within the Middle Section, River Plain Park area (Project 9). The site is adjacent to the Tennessee River and was a sump on property previously used by Texaco. Dominant plant species include black willow, grasses, sedges, and rushes. Development of the park would require elimination of the wetland. To mitigate for the loss of the wetland area, KSWD proposes to create a new wetland that would function as a storm water filtration system for street and park runoff. KSWD anticipates that the aquatic resource value of this new habitat would increase from its current degraded state. The original plan was to mitigate the wetland loss by offering a 4:1 creation ratio. However, due to property size and geometry constraints, the designers were able to achieve only a 3.45:1 ratio, i.e., a 0.4835-acre wetland. After carefully considering all available design options, KSWD determined that it would not be able to further increase the size of the wetland on such a constrained site without compromising the overall design, aims, and programmatic requirements of the River Plain Park area. USACE and TVA consider the 3.45:1 mitigation ratio to be adequate given the

limited functional capacity of the existing wetlands. Therefore, with the proposed wetland mitigation, impacts to special aquatic sites would be minor and insignificant.

(x) habitat for fish and other aquatic organisms – Fort Loudoun Reservoir comprises approximately 360 miles of shoreline and about 14,600 acres of water surface. The reservoir's fish population contains common species such as bluegill, black bass, largemouth bass, smallmouth bass, striped bass, white bass, crappie, black crappie, white crappie, channel catfish, sauger, walleye, and others. Aquatic habitat in the area has been slightly to moderately disturbed by the presence of recreational and commercial activities associated with nearby barge terminals, marinas, and community docks. A number of mud/sand flats and shoals along the shoreline provide habitat and feeding and spawning areas for fish and other aquatic organisms. The construction of the kayak landings and regrading of the riverbank would impact 1,420 feet of shallow-water habitats, however, shallow-water habitat is not uncommon in this stretch of the river. Impacts would be temporary, as aquatic organisms would soon recolonize after construction is completed.

Installation of riprap along the riverbank would provide an additional 3,751 feet of potential shallow-water habitat for aquatic species. The proposed floating docks and piers would also provide additional attachment surfaces and shading for fish and aquatic organisms. The adverse impacts to aquatic life would be minor and temporary, as aquatic organisms would soon recolonize after construction is complete. Overall impacts to aquatic organisms would be insignificant as aquatic organisms would recolonize after construction is completed and would have adequate habitat for shallow-water spawning.

(x) wildlife habitat – A substantial portion of the proposed project area has been in industrial use for several decades. The surrounding area is mainly industrial and residential in nature. As a result of continued human disturbance in the area, wildlife habitat values are low. Migratory songbirds, muskrats, water snakes, great blue herons, Canada geese, and green herons are all common in the vicinity of the project area. Potential wildlife habitat impacts would be minimized by the planned installation of 3.45 acres of woody vegetation along the shoreline to provide additional wildlife habitat. Impacts to wildlife would be minor.

(x) endangered or threatened species – No federally listed or state-listed endangered or threatened species, or potential critical habitats for listed species, have been observed or are known to exist on the project site. The USACE and TVA agree that the proposal would have no effect on these species or their designated critical habitats. In a letter dated 24 October 2008, the USFWS commented that significant adverse impacts to fish and wildlife or their habitats are not anticipated; therefore the requirements of Section 7 of the ESA have been fulfilled.

(x) biological availability of possible contaminants in dredged or fill material – As previously stated, no dredging is planned for this project. No contaminants in fill material have been identified or are suspected, and the origin of new fill material would be identified and verified to be free of contaminants prior to placing at any of the project sites; therefore, no adverse effects are expected.

3.4. Human Use Characteristics and Anticipated Impacts

The relevant blocks are checked with a description of the impacts. An unchecked block denotes that no adverse effects are expected.

(x) existing and potential water supplies; water conservation – USACE's permit database indicated that there are five municipal or industrial raw water intake sites in the main stem of Fort Loudoun Reservoir. The industrial intakes are located at TRM 640.9, right bank (R), 646.9, left bank (L), and 647.8L. In addition, two City municipal intakes exist at TRMs 646.4R and 649.1R. The nearest municipal water intake in the vicinity of the proposed marina and boat landing is located slightly upstream at mile 649.1R on the opposite riverbank. Proposed fill activities would result in short-term increases in suspended particulates and turbidity, however, implementation of standard construction BMPs would to minimize water quality impacts. The proposed actions would not affect the availability of water or opportunities to reduce demand and improve efficiency; therefore, water conservation (storing, saving, reducing, or recycling water) would not be affected by the proposed action.

(x) water-related recreation – The PPIs are located along the upper reaches of Fort Loudoun Reservoir. The setting of this portion of the reservoir, which roughly extends from TRM 642 (Sequoyah Hills) to TRM 652 (just downstream of the confluence of the French Broad and Holston rivers) is mainly urban in character and generally receives light to moderate recreational boating use. Boating traffic along this section of the waterway can become heavy and sometimes congested during special events such as fireworks displays, University of Tennessee (UT) sporting events, and UT rowing regattas. During some of these events, TWRA and other organizations monitor and regulate boating activity to maintain safe conditions. Boating safety impacts are not anticipated.

Seven water-oriented public parks and one existing commercial marina are located on this segment of the reservoir. Park facilities include picnic tables and pavilions, trails and riverside walkways, fishing piers, play equipment, and boat launching ramps. Four paved boat ramps with parking for about 70 vehicles and trailers are available. The existing commercial marina provides wet slip storage for 120 boats. Other recreation-related resources in the general area include the Forks of the River Wildlife Management Area, Ijams Nature Center, and the lower sections of the French Broad and Holston rivers, both of which are included in the Nationwide Rivers Inventory.

Existing recreation activity in the vicinity of the proposed SW projects is limited. Although some informal use such as bank fishing occurs within the proposed Baker Creek Landing (Project 11), the remaining five proposed project areas are virtually inaccessible to the general public. A rowing course has been established on the water surface adjacent to the proposed Henley Riverwalk, Shoals Riverwalk, and Gay Street Stair projects. The course is used by members of the UT rowing club and other organizations.

Development of the proposed initiatives would complement other water-oriented recreation facilities in the area and provide additional opportunities for public access to the downtown Knoxville waterfront area. The proposals would provide additional water-oriented recreation opportunities, specifically, kayaking, rowing, sculling, fishing, and kayak polo. The development of water-related access facilities in the Gay Street Stair project would lead to a minor increase in nonmotorized boating activity along this stretch of the river. However, this increase would not have a measurable impact on overall boating patterns and other recreation activities in the area. Although the project would improve the water-related recreation opportunities at the downtown Knoxville waterfront area, the proposed actions are typical of many recreational developments found in the region and would not be out of character.

(x) navigation – Commercial navigation on the Fort Loudoun Reservoir section of the Tennessee River is an important component of the transportation infrastructure of the regional economy. Typically, between 500,000 and 600,000 tons of material are moved by

barge through the Knoxville area each year. In 2006, some 573,000 tons of commodities were moved by barge on Fort Loudoun Reservoir. These shipments included asphalt, salt, sand and gravel, chemicals, and scrap metal. USACE reported that 206 commercial tows passed through Fort Loudoun Lock in 2006. The use of the waterway rather than truck or rail has saved area shippers and their business partners an estimated \$5.3 million in transportation costs. Additionally, according to USACE (2010), 1,935 recreational vessels passed through Fort Loudoun Lock during 2006.

The location of the proposed project is about 40 miles upstream from Fort Loudoun Dam, and the reservoir is characteristic of a river in the vicinity of the project area. There are no barge terminals located in the immediate vicinity of the proposals and the closest barge terminal is located at the Marathon Asphalt Plant, about 1,000 feet upstream of the project area. The next closest commercial terminal is approximately 2,500 feet downstream of the Lincoln Street Landing project area. The proposed activities do not extend into the navigation channel.

If the public improvements are constructed as proposed, there would be no major impact on the navigation channel, and no new navigation aids would be required. However, in order to avoid potential navigation impacts, DA permit approval would be subject to the condition that the use of the permitted activity must not interfere with the public's right to free navigation on all NWUS.

(x) aesthetics – The proposed project area is in an urban, developed riverfront area. The proposed action would cause a short-term disruption to area aesthetics. The long-term impacts of the proposed activities would transform the riverfront area into a visually attractive public open space. Associated redevelopment of the surrounding areas that would likely occur as a result of these public improvements would add to the visual appeal of the waterfront. Although the project would improve the aesthetics of the downtown Knoxville waterfront, the proposed actions are typical of many developments found in the region and would not be out of character. Therefore, visual impacts would be insignificant.

(x) traffic/transportation patterns – As part of the proposed project, a new road would be constructed to provide access to the proposed public park and kayak landing and to future mixed use developments associated with the redevelopment of this area. Local streets leading to the recreation facilities would experience a slight increase in traffic. These access streets would be upgraded as part of the proposed project to accommodate traffic increases. On-street parking and a 20-car parking area would provide for visitors' parking needs. The proposed upgrades and parking proposals were developed in a number of traffic and transportation studies carried out as part of the initial master planning process. Although the proposed improvements would impact local traffic during construction, impacts to traffic would be temporary and minor. Once the development is complete, traffic impacts would be minor because the existing access streets would be upgraded to accommodate traffic increases.

() energy consumption or generation – No adverse effects

(x) safety –The location of proposed kayak landings and floating docks have been carefully considered to reduce potential conflicts with recreational boaters and river traffic. The floating dock between the Henley Street and Gay Street bridges would maintain a minimum distance of approximately 50 feet from the existing rowing lanes. To further avoid conflicts between boat users, motorboat usage of the floating docks and ramps would be restricted to transient use only. Floating walkways were designed to create a safe environment for all users. The width of the floating walkways would be sufficient to allow adequate space for pedestrian traffic and reduce any potential conflicts between users. As previously discussed, all floating facilities, securely anchored into existing rock using steel pipe guide piles extending to

elevation 827 feet msl, would be required as a condition of DA permit approval in order to avoid potential hazards. These piles would provide stability under normal conditions and prevent the facilities from floating free during flood conditions. Floor elevations would be a minimum of 2 feet above the NSP elevation of 813 feet msl. A safety kick rail would be installed along the length of the floating walkways, and handrails would be installed on bridges and gangways connecting the floating walkways. Safety measures such as life rings and help phones would be installed at the City's discretion. Therefore, potentially unsafe conditions that could impact general public safety have been reduced to a minimum.

(x) air quality – USACE has analyzed KSWD's project proposal for conformity applicability pursuant to regulations implementing Section 176(c) of the Clean Air Act. The improvements would not exceed *de minimis* levels of direct emissions of a criteria pollutant or its precursors and are exempted by 40 CFR §93.153. In addition, any later indirect emissions would not generally be within USACE's continuing program responsibility and cannot be practically controlled by the agency. For these reasons, a conformity determination is not required for this permit. TVA concurs.

(x) noise – Noise levels would increase slightly during project construction activities. The operational/utilization of the new waterfront area would result in minor increases above background levels due to increased recreational usage of the area. Considering the recurrent existing commercial and recreational uses within the Knoxville waterfront and present levels of marine traffic, the increased noise levels would not be out of character for this area of the reservoir.

(x) historic properties and cultural values –Two previous architectural cultural resources surveys of the SW Vision Plan areas were conducted in October 2005 (Koch 2005) and April 2008 (Joseph et al. 2008) and included four project sites; however, only one of the sites, Baker Creek Landing, is included in the scope of the project proposal. The other sites are part of the overall SW Vision Plan.

In February 2009, the University of Tennessee Archaeological Research Laboratory staff conducted a Phase 1 archaeological survey of the proposed River Plain Park and Lincoln Street Landing (Projects 9 and 10). The archaeological survey identified a multicomponent site (Site 40KN316) appearing to contain intact cultural deposits and subsurface features. The authors recommended further investigation to determine the site's NRHP eligibility. TVA agreed with the findings and recommendations that the site should be further evaluated. Architectural cultural resources investigations that have previously been conducted and the results of these investigations are presented in Appendix F.

USACE designated TVA as the lead federal agency responsible for matters pertaining to compliance of the NHPA. TVA has consulted with the TN SHPO in accordance with 36 CFR Part 800 regulations implementing Section 106 of the NHPA. TVA and the TN SHPO have determined that the proposal for which these federal and state agency permits are necessary may affect historic properties eligible for listing in the NRHP. There is potential for the presence of some archaeological resources associated with prehistoric settlements along the Tennessee River, as well as the area's Civil War heritage and its more recent industrial heritage. TVA and the TN SHPO have also determined that it is reasonably foreseeable that the proposed undertaking may have an effect upon historic properties eligible for listing in the NRHP, wherein effects may occur later in time, be farther removed in distance, or be cumulative.

As a result of these findings, TVA prepared a PA to address potential adverse effects of the proposal to historic properties and archaeological sites eligible for listing in the NRHP.

Additional field investigations are planned to coincide with later phases of the project. There are no historic properties listed within the study area, however there are a number of historic districts in the vicinity. The PA directs the City regarding the handling of historic properties, findings of human remains, discoveries after the surveys, and other considerations regarding phased compliance responsibilities. The PA would be executed to allow for phased identification and evaluation of historic properties within the APE and appropriate treatment of historic properties that are eligible for inclusion in the NRHP. The TN SHPO has concurred with this approach.

In the PA, the City, TVA, USACE, and the TN SHPO agree that the undertaking shall be implemented in accordance with the stated stipulations to satisfy participating federal agencies' responsibilities under Section 106 of the NHPA. Additionally, before any demolition or ground-disturbing activity associated with any portion of a project identified in the proposal, the City would ensure that archaeological resources surveys have been conducted to identify all archaeological historic properties that may be affected by that specific project. The complete details of the stipulations within the PA are included in Appendix F. The USACE and the City were invited signatories to the PA. Execution of the PA would minimize potential impacts to historic properties and archaeological resources.

(x) land use classification – A mix of commercial and industrial land uses exist on the properties affected by the PPIs. Following implementation of the PPIs, the land would be reclassified for public use as open space. The change in land use classification would not be significant because there are other mixed land use areas in the vicinity of the project.

(x) conservation – The functionally limited 0.14-acre scrub-shrub wetland previously mentioned in Section 3.4 serves as a conservation use. The wetland would be improved both in size and in functional quality, preserving and enhancing its place in the South Knoxville ecosystem.

(x) economics – Downtown Knoxville has seen extensive revitalization and population increases in recent years. The City has an estimated population of 185,100, as of 2009 (United States Census Bureau 2000a). The population of Knox County is estimated to be 431,072, with total personal income over \$15.6 billion in 2008 (Bureau of Economic Analysis 2010). The proposal would complement the development of the area around the south side of the waterfront, including possible developments such as residential, retail, entertainment, hotel, and office. The area directly affected by these projects involves a portion of Fort Loudoun Reservoir and an adjacent narrow strip of land, less than 2 miles in length, at the south end of downtown Knoxville. The impacts would be beneficial, but small. However, they would complement the larger plan, which includes an estimated total of \$139 million in planned public improvements. The plan anticipates that the public open space improvements would encourage private investment in the area, generating up to \$814 million in private investments (Hargreaves Associates et al. 2006).

As a result of the proposed development, more commercial and residential development could occur in and around the area, with long-term benefits from increases in tax revenues, employment, and property values. No major social or economic impacts are expected due to the potential future developments. The larger SW Vision Plan could result in displacement of some residences, either by decisions to sell prompted by higher property values or by eminent domain if necessary to accommodate other aspects of the plan.

() food and fiber production – No adverse effects

(x) general environmental concerns – This is a broad factor almost synonymous with the area's quality of life. All of the relevant issues encompassed by this heading have been evaluated in this document. Few comments/concerns were expressed during the public interest review process associated with these PPIs.

() mineral needs – No adverse effects

(x) consideration of private property – USACE regulations at 33 CFR 320.4(g) state that authorization of work by the DA does not convey any property rights, either in real estate or material, or any exclusive privileges. Furthermore, a DA permit does not authorize any injury to property or invasion of rights or any infringement of federal, state, or local laws or regulations. The same regulation also states that a riparian landowner has a general right of access to NWUS. However, this right of access is weighed through the DA public interest review process against the similar rights of access held by nearby riparian landowners and to the general public's right of navigation on the water surface. TVA has a flowage easement up to elevation 822 feet msl at this site. Consent to apply for the DA permit and Section 26a approval has been received from all landowners affected by the proposed activities.

(x) floodplain values –The 100-year floodplain on Fort Loudoun Reservoir is the land area that would be under water in a 100-year-frequency flood. The 100-year flood elevations for the Tennessee River vary from elevation 821.5 feet above msl at TRM 647.36 to elevation 822.7 feet msl at TRM 649.13. The Flood Risk Profile (FRP) elevations for the river vary from elevation 827.5 feet msl at TRM 647.36 to elevation 829.1 feet msl at TRM 649.13. All elevations are referenced to the National Geodetic Vertical Datum of 1929.

At the proposed SW project locations, the FRP elevations are the same as the 500-year flood elevations and are used to control flood-damageable development for TVA projects and on TVA lands. The City participates in the National Flood Insurance Program, and any development must be consistent with these regulations. The floodway adopted by the City is that portion of the Tennessee River channel and floodplain that must remain open and unobstructed to allow passage of floodwaters in order to prevent increases in upstream flood elevations.

The floating docks, floating walkways and boathouse, fixed fishing pier, land-based walkway, stairs, sidewalks, shoreline stabilization, and a portion of the fill would be located within the 100-year floodplain. Consistent with EO 11988, floating docks, floating walkways and boathouse, a fixed fishing pier, a land-based walkway, stairs, sidewalks, and shoreline stabilization are considered repetitive actions in the 100-year floodplain. The proposed road, playground, and parking area would be located outside the 100-year floodplain.

The fill in the 100-year floodplain would either be associated with a repetitive action, or it would be used to create a series of raised landforms to function as spectator viewing areas for river-based events and activities. KSWD has evaluated alternatives to the proposed floodplain fill and provided documentation to support a no practicable alternative determination for the fill.

The project would result in the loss of about 1.0 acre-foot of flood control storage and 1.0 acre-foot of power storage. There would be a total net fill of 1624 CY (1.0 acre feet) between elevations 807 feet above msl and 813 feet above msl within the permit area, and a total net fill of 1564 CY (0.96 acre feet) between elevations 807 feet above msl and 822 feet above msl. An acre-foot is an expression of volume equivalent to an acre of land covered by water to a depth of 1 foot. TVA believes the amount of displaced flood control storage has been minimized while achieving the objective of the PPIs. Therefore, the proposed project complies with the TVA Flood Control Storage Loss Guideline.

The proposed shoreline stabilization and a portion of the fill would also be located within the published floodway. A “No Rise” Certification for Floodway Encroachment was completed for the project on 5 December 2008. The Knoxville Department of Engineering approved the certification on 23 January 2009. Therefore, the project would comply with local floodplain regulations. The “No Rise” Certification is provided as Appendix H.

3.5. Cumulative and Secondary Impacts

The Council on Environmental Quality regulations define cumulative impact as “the environmental impact which results from the incremental impact of the action when added to other past, present, and reasonably foreseeable future actions regardless of what agency or person undertakes such other actions. Cumulative impacts can result from individually minor but collectively significant actions taking place over a period of time.” The USACE considers every DA permit application and TVA considers every Section 26a permit applicant on their own merits, and the agencies assess potential environmental impacts within the proper scope of review for NEPA compliance purposes.

There are approximately seven active barge terminals along the Knoxville urban area waterfront that extend from TRM 646.0 to TRM 652.0 and beyond, up to Mile 1.0 of the French Broad River. Several marinas, municipal parks (e.g., Scottish Pike River Park at TRM 646.4L), sports event venues (Neyland Stadium, Lindsey Nelson Stadium, Thompson-Boling Arena, etc.), and other recreational areas exist along the Knoxville waterfront. Commercial and/or community boat docks are also present: Volunteer Landing Marina at TRM 648.0R, City View at Riverwalk at TRM 647.2L (under construction), and Tennessee River Condominium Development Company community dock at TRM 646.3L. Other private and public docks nearby include Calhoun’s Restaurant (TRM 647.6R) and UT docks (TRM 647.4R and 647.3R). In addition, the UT boathouse and the former World’s Fair dock are located at TRM 647.1R. The nearest public boat ramp is located at TRM 648.7R.

Relatively few permits for marinas, community boat docks, and boat ramps have been issued in this area of Fort Loudoun Reservoir in the last 20 years. Other than future phases of the SW Vision Plan, the USACE is not aware of any additional future development along the south and north banks of the Tennessee River. TVA concurs. Any future construction of community docks, marinas, public ramps, and any other water use facility would be evaluated by the USACE and TVA for environmental and socioeconomic impacts through their respective permit review processes.

Water-related recreation cumulative impacts were considered in detail. While the PPIs currently under consideration are viable as a stand-alone project, the City’s long-range plans for the Knoxville SW include potential future phases of waterfront development over the next 20 years. The most prominent feature related to recreational boating would be a potential 225-slip marina/community dock to serve future waterfront area residents. The addition of this potential facility would add to overall recreational boating activity and density in the area. However, not all boats kept at this potential facility would be on the reservoir at the same time. Based on observations of similar facilities across the Tennessee River system, TVA assumes that only about 25 percent of stored boats are likely to be in use during a typical summer weekend day and 35 percent on a peak-use holiday weekend. Therefore, the potential marina would result in up to 56 additional boats on the reservoir during a typical weekend day during the boating season and 79 additional boats during a holiday weekend.

The SW area would be situated in a section of Fort Loudoun Reservoir that contains about 1,169 surface acres of reservoir usable for recreational boating. Public and private community boat ramps, commercial and community marinas, and private boat access facilities are also located in this same section of the reservoir. With the potential 225-slip marina, and based on

projections of the resulting recreation development and boating use estimates, it appears this section of Fort Loudoun could accommodate typical summer weekend day boating activity without exceeding generally accepted recreational boat thresholds of 6.0 to 7.6 surface acres per boat (TVA 2009). Boating density factoring in the potential 225-slip marina was computed to be 6.9 surface acres per boat on a typical summer weekend day. The spreadsheet used to compute the boating density is shown in Appendix I.

However, there is heavy recreational boat traffic in this area, especially during college football season when UT plays home football games. Additional boating traffic resulting from future boating facilities in the area could increase boating congestion and safety concerns. As a result, efforts by TWRA and others would continue in order to support safe boating during these events.

The proposed activities included in this proposal are the first foreseeable projects with landowner consent of the SW Action Plan. The projects would create new waterfront open space for both the local and wider community. Additional kayak landings and docks, bank stabilization, at-grade walkways, road improvements, and a pedestrian bridge are included in later first-phase projects. In addition, a private property owner may propose a 225-slip marina in the vicinity of the proposed Baker Creek Landing. Collectively, the projects would improve pedestrian riverfront access and water-based recreation facilities on this stretch of river. The overall 20-year improvement plan for the Knoxville SW aims to create a continuous riverfront walkway from Goose Creek to Baker Creek allowing access to water-based recreational facilities including kayak/boat docks, piers, and marinas. The proposed plans would have minor beneficial socioeconomic and environmental impacts. Watercraft traffic on this stretch of river would increase as a result of the proposal; however, careful planning during the design and public review processes of future projects would limit the conflicts between various types of watercraft traffic. Under the long-term SW Vision Plan, the character of the neighborhoods in the vicinity of Blount, Langford, Phillips, and Sevier avenues would change.

The scope of analysis for the DA permit application and Section 26a permit application is limited to the Permit Area, i.e., the shoreline and near-shoreline affected by riprap placement and the construction of water use facilities and structures (Section 1.6). In addition, the Permit Area includes the immediate upland areas directly impacted by the construction of the parking lots, roads, and passive recreational facilities. For purposes of Section 106 of the NHPA, the APE is defined separately in the *historic properties and cultural values* topic in Section 3.4.

The Permit Area impacts described in this document would result in minimal adverse cumulative impacts on areas within the NEPA scope of review. A discussion of these impacts has been presented in Section 3.0. If a decision were made to issue the required DA permit and Section 26a approval, special permit conditions would be incorporated to reduce the identified impacts to a minimum. When considering the impacts from past, present, and reasonably foreseeable future proposals, the cumulative and secondary impacts from this proposal are considered minor.

CHAPTER 4.0. Alternatives**4.1. Introduction**

This section discusses alternatives as required by USACE and TVA regulations and by NEPA. USACE requirements about consideration of alternatives are found at 33 CFR 320.4 (a)(2). The relevant environmental issues identified in Section 3.0 were used to formulate the alternatives. The alternatives considered in detail are described in Section 4.2 and their impacts are compared in Section 4.3. Other alternatives not considered in detail are discussed in Section 4.4.

4.2. Description of Alternatives

4.2.1. No Action. This alternative would result in no construction or work requiring USACE or TVA permit approvals. No Action would occur by denial of the permit/approval or withdrawal of the permit application.

4.2.2. Applicant's Proposed Action. This alternative consists of the initial proposal and project changes described in Sections 1.2 and 1.3.

4.2.3. Applicant's Proposed Action With Added Special Conditions. This alternative consists of the Applicant's Proposed Action identified in Section 4.2.2 above with the inclusion of special conditions to further minimize/mitigate unavoidable environmental impacts to the maximum extent practicable.

4.3. Comparison of Alternatives

4.3.1. No Action. The No Action Alternative would be brought about by a denial of the JPA by either the DA or TVA. The potential environmental impacts described in Section 3.0 would not occur. Conversely, the expected aesthetic and socioeconomic benefits also described in that section would not be achieved. No Action would not satisfy KSWD's stated purpose and need.

4.3.2. Applicant's Proposed Action. The proposed action described in Sections 1.2 and 1.3 would potentially have various adverse and beneficial environmental and socioeconomic effects. These potential effects have been listed in Section 3.0 above.

4.3.3. Applicant's Proposed Action With Added Special Conditions. This alternative would result in similar impacts and benefits to the alternative described in Section 4.3.2 above. Special permit conditions have been developed for incorporation into the permit (see Section 5.4). The special conditions are reasonably enforceable and would afford appropriate and practicable environmental protection. Some of the conditions are necessary to satisfy legal and public interest requirements. Conditions have been specifically added to reduce adverse impacts on navigation, water quality, and the aquatic environment.

4.4. Alternatives Not Considered in Detail

Other practicable alternatives involving different designs (size, shape, height), materials (metal, composites, etc.), or sites exist. However, the resultant degree of impact would be commensurate with the impacts of the proposed action. All of the alternative designs would require DA/TVA permits/approval and would be subject to the agencies' review processes. These alternatives might not satisfy the applicant's purpose and need.

CHAPTER 5.0. Other Considerations**5.1. Section 404(b)(1) Guidelines Determination**

5.1.1. General. The purpose of Section 404(b)(1) of the CWA is to restore and maintain the chemical, physical, and biological integrity of the WUS through the control of discharges of dredged or fill material. Controls are established through restrictions placed on the discharges in guidelines published in 40 CFR Part 230.

5.1.2. Restrictions on the Discharge. Section 230.10 of the CWA requires that the discharge meet certain restrictions in order to be authorized. The project is to be evaluated and must comply with the following restrictions: (a) there would be no other practicable alternatives to the proposal that would have less adverse impacts on the aquatic environment; (b) the discharge would not adversely impact water quality, violate state water quality standards or toxic effluent standards, or jeopardize the continued existence of a threatened or endangered species as identified under the ESA; (c) the discharge would not cause or contribute to the significant degradation of WUS; and (d) the project would be designed in such a manner as to minimize to the extent practicable the adverse impacts on the aquatic environment.

5.1.3. Factual Determination. Based on the probable impacts addressed above, compliance with the restrictions, and all other information concerning the fill materials to be used, the proposed work complies with the guidelines and the intent of Section 404(b)(1) of the CWA. A guidelines compliance checklist has been included in Appendix J.

5.2. Clean Air Act Determination

USACE has analyzed KSWD's project for conformity applicability pursuant to regulations implementing Section 176(c) of the Clean Air Act. The proposal would not exceed *de minimis* levels of direct emissions of a criteria pollutant or its precursors, which are exempted by 40 CFR Part 93.153. In addition, any later indirect emissions are generally not within USACE's continuing program responsibility and cannot be practically controlled by the agency. For these reasons, a conformity determination is not required for this permit.

5.3. Environmental Justice

EO 12898, *Federal Actions to Address Environmental Justice in Minority Populations and Low-Income Populations*, requires federal agencies to identify and address, as appropriate, disproportionately high and adverse human health or environmental effects of its programs, policies, and activities on minority and low-income populations. Through our public involvement process, we have offered government agencies, elected officials, adjacent property owners, and the public (includes, if applicable, low-income and minority populations) an opportunity to comment on matters that affect the citizenry's welfare. The Lower Section impact area west of the Henley Street Bridge (Chapman Highway) is in Census Tract 24, Block 1000. There are no residents in that block or in the immediate area. The Lower Section impact area east of the Henley Street Bridge is in Census Tract 8, Block 1029; the population in this area in 2000 was 50 persons, of which 8 percent were minorities. The Middle Section is located in Census Tract 8, Block 1001. The population of this area in 2000 was 35, of which about 26 percent were minorities; these homes are generally located south and west of the project site. The Upper Section is located in Census Tract 8, Blocks 1000 and 1007, which has no residents. Poverty data are not available for individual blocks. Census Tract 24, Block Group 1, where the Lower Section west of the Henley Street Bridge is located, had a poverty level of 35.7 percent in 1999, well above the national level of 12.4 percent, the state level of 13.5 percent, the Knox County level of 12.6 percent, and the Knoxville city level at 20.8 percent (United States Census Bureau 2000b). The population in this area is removed from

the site and would not be directly affected by the project. The remainder of the project is located in Census Tract 8, Block Group 1, which had a poverty level of 29.6 percent in 1999, somewhat higher than the city average. However, almost all of the population in these areas is somewhat removed from the affected sites and generally would not likely be directly impacted. Based on the information available to USACE and TVA, the PPIs would not displace any minority or low-income group. Therefore, these segments of the population would not be disproportionately impacted by the PPIs. Several federal, state, and local government agencies, commercial marine transportation companies, and several individuals commented on the proposal regarding matters unrelated to environmental justice. No one identifying himself/herself as being of a low-income or minority group has indicated any objection to the work. Therefore, the USACE and TVA have concluded that the proposal would satisfy the requirements of EO 12898.

5.4. Special Conditions to Minimize Adverse Impacts

Special permit conditions have been developed for incorporation into the USACE permit (see below). The special conditions are reasonably enforceable and would afford appropriate and practicable environmental protection. Some of the conditions are necessary to satisfy legal and public interest requirements. Conditions have been specifically added to minimize adverse impacts on navigation, water quality, and the aquatic environment.

- The work must be in accordance with any plans attached to this permit. *Justification: Clarify permit application.*
- You (the applicant) must have a copy of this permit available on the site and ensure all contractors are aware of its conditions and abide by them. *Justification: Recommended at 33 CFR 325, Appendix A.*
- Your use of the permitted activity must not interfere with the public's right to free navigation on all navigable waters of the United States. *Justification: Recommended at 33 CFR 325, Appendix A.*
- A preconstruction meeting must be held among representatives of the USACE Nashville District, TVA, permittee, and contractor(s) to discuss the conditions of this permit. The contractors must present their method of operation for the work at this meeting. If the method of operation includes additional work such as temporary access pads/fills, structures, etc., below elevation 813 feet msl, another permit may be required before construction begins. You should contact J. Ruben Hernandez of this office, telephone number (615) 369-7519, to arrange the required meeting. *Justification: Clarify permit application.*
- The fill created by the discharge shall be properly maintained to prevent erosion and other nonpoint sources of pollution. *Justification: Minimize impacts on water quality and the aquatic environment.*
- You would identify the origin of fill material and verify it to be free of contaminants prior to placing at any of the project sites. *Justification: Minimize impacts on water quality and the aquatic environment.*
- The disturbance to riparian vegetation shall be kept to a minimum during construction. *Justification: Minimize impacts on wildlife habitat, water quality, and the aquatic environment.*
- Siltation and erosion-control methods, including rock check-dams, entrenched silt fences, and

staked hay bales, shall be utilized and in place prior to commencement of any work. All site preparations shall be conducted in a manner that minimizes any siltation of the river. Riparian-zone vegetation disturbance shall be kept to a minimum and in the direct vicinity of the actual crossing. Trucks and equipment shall enter and depart the work area via the one access point to minimize runoff and erosion. *Justification: Minimize impacts on water quality and the aquatic environment.*

- Riprap material shall be quarry-run stone (adequate size distribution and weight) or its equivalent, i.e., clean material free of waste metal products, organic materials, unsightly debris, etc. *Justification: Minimize impacts on water quality and the aquatic environment.*
- You are required to notify this office, in writing, by completion of a "Navigation Data Sheet" at least 10 working days in advance of any work in the waterway related to the construction of the floating walkways herein approved. You must also notify the USACE if construction of the approved boathouses, floating docks, and fixed piers would require use of floating plant (barges, decks, vessels, etc.). Failure to comply with this requirement may result in revisions or delays of work schedules to allow adequate time for notification of navigation interests utilizing the waterway. *Justification: Public interest requirement (navigation safety).*
- You must install and maintain, at your expense, any safety lights and signals prescribed by the United States Coast Guard (USCG), through regulations or otherwise, on your authorized facilities. The USCG may be reached at the following address and telephone number: Commander, Eighth Coast Guard District, Attn.: Prevention Division, Hale Boggs Federal Building, 500 Poydras Street, New Orleans, LA 70130, (504) 671-2117. *Justification: Public interest requirement and recommended at 33 CFR 325, Appendix A.*
- You hereby recognize the possibility that the structures permitted herein may be subject to damage by wave wash and possible collision damage from passing vessels. The issuance of the DA permit approval does not relieve you from taking all proper steps to ensure the integrity of the structure and the safety of boats moored thereto from damage by wave wash or collisions, and you shall not hold the United States liable for any such damage. *Justification: Public interest requirement (navigation safety).*
- No boats will be moored on the outside of the floating walkways or to the Baker Creek Landing fixed fishing pier at any time. In addition, the fixed fishing pier will not be equipped with any boat cleats. *Justification: Public interest requirement (navigation safety).*
- The floor elevation of all fixed docks must be a minimum of 2 feet above normal summer pool, elevation 813 feet msl. *Justification: Public interest requirement (navigation safety).*
- All floating facilities must be securely anchored to prevent them from floating free during major floods. *Justification: Public interest requirement (navigation safety).*
- You must not install "no-wake" zones or buoys at any of the authorized facilities. *Justification: Public interest requirement (navigation safety).*
- Wetland impacts will be compensated by creating a total of 0.4835 acres (21,063 square feet) of wetlands at two locations within the River Plain Park area (Project 9). The wetlands will be monitored for five years. The monitoring plan will include vegetation, hydrology, and soils assessments. You will prepare annual reports and include adequate photographic

documentation. The monitoring report will be used to adjust the site mitigation strategy as needed to achieve the proposed results. *Justification: Public interest review (special aquatic sites) and satisfy legal requirements.*

- You must agree to protect the mitigation areas in perpetuity using the standard TDEC land use restrictions language. *Justification: Public interest review (special aquatic sites) and satisfy legal requirements.*
- To ensure that the proposed development would not adversely impact floodplains and flood control, TVA would include the following conditions in the 26a approval letter: For purposes of shoreline bank stabilization, all portions will be constructed or placed, on average, no more than 2 feet from the existing shoreline at normal summer pool elevation. *Justification: Public interest requirement (navigation safety).*
- Surveys for historic properties will proceed in accordance with the executed PA.

FOR THE COMMANDER:

Date

Forrest E. McDaniel
Chief, Eastern Regulatory Section
Regulatory Branch
Operations Division

CHAPTER 6.0. References

- Bureau of Economic Analysis. 2010. *Latest Information: Federal Recovery Programs and Bureau of Economic Analysis Statistics*. Retrieved from <<http://www.bea.gov/regional/bearfacts/action.cfm>> (accessed August 18, 2010).
- Hargreaves Associates, Chan Krieger & Associates, Kennedy, Coulter, Rushing & Watson, Development Strategies, Moffat & Nichols, Glatting Jackson, Jordan, Jones & Goulding, Studio Four Design, Arcadis G&M, Duvall & Associates. 2006. *Knoxville South Waterfront – Establishing Actions, Priorities, Roles & Responsibilities – Action Plan Draft Report*. Retrieved from <http://www.ci.knoxville.tn.us/southwaterfront/ordinances/draft_action_plan.pdf> (accessed April 30, 2009).
- Joseph, J. W., D. Price, R. J. Windham, H. B. Matternes, and B. Botwick. 2008. *Cultural Context, Archaeological Research Design and Phase I Survey Results for Cherokee Trail Connector/Spring Water Center and Baker Creek Landing, Knoxville South Waterfront Project, City of Knoxville, Knox County, Tennessee*. Submitted to the City of Knoxville by New South and Associates (Technical Report #11591).
- Koch, C. P. 2005. *Phase I Archaeological Survey of the Knoxville Glove Factory, Knoxville, Knox County, Tennessee*. Submitted to TVA by Terracon.
- McArthur, William J., Jr. 1976. "Knoxville's History: An Interpretation," pages 1-67 in *Heart of the Valley: A History of Knoxville, Tennessee*. Edited by Lucille Deaderick, East Tennessee Historical Society.
- Tennessee Valley Authority. 2009. *Boating Density Analysis - A Comparison Among Tennessee Valley Authority and Other Federal Agency, State Agency, and An Investor-Owned Utility Technical Report*, Revision 1. Prepared by Jerry Fouse, TVA, Office of Environment and Research. TVA Chattanooga Electronic Document Management System Item No. 091341510.
- United States Army Corps of Engineers. 2010. *Fort Loudoun Lock-Project Statistics*. Retrieved from <<http://www.lrn.usace.army.mil/locks/fortloudoun/statistics.htm>> (accessed January 23, 2009).
- United States Census Bureau. 2000a. *American FactFinder*. Retrieved from <<http://www.census.gov/popest/cities/SUB-EST2009-4.html>> (accessed August 18, 2010).
- . 2000b. *People & Households-Census 2000*. Retrieved from <<http://www.census.gov>> (n.d.)

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