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Reminders:

In each numbered section of the chapter, the first mention of an alternative will be in bold print. Use of slashes between alternatives (e.g., Alternatives C2/D) means the impacts of those alternatives on that resource are about equal.

- Alternative A** - Limited TVA Role Along Open Shoreline and Additional Areas
- Alternative B1** - Existing Guidelines Along Open Shoreline and Additional Areas
(No Change/No Action)
- Alternative B2** - Existing Guidelines Along Open Shoreline Only
- Alternative C1** - Managed Development Along Open Shoreline and Additional Areas
- Alternative C2** - Managed Development Along Open Shoreline Only
- Alternative D** - Minimum Disturbance Along Open Shoreline Only
- Blended Alternative** - Maintain and Gain Public Shoreline

Please see the Glossary in Chapter 5 for the meaning of unfamiliar words.

Ownership Categories on 10,995 Miles of TVA Reservoir Shoreline

- Flowage easement shoreland
- TVA-owned residential access shoreland
- TVA-owned-and-jointly-managed shoreland
- TVA-owned-and-managed shoreland

CHAPTER 2

ALTERNATIVES, INCLUDING THE PROPOSED ACTION

2.1 Introduction

This chapter describes seven alternatives that provide a reasonable range of options for future TVA management of residential shoreline permitting and development. Six of these alternatives were presented in the SMI DEIS for public review and comment. The seventh alternative was developed in response to those public comments. The alternatives provide different approaches to answer two key questions about residential shoreline development:

- Should TVA continue existing permitting guidelines or adopt new standards?
- Should TVA permitting requirements apply only where access rights currently exist or should additional shoreline be opened for access?

The preliminary sections of this chapter (Sections 2.1.1-2.1.7):

- Describe how the alternatives relate to comments provided during public scoping and public review of the DEIS;
- Discuss TVA's intent to conduct environmental resource inventories under each alternative;
- Affirm TVA's commitment to conduct environmental compliance reviews under any alternative;
- Compare how TVA requirements would be applied to flowage easement areas and TVA-owned shoreland; and
- Outline the terms and conditions of TVA's shoreline use permits.

This chapter also:

- Provides discussion of each alternative (Sections 2.2 through 2.8);
- Addresses grandfathering of existing development uses (Sections 2.1.6 and 2.8.6);
- Gives the rationale for eliminating alternatives from detailed discussion (Section 2.9);
- Summarizes key environmental and economic consequences of the alternatives (Section 2.10);
- Discusses TVA's strategy for implementing SMI (Section 2.11); and
- Explains that TVA staff now proposes to recommend the Blended Alternative to the TVA Board of Directors as the preferred policy option (Section 2.12).

TVA's ability to effectively implement the actions described in these alternatives is subject to the availability of sufficient funds.

2.1.1 Linkage to Public Scoping

As explained in Chapter 1, public scoping identified several issues that TVA needed to address. Key elements of the original six alternatives were developed in response to these issues.

During public scoping, comments were received about how much TVA should influence the type and intensity of future residential shoreline development. Therefore, the alternatives provide a range of standards for vegetation management, dock sizes, and other shoreline alterations. This allowed TVA to examine how various levels of site disturbance impact environmental and socioeconomic issues.

Some respondents also stated during scoping that TVA should be more lenient in permitting shoreline structures, such as retaining walls, and in allowing removal of shoreline vegetation. These views are reflected in **Alternative A**. Other participants called for TVA to continue existing permitting requirements, as provided for in **Alternative B1** and **Alternative B2**. Still others suggested that TVA set standards for construction and maintenance of shoreline facilities and preserve vegetation along the shoreline. These suggestions are reflected in **Alternative C1** and **Alternative C2**. Other participants called for TVA to set standards that minimize shoreline disturbance, as characterized in **Alternative D**. Participants also suggested implementation of educational programs to inform lakefront property owners about environmental issues associated with shoreline development. Provisions for such programs are included in Alternatives C1, C2, and D.

Public scoping also identified a wide range of views about whether TVA should make additional areas available for residential access. Some respondents stated that the shoreline is already overdeveloped and that TVA should not make any more land available for shoreline access. Under Alternatives B2, C2, and D, TVA would consider permit requests for residential shoreline alterations only within the existing TVA-owned residential access shoreland and flowage easement shoreland. As explained in Sections 1.4.5 and 3.4, the amount of shoreline in these categories varies from reservoir to reservoir. From a regional perspective, this approach would limit future residential shoreline permit reviews to 38 percent of the shoreline Valleywide.

Some people asked TVA to open additional shoreland areas for development. Under Alternatives A, B1, and C1, TVA would consider making additional residential access available along portions of undeveloped shorelands. Some of these lands are presently managed to provide multiple public benefits, including natural resource management, resource protection, public recreation, commercial recreation development, and economic development. Under Alternatives A and B1, a case-by-case approach would be used to decide which additional areas would be made available for residential access. Under Alternative C1, these decisions would be made as management plans are prepared or updated for each reservoir.

2.1.2 Linkage to Public Review of the DEIS

After the environmental and socioeconomic impacts of the original six alternatives had been evaluated, TVA initially preferred **Alternative C1**, since it provides a balance between conservation and development needs. For example, this alternative includes environmental protection standards such as a 100-foot-deep shoreline management zone (SMZ), and it also provides for additional development, which could result in development of up to 48 percent of the shoreline.

In the summer and fall of 1996, TVA held 16 public meetings and accepted comments to obtain feedback about the alternatives and other issues examined in the DEIS. The agency received and responded to thousands of comments and suggestions, which are documented and responded to in Volume II of this FEIS.

Throughout the SMI DEIS public comment period, it became increasingly clear to TVA that there were a number of opportunities to improve on the alternatives under consideration and more closely reflect the concerns expressed by the public. Even though TVA initially preferred Alternative C1, public reaction to the level of development and some of the standards caused the agency to rethink the proposed recommendation. Participants' comments reinforced the concept that some features of the original alternatives could be modified and packaged into a more workable approach. The *Blended Alternative* is just what the name suggests: a composite or hybrid of the six different alternatives proposed in the DEIS.

The **Blended Alternative** responds to public concerns about specific standards, resource conservation needs, and public land use issues. Standards proposed under the Blended Alternative were developed by merging and modifying concepts included in **Alternatives B1, B2, C1, C2, and D**. Some of the key elements of the Blended Alternative include:

- Adoption of a "maintain-and-gain" public shoreline policy that would achieve results similar to "no-net-loss" resource conservation programs administered by other agencies.
- Continued emphasis on resource conservation and public recreation.
- Grandfathering of established lawns and other uses.
- Use of education and incentives to promote shoreline stewardship.
- Modification of dock, erosion control, vegetation management, and other standards to increase flexibility in accommodating shoreline development needs, while ensuring conservation of natural and cultural resources. Specifically, the more flexible standards would:
 - Use a modified vegetation management approach that incorporates some features of existing vegetation guidelines. Tree-cutting practices from TVA's existing guidelines (Alternatives B1 and B2) would be combined with a more flexible shoreline management

zone (SMZ) that would be narrower (25 feet deep) than the 100-foot-deep SMZ called for under the Alternative C1/C2 proposal. Clearing of plants like poison ivy would be allowed within the 25-foot-deep zone and elsewhere on TVA land. This is in contrast to Alternatives C1, C2, and D, which would not allow vegetation disturbance in the SMZ (except for clearing the access corridor).

- Offer permit applicants choices for stabilizing erosion. Riprap, biostabilization, gabions, or a combination of these and other techniques would be allowed. TVA would further demonstrate the benefits of various biostabilization techniques, instead of requiring that biostabilization be used as the preferred erosion control method (as proposed in Alternatives C1, C2, and D).
- Include water-use facilities standards that are important to people, while allowing flexibility for permit applicants. The modified dock standards would respond to issues related to footprint size (e.g., the access walkway would not be included in calculating the 1,000-square-foot footprint). Exterior siding would be allowed on boat slips in response to security and visual concerns.

2.1.3 Shoreline Inventory

As further explained in Section 2.11, TVA plans to complete an ongoing shoreline inventory to identify endangered and threatened species populations, wetlands, and cultural resources along areas where residential shoreline development is anticipated, regardless of which alternative is selected. This inventory will aid in making permit decisions and in determining when environmental mitigation or protection measures are needed.

2.1.4 Environmental Compliance Reviews

Regardless of which alternative is selected, TVA will continue to examine the environmental impacts of each proposed permitting action to ensure compliance with applicable requirements of environmental laws and Section 26a of the TVA Act. TVA would deny permit requests and/or impose special terms and conditions whenever necessary to mitigate or avoid unacceptable site-specific environmental impacts associated with individual permit requests.

2.1.5 Flowage Easement and TVA-Owned Residential Access Shoreland

Flowage easement areas are privately owned shorelands subject to TVA's Section 26a permitting requirements and landrights acquired by TVA primarily for flood control purposes (Section 1.4.5). Residential shoreline development occurs along these shorelines and on TVA-owned shoreline with outstanding residential access rights.

In the following descriptions of the alternatives, any applicable management standards for water-use facilities, such as size requirements for docks, would be required and implemented through TVA's Section 26a permitting process along both flowage easement and TVA-owned residential access shoreland. Standards for channel excavation, vegetation management, docks, and other land-based structures would be required on TVA-owned residential access shoreland. TVA would encourage owners of flowage easement areas to abide by these channel excavation and land-based standards.

2.1.6 Grandfathering of Existing Residential Facilities and Uses

In response to public questions and comments about grandfathering of existing docks and other residential shoreline uses, an entire section of the **Blended Alternative** addresses grandfathering issues. For more information, please refer to Section 2.8.6. These provisions are detailed in the Blended Alternative, and they are incorporated by reference in other alternatives.

2.1.7 **Shoreline Use Permits (Section 26a/Land Use Permits)**

Once TVA determines a proposed shoreline alteration is acceptable, TVA issues a Section 26a/Land Use permit, which:

- Defines the terms and conditions for access across TVA property (where applicable) and use of the shoreline.
- Identifies how the standards would be enforced.
- Includes special conditions to ensure use of best management practices in the construction of permitted facilities.

TVA terms and conditions for permissible proposed shoreline alterations must be accepted by the applicant before a permit is valid. Permits typically remain in effect unless there is an unresolvable violation of the permit requirements. When lakefront lots with permits for shoreline alterations are sold, the permit is reissued in the name of the new owner.

2.2 **Alternative A: Limited TVA Role Along Open Shoreline¹ and Additional Areas**

Under **Alternative A**, TVA would consider Section 26a permit applications for residential shoreline alterations in open shoreline areas presently designated by TVA for residential access (i.e., TVA-owned residential access shorelands and flowage easement areas, which affect 38 percent of the shoreline Valleywide). The agency would also accept permit applications along additional shorelines not currently designated for residential access.

TVA would review applications primarily to ensure compliance with the requirements of the TVA Act and other federal legislation and executive orders. The focus of the review would be to identify adverse impacts to navigation, flood control, public lands and reservations, power generation, wetlands, endangered and threatened species, and cultural resources.

Requests within open shoreline areas would generally be approved unless the proposed activity would block a navigation channel, result in construction of a habitable structure in the floodplain, or harm endangered and threatened species. Plan modifications or other mitigation measures would be required to avoid or minimize impacts to wetlands or cultural resources.

There would generally be no predefined standards for clearing of vegetation; channel excavation; size of docks, piers, or boathouses; or land-based structures. Specific mitigation requirements would be defined as necessary based upon review of individual proposals. The applicant's preference would normally determine the size, type, and appearance of structures. Use of bank stabilization methods (retaining walls, riprap, biostabilization, etc.) also would depend largely upon the applicant's preference. Commercially manufactured foam would be required for flotation.

Property owners would be informed of TVA requirements through personal communications, and there would be no focused educational efforts. There also would be no incentive programs such as the ones described in **Alternatives C1, C2, D**, and the **Blended Alternative**.

Applications in additional areas where residential access rights do not presently exist would be evaluated on a case-by-case basis. Decisions to allow or deny residential access and the associated permit would be made case by case, depending on the relative merits and impacts of each request.

Applicable grandfathering provisions from Section 2.8.6 would be adopted if this alternative is selected.

¹ Open shoreline areas where access rights now exist; this includes developed (13 percent of shoreline Valleywide) and undeveloped (25 percent of shoreline Valleywide) flowage easement and TVA-owned residential access shoreland.

2.3 Alternative B1: Existing Guidelines Along Open Shoreline and Additional Areas (No Change/No Action)

Under **Alternative B1**, TVA would continue to make case-by-case decisions about whether additional shoreland should be made available for residential access. TVA would continue to apply existing guidelines in reviewing permit requests for shoreline alterations along open shorelines presently designated for residential access. The practices described in these guidelines have evolved over the past 10 years as TVA has expanded from a compliance-oriented focus to embrace a greater stewardship role. Key elements of these practices are summarized below. Refer to Appendix A for a detailed description.

Access Across TVA-Owned Residential Access Shoreland

- TVA encourages adjacent property owners to limit access paths and walkways across TVA-owned residential access shoreland to 6 feet in width.

Vegetation Management

- TVA limits the amount and type of vegetation clearing that is allowed within TVA-owned residential access shoreland, in recognition of wildlife, aesthetic, and water quality benefits provided by vegetated shorelines.
- Existing practices do not require defined SMZs, but clearing of trees or other vegetation over 3 inches in diameter at ground level is normally not allowed on TVA-owned residential access shoreland.

Docks and Other Facilities

A wide range of water- and land-based development is possible under existing guidelines, including construction of docks, piers, boatslips, boathouses, land-based boat shelters, utilities, terraces, patios, boat-launching ramps, and riprap.

- There are square-footage size limits for some individual facilities such as docks (400 square feet of platform area, excluding access walkway) and boatslips (700 square feet of water surface in the boat wells), but TVA does not specify a maximum amount of land/water surface area that can be disturbed per lot.
- The length of docks is based on site conditions but may not exceed 150 feet or more than one-third the distance from the bank at the normal summer pool level to the opposite shore. Under existing practices, size limits may be waived as deemed appropriate by TVA on a case-by-case basis.
- Floating facilities must have commercially manufactured flotation devices.

Channel Excavation

- Channel excavation is minimized wherever possible, but there are no defined parameters for acceptable channel excavation activities.

Community Facilities

- TVA encourages construction of community facilities in small coves where there is insufficient shoreline to accommodate individual docks for each property owner who has access rights.

Bank Stabilization

- Riprap is generally preferred over retaining walls to control shoreline erosion. When retaining walls are permitted, they cannot extend more than 2 horizontal feet lakeward of the normal summer pool elevation.

Education

- TVA distributes brochures to lakefront property owners explaining how to apply for permits. TVA also makes presentations to property owners' associations and other interested groups about shoreline permitting practices. In addition, TVA displays exhibits at events that attract groups interested in shoreline management.

Grandfathering of Preexisting Development

Applicable grandfathering provisions from Section 2.8.6 would be adopted if this alternative is selected.

2.4 Alternative B2: Existing Guidelines Along Open Shoreline Only

Alternative B2 is the same as **Alternative B1**, except that consideration of applications for residential shoreline alterations would be limited to open shorelines presently designated for access (i.e., 38 percent of the shoreline Valleywide). Additional areas would not be made available for residential shoreline alterations.

2.5 Alternative C1: Managed Development Along Open Shoreline and Additional Areas

Under this alternative, TVA would add a shoreline categorization system (Appendix C) to land management plans prepared for each reservoir. TVA would replace the existing permitting guidelines (see Appendix A) with a comprehensive set of shoreline development standards (Appendix D). These features are further explained below.

2.5.1 Reservoir Land Management Plans/Shoreline Categorization

Subject to the availability of funds, a reservoir land management plan would be developed for each priority TVA reservoir. As discussed in Section 1.4.4, the current planning process has been used to define reservoir-specific goals for the management of TVA-owned-and-managed lands and to identify specific use allocations for these properties. In developing reservoir plans, TVA would continue to rely upon public involvement and resource inventories to identify the capability and suitability of each parcel.

The plans allocate TVA-owned-and-managed (nonresidential) lands for their most suitable purposes, including:

- Resource protection,
- Resource management,
- Recreation, and
- Economic development.

Under **Alternative C1**, maps would be prepared during the planning process to identify the location of residential shoreland (TVA-owned residential access shoreland and flowage easement shoreland). In addition, the plans would identify protection, mitigation, and management issues that would be taken into account in considering permit requests for docks and other shoreline alterations (Appendix C).

TVA's goal would be to first complete within one year of the SMI Record of Decision an ongoing baseline inventory of resource conditions along TVA-owned residential access shoreland and flowage

easement shoreland. This inventory data would be used during individual permit reviews in evaluating the environmental effects of proposed actions. Shoreline inventory data would also be used during the land management planning process to categorize the residential shoreline into at least three categories:

- Shoreline Protection,
- Residential Mitigation,
- Managed Residential.

The **Shoreline Protection** category would be applied to shoreline segments that support sensitive ecological resources, such as federally listed threatened or endangered species, high-priority state-listed species, wetlands with high function and value, and archaeological or historical sites of national significance. It would also be applied to shoreline segments where navigation restrictions, such as safety harbors, exist. Docks and other shoreline development would not be permitted on lands in the Shoreline Protection category.

Shoreline segments where resource conditions or navigation issues would require special analysis of individual development proposals and perhaps specific mitigation measures before a permit decision could be made would be allocated to a **Residential Mitigation** category. This category would also include shoreline segments where additional data (such as an archaeological survey) about resource conditions are needed before a permit decision could be made.

Shorelines where no wetlands, threatened or endangered species, or cultural resources are known to exist would be allocated to a **Managed Residential** category. Shoreline segments with existing permitted residential shoreline alterations would be distinguished from undeveloped segments.

Before issuing permits for shoreline development, TVA would examine shoreline categorization data, take into account any new information about resource conditions on the site, and conduct any needed environmental review of the specific proposal. The shoreline categorization system would improve the protection of sensitive resources, enhance the effectiveness of TVA's permit review process, and help developers plan adjacent subdivisions on private land that are compatible with identified resource conditions on TVA land and shorelines.

TVA Criteria for Selecting Additional Residential Access Areas

In preparing reservoir land management plans, TVA would apply selection criteria on a reservoir-by-reservoir basis to determine whether additional areas should be made available for residential access. These additional areas would be delineated in the plans. TVA would seek comments from other agencies and the public about making additional shorelines available for residential access. Furthermore, additional environmental reviews would be performed on a reservoir-specific basis, to address in further detail the environmental consequences of making additional shoreline available for residential access.

In identifying additional residential access areas, TVA would apply criteria such as:

- Adjacent property abuts the maximum shoreline contour for the reservoir in question.
- Adjacent property is currently developed or zoned for residential use (infrastructure is present or subdivision plat has been prepared).
- Development inquiries have been made for docks or other residential shoreline alterations.
- The total amount of residential access shoreline on a particular reservoir would not exceed public preferences for that reservoir.
- The effect on current or future public use opportunities, including informal recreation areas, would be considered.
- Visual resources, wildlife, wetlands, endangered or threatened species, sensitive habitats, culturally significant resources, prime farmland, recreationally important fisheries, or important nursery and spawning habitats would not be adversely affected.

- A 100-foot-deep strip of public shoreland could be maintained.
- Compatibility with adjoining land use and zoning could be maintained.
- Channel excavation would not be required for placement of water-use facilities.
- Reservoir-specific slope and soils criteria would be used to ensure that only nonerosive, moderately sloped areas were considered for development.
- Development would not infringe on commercial navigation traffic.
- Existing landrights variations could be resolved (i.e., where some residents in one subdivision have access rights and others do not).

2.5.2 Shoreline Development Standards

TVA's existing permitting practices (Appendix A) would be replaced by a comprehensive set of shoreline development standards (Appendix D) designed to protect water quality, scenic beauty, sport and commercial fisheries, wildlife habitat, shoreline stability (i.e., reduce erosion), and other resources. The standards would also help to promote the unified development of the Tennessee River system. The standards would include the following.

Access Across TVA-Owned Residential Access Shoreland

- Landowners with property adjoining TVA-owned residential access shoreland could apply for TVA permission to install a 6-foot-wide access path to the water. A 6-foot-wide path would be wide enough for two people to walk side by side. (TVA uses a size standard of 5-foot-wide access paths at its recreational facilities.) Access paths would start at a point along the common property line and end at a point of TVA's choosing along the shoreline. Additionally, the route of the path would be selected by TVA.
- Adjacent property owners with more than 100 feet of frontage along their common boundary with TVA would have the option of applying for expanded use of public lands in the form of a vegetation management corridor, provided that the shoreland outside the corridor would be managed to provide a minimum shoreline management zone (SMZ) depth of 100 feet. (Refer to the following section on vegetation management for a discussion of SMZs.)
- In those situations where TVA's shoreland ownership is less than 100 feet deep, TVA would limit access pathways to 6 feet in width, unless the adjacent property owner agreed to manage enough of his or her property as an SMZ so that the total SMZ depth would equal or exceed 100 feet when combined with the TVA property.
- Allowable corridor widths would be calculated by multiplying the property owner's actual frontage (as measured along the common boundary) by a factor of 0.20. In no instance, however, would the corridor exceed a maximum allowable width of 50 feet. This allowable width would let adjacent homeowners have a more open view of the lake than that provided by the 6-foot pathway. Vegetation thinning would be limited to the defined corridor.
- To help control density of shoreline development and establish SMZs, the vegetation management corridor option would not be available to owners of lots with less than 100 feet of frontage (as measured along the common boundary). These property owners could only apply for a permit to install a 6-foot path to the shoreline.

Vegetation Management

- As undeveloped shorelines located within the TVA-owned residential access shoreland are developed, TVA would protect water quality and preserve visual aesthetic values by maintaining or restoring (as the case might be) a 100-foot (minimum depth) SMZ. The agency would require 100-foot-deep SMZs where TVA land is at least 100 feet deep (Section 3.4.7) from the normal summer pool elevation.

- Where TVA property is less than 100 feet deep (Section 3.4.7), the SMZ would be at least the same depth as the property. For example, if depth of the TVA property equals 65 feet, then the SMZ depth would equal 65 feet. TVA would encourage adjacent property owners to extend the SMZ onto their property so that a total depth of 100 feet could be established and maintained.
- When planting of trees is required to establish an SMZ, native trees would be used.
- Any clearing of vegetation would be confined to the access pathway or vegetation management corridor. Within this area, cutting of trees or other vegetation up to 5 inches in diameter at breast height could be permitted.

Docks and Other Residential Water-Use Facilities

- A maximum allowable footprint of 1,000 square feet would be established for all private water-use facilities (fixed piers, floating docks, boatslips, walkways, etc.). This size standard has been adopted by Duke Power Company in managing shoreline permitting on its reservoirs, as a means of balancing private and public use of the shoreline and in managing the amount of recreational water surface displaced by residential shoreline alterations. Duke Power Company has advised TVA that the majority of waterfront property owners' needs are actually accommodated within a 700-square-foot area. Numerous moorage configurations would be possible within a 1,000-square-foot area. For example, this footprint would accommodate:
 - A 4-by-100-foot walkway; a 20-by-20-foot dock, and a 10-by-20-foot boatslip.
 - A 6-by-100-foot fixed pier and a 16-by-24-foot boatslip.
 - A 4-by-40-foot walkway; a 20-by-20-foot dock; and a 16-by-24-foot boatslip.
- Water-use facilities could not extend more than 150 feet from the shoreline or more than one-third the distance from the originating shoreline to the opposite bank.
- An individual property owner's permitted water-use facilities would have to be clustered in front of the permitted access path/vegetation management corridor.
- To reduce the visual impacts of covered boatslips, no side panels would be allowed, and roofing materials would have to be of a color that blends with the natural surroundings. These standards have been adopted by Cooper Communities on Tellico Reservoir, and they are meeting the boating and recreational needs of homeowners, while also protecting the visual quality of the shoreline.
- To encourage consistency in the design and construction of private water-use facilities, TVA would provide standardized designs for docks, piers, and boatslips. Utilization of these "preapproved" designs would expedite the approval process for proposed water-use facilities. However, property owners would be allowed to use custom designs as long as they conformed to TVA standards.
- Individual boat-launching ramps would be considered only within flowage easement areas. On TVA land, only community water-use facilities would be allowed.
- As a density control measure, TVA would, wherever practical, require that a property owner's facilities be placed at least 50 feet from the neighboring property owner's facilities.
- Floating facilities would be required to use commercially manufactured, encased flotation.

Channel Excavation

- For TVA-owned shorelines, excavation for individual boat channels would be discouraged or approved on a limited basis. No more than 150 cubic yards of material could be removed for individual boat channels. Various channel sizes would be possible. TVA would require installation of fish-spawning structures, if needed to offset channel excavation impacts.

Community Facilities

- Reservoir management plans would help define whether individual facilities would be allowed or community facilities would be required. In cases where a portion of the TVA-owned residential access shoreland adjoining a subdivision is in a protected category and the remaining portion does not have sensitive resources present, TVA would consider proposals for community facilities along the remaining shoreline. In these cases, a maximum of one slip space would be allowed for each 100-foot lot, if site conditions were suitable for this amount of development. Community facilities would generally be required in additional areas opened for residential access, unless TVA identified in the reservoir land management plan that individual facilities would be more suitable.

Land-Based Structures

- Land-based structures would not be allowed on TVA-owned residential access shorelands.

Bank Stabilization

- For control of eroding shorelines, TVA would assess shoreline erosion conditions and determine whether vegetative plantings, riprap, retaining walls, or some combination of these treatment methods would be permitted. TVA would require biostabilization (i.e., the use of vegetative plantings to control erosion) wherever technically feasible.

Education

As part of its shoreline management activities, TVA would produce and distribute additional materials for the *Lakescape Homeowner's Guide* to:

- Explain how to apply for permits for shoreline development.
- Raise public awareness about how land use activity impacts water quality.
- Increase awareness of wetlands, threatened and endangered species, cultural resources, aquatic habitat, steep bluffs, and other shoreline resources.
- Address issues such as erosion control, facility maintenance, shoreline vegetation management, and enhancement of aquatic habitat.

Incentives

As part of its shoreline management activities, TVA would explore the use of additional incentives to encourage environmentally responsible use of residential shorelines. For example, TVA would:

- Partner with lake and subdivision associations for treatment of severely eroded shoreline, placing special emphasis on those areas treatable with biostabilization techniques. TVA's contribution to the partnership would range from providing technical expertise to providing some materials and/or labor.
- Encourage nurseries to provide native trees, shrubs, and other plants to lakefront homeowners at wholesale prices.
- Continue to waive permit processing fees for shoreline stabilization. Permit processing fees would also be waived for property owners who are willing to enhance aquatic habitat by installing permitted *fish-habitat-improvement structures*.
- TVA would also recognize and show appreciation for good shoreline stewardship by homeowners.

Grandfathering of Preexisting Residential Shoreline Alterations

The grandfathering provisions defined in Section 2.8.6 would apply.

2.6 Alternative C2: Managed Development Along Open Shoreline Only

Under **Alternative C2**, TVA would limit consideration of applications for residential shoreline alterations to the 38 percent of the shoreline currently open for residential access. Additional areas of shoreline would not be made available for residential access. The same shoreline development standards discussed in Section 2.5.2 and Appendix D would apply to the permitting of private water-use facilities and use of public lands by adjacent property owners. Additionally, the shoreline categorization system (Appendix C) would be used to designate open reservoir shoreline into use categories as explained in Section 2.5.1. Because additional areas would not be made available, the criteria for selecting additional residential access areas would not apply under this alternative.

2.7 Alternative D: Minimum Disturbance Along Open Shoreline Only

If this alternative is implemented, TVA would limit consideration of applications for residential shoreline alterations to the 38 percent of the shoreline Valleywide currently open for residential access. **Alternative D** would include the following key elements.

2.7.1 Reservoir Land Management Plans/Shoreline Categorization

A shoreline categorization system would be added to the reservoir land management plans prepared for individual reservoirs, as described in Section 2.5.1. However, the criteria for selecting additional residential access areas would not apply because additional shoreline areas would not be made available.

2.7.2 Shoreline Development Standards

TVA's existing permitting guidelines (Appendix A) would be replaced by a comprehensive set of shoreline development standards (Appendix E). These standards would be designed for maximum preservation of natural resources and scenic values along TVA-owned residential access shoreland. Only those residential shoreline alterations that would result in minimal disturbance of the shoreline environment would be allowed. Key elements of the shoreline development standards are described below.

Access Across TVA-Owned Residential Access Shoreland

- Property owners adjoining TVA-owned residential access shoreland would be allowed to install an access path up to 6 feet wide.
- TVA would define the route of access pathways.
- Access paths would be for pedestrian use only.
- Pathways would be surfaced with natural materials (grass, wood, bark chips, gravel, etc.) to eliminate the need for mowing and trimming of vegetation within the pathway.

Vegetation Management

- As undeveloped shorelines located within TVA-owned residential access shoreland are developed, TVA would maintain or restore (as the case might be) a vegetative SMZ. Because of differences in shoreline ownership patterns, the actual depth of this zone would vary among reservoirs.
- In cases where the depth of TVA's property is less than 100 feet (Section 3.4.7) as measured landward from the normal summer pool elevation, TVA would encourage adjacent property owners to extend the SMZ onto their land to attain a total depth of 100 feet.
- Where TVA ownership extends more than 100 feet deep (Section 3.4.7), the entire depth of shoreland property owned by TVA would be managed as an SMZ.

- When planting of trees is necessary to establish an SMZ, native trees would be used.
- Except as necessary for installation of access paths, no vegetation removal or soil disturbance would be allowed on properties adjacent to the shoreline. Within the access pathway, cutting of trees or other vegetation up to 5 inches in diameter at breast height could be permitted.

Docks and Other Residential Water-Use Facilities

- To influence density of shoreline development, an applicant would be required to own a lot with a minimum of 200 feet of common boundary with TVA in order to qualify for an individual dock. Lots that adjoined TVA-owned residential access shoreland and that were platted prior to implementation of this requirement would be exempt, and the owners could submit applications, regardless of the width of their lot.
- In issuing permits for docks, TVA would strive to maintain a distance of 100 feet between facilities of different property owners.
- Water-based development would be limited to one dock or boatslip per qualifying lot.
- The dock or slip could not have walls, sides, or a roof, and the footprint of the facility could not cover more than 300 square feet of water surface area.
- Floating facilities would be required to have commercially manufactured, encased flotation.
- Boathouses, houseboats, yachts, cabin cruisers, or other boats with live-aboard accommodations would not be permitted to moor along undeveloped, open shorelines but could be moored within the TVA-assigned harbor limits of commercial marinas.
- On TVA-owned residential access shorelands, boat-launching ramps would be considered only at community lots where there were no public ramps within a 20-mile radius of the community lot.
- As an incentive for adherence to standardized designs, TVA would offer preapproved, minimal-disturbance dock designs.

Channel Excavation

- Channel excavation would be considered on TVA-owned residential access shoreland only when necessary to accommodate community facilities.

Community Facilities

- Reservoir management plans would help define whether community facilities would be required or individual facilities would be allowed. In cases where a portion of the TVA-owned residential access shoreland adjoining a subdivision is in a protected category and the remaining portion does not have sensitive resources present, TVA would consider proposals for community facilities along the remaining shoreline.
- Community facilities would be limited to a community ramp and courtesy pier where site conditions were suitable.
- No boatslips or permanent moorage would be allowed at community facilities.

Land-Based Structures

- Land-based structures would not be allowed on TVA-owned residential access shoreland.

Bank Stabilization

- For control of eroding shorelines, TVA would assess shoreline erosion conditions and determine whether vegetative plantings, riprap, retaining walls, or some combination of these treatment methods would be permitted. The agency would require use of biostabilization (i.e., vegetative plantings) wherever technically feasible. TVA would develop treatment plans for severely eroded shoreline areas.

Education/Incentives

The education and incentive programs discussed in Section 2.5.2 would also apply to **Alternative D**.

Influencing Shoreline Protection by Others

- TVA would actively encourage Valley states to adopt laws that would require protection of shoreline vegetation along privately owned shoreline properties.
- TVA would also partner with lake user organizations, property owner associations, land trusts, and other groups in seeking donations of conservation easements for protection of privately owned shoreline.

2.8 Blended Alternative

Why a Blended Alternative Was Created

The Blended Alternative was created after extensive SMI DEIS public review showed that features of the previous alternatives could be modified and packaged into a more workable approach that:

- Responds to public concerns about specific standards,
- Addresses resource conservation needs, and
- Recognizes the public benefits of undeveloped shorelines.

The Blended Alternative responds to commenters who asked for an additional alternative containing various features of the original alternatives. Under the Blended Alternative, TVA would adopt a shoreline management policy that:

- Preserves public benefits along shorelines where residential access rights do not exist,
- Allows environmentally responsible development of shorelands where residential access rights do exist, and
- Gains voluntary conservation commitments across some areas with outstanding residential access rights.

Overview

TVA has broad responsibilities as custodian of public lands and the Tennessee River system. Using the principles of integrated resource management, TVA addresses a diverse range of needs, including navigation, flood control, power generation, clean water, recreation, economic development, shoreline management, resource conservation, and public land stewardship. TVA manages public lands and shorelines using a balanced multiple-use strategy that accommodates the needs of the public today and recognizes the long-term value of these public assets to future generations.

Public lands and reservoirs provide numerous recreational benefits, including opportunities for fishing, hiking, and boating. These lands and waters also support diverse plant and animal life, including some species that are threatened and endangered. Wetlands, aquatic habitat, scenic bluffs, and other natural resources are found along reservoir shorelines. In addition, the Tennessee River Valley

has a rich heritage of historic and archaeological sites. This abundance of resources and recreation opportunities makes TVA reservoirs increasingly attractive as a place for outdoor recreation and as home sites.

Under the Blended Alternative, TVA's long-term goal for shoreline management would be to balance shoreline development, recreation use, and resource conservation needs in a way that maintains the quality of life and other important values provided by the reservoirs. To achieve this goal, the agency would :

- Adopt a strategy of “maintaining and gaining” public shoreline through an integrated approach that conserves, protects, and enhances shoreline resources and public use opportunities, while providing for reasonable and compatible use of the shoreline by adjacent residents.
- Continue to allow docks and other alterations along “open” shorelines where sensitive resources, navigation, flood control, and power generation concerns do not exist.
- Limit consideration of requests for residential access across shorelines where access rights do not exist to (a) projects proposed by others for exchange of access rights that result in no net loss or preferably a net gain of undeveloped public shoreline, and (b) TVA projects that support the agency's integrated resource management mission. Other than these situations, no additional residential access rights would be considered.
- Continue to emphasize the ecological and recreational importance of public lands by placing high priority on resource conservation and public recreation in the management of other undeveloped public shorelands that are not available for residential shoreline development permits.
- Ensure that sensitive natural and cultural resources are conserved and retained by completing a resource inventory and adding a shoreline categorization system to land management plans prepared by TVA for individual reservoirs; the categorization system would designate open shorelines into use categories (Shoreline Protection, Residential Mitigation, and Managed Residential).
- Promote voluntary establishment of conservation easements across flowage easement or other shoreland to protect scenic landscapes, encourage clustered development, or provide other public benefits.
- Merge some features of existing permitting guidelines with upgraded standards that promote the use of best management practices for the construction of docks, management of vegetation, stabilization of shoreline erosion, and other shoreline alterations.
- Emphasize education activities and incentives as important components of shoreline management.

Protection of sensitive resources, promotion of conservation easements, and other approaches in this maintain-and-gain strategy would reduce the potential level of residential shoreline development within the areas now identified as “open.” These reductions would be offset to some degree by additional development. TVA estimates that the Valleywide level of residential shoreline development would not exceed the 38 percent level.

2.8.1 Reservoir Land Management Plans/Shoreline Categorization

Like Alternatives C1, C2, and D, the Blended Alternative would use a shoreline categorization system (Appendix C) as an important component of individual reservoir land management plans. Subject to the availability of funds, a reservoir land management plan would be developed for each priority TVA tributary reservoir. As discussed in Section 1.4.3, the current planning process has been used to define reservoir-specific goals for the management of TVA-owned-and-managed lands and to identify specific use allocations for these properties. In developing reservoir plans, TVA would continue to rely upon public involvement and resource inventories to identify the capability and suitability of each parcel.

The plans now allocate TVA-owned-and-managed (nonresidential) shorelands for their most suitable purposes, including:

- Resource protection,
- Resource management,
- Recreation, and
- Economic development.

Under the Blended Alternative, maps would be prepared during the planning process to identify land ownership patterns and the location of residential shoreland (TVA-owned residential access shoreland and flowage easement shoreland). In addition, the plans would identify protection, mitigation, and management issues that would be taken into account in considering requests for docks and other shoreline alterations.

TVA's goal would be to first complete within one year of the SMI Record of Decision an ongoing baseline inventory of resource conditions along TVA-owned residential access shoreland and flowage easement shoreland. This inventory data would be used during individual permit reviews in evaluating the environmental effects of proposed actions. Shoreline inventory data would also be used during the land management planning process to categorize the residential shoreline into at least three categories:

- Shoreline Protection
- Residential Mitigation
- Managed Residential

The **Shoreline Protection** category would be applied to shoreline segments that support sensitive ecological resources, such as federally listed threatened or endangered species, high priority state-listed species, wetlands with high function and value, and archaeological or historical sites of national significance. It would also be applied to shoreline segments where navigation restrictions, such as safety harbors, exist. Docks and other shoreline development would not be permitted on lands in the Shoreline Protection category.

Shoreline segments where resource conditions or navigation issues would require special analysis of individual development proposals, and perhaps specific mitigation measures, before a permit decision could be made would be allocated to a **Residential Mitigation** category. This category would also include shoreline segments where additional data (such as an archaeological survey) about resource conditions would be needed before a permit decision could be made.

Shorelines where no wetlands, threatened or endangered species, or cultural resources are known to exist would be allocated to a **Managed Residential** category. Shoreline segments with existing permitted residential shoreline alterations would be distinguished from undeveloped segments.

Before issuing permits for shoreline development, TVA would examine shoreline categorization data, take into account any new information about resource conditions on the site, and conduct any needed environmental review of the specific proposal. The shoreline categorization system would improve the protection of sensitive resources, enhance the effectiveness of TVA's permit review process, and would help developers plan adjacent subdivisions on private land that are compatible with identified resource conditions on TVA land and shorelines.

2.8.2 Shoreline Access

Under the Blended Alternative, residential shoreline development would be allowed within flowage easement shoreland and TVA-owned residential access shoreland where sensitive resources, navigation, power generation, and flood control would not be affected.

Where residential access rights do not currently exist, TVA would consider opening access across additional shoreland only if the objectives for maintaining and gaining public shorelines can be met. To ensure that these objectives are achieved, TVA would consider opening additional residential access only for (a) projects proposed by others for exchange of access rights that would result in no

net loss or preferably a net gain of public shoreline, and (b) TVA projects that support the agency's integrated resource management mission. Other than these situations, no additional residential access rights would be considered.

Examples would include:

- TVA recreation development projects where residential development of a portion of the parcel would encourage private sector investment in commercial recreation development of marinas and resorts.
- Proposals submitted to TVA that seek to mitigate public shoreline losses and preferably gain public shoreland through donation of conservation easements or other landrights that have equal or greater resource amenities and public value. The net-gain concept could also be attained by deeding back to TVA the existing access rights affecting one undeveloped shoreline parcel in exchange for access rights across another parcel proposed for development. TVA would compare the ecological, recreational, and other amenities of the properties involved in the proposal with the public and resource values of the TVA land over which access rights are requested. This would ensure that the proposed action would provide for exchange of landrights with equal or greater public value. In this manner, TVA-approved landrights exchanges would maintain and improve environmental integrity, maintain and enhance public benefits from reservoir lands, and keep the projected maximum buildout level from residential shoreline development at 38 percent or less Valleywide. This policy would achieve results similar to no-net-loss resource conservation programs administered by other agencies.

TVA would evaluate the environmental and other impacts of any potential actions involving additional access rights. TVA would identify resources on the properties such as wetlands, threatened and endangered species, wildlife habitat, cultural resources, scenic qualities, and vegetation. TVA would also examine adjacent land uses, road access, topography, size of the properties, and other site characteristics. This would allow TVA to determine if the proposal would result in residential shoreline development occurring at a more appropriate location, better ensure protection of sensitive resources, enhance public use opportunities, and provide other public benefits. TVA would always have the right to reject any proposal for additional access. Consistent with applicable environmental review requirements, the public would be provided an opportunity to comment on proposed actions involving additional access rights.

2.8.3 Shoreline Development Standards

Some of TVA's existing permitting guidelines (**Alternatives B1/B2**) for vegetation management, docks, erosion control, and other uses would be combined with features of other alternatives. These upgraded standards would promote the use of best management practices for sound stewardship of shoreline resources, while allowing flexibility for a wide range of shoreline uses by adjacent property owners. TVA review and approval of permit requests would be required before construction activities and uses described in the following standards could be initiated. The following standards would be applied in review of permit requests where there are no navigation, flood control, power generation, or sensitive resource concerns. Where special concerns do exist, TVA would work with the applicant to determine if there are options to the proposed action. Existing shoreline alterations (docks, established lawns, retaining walls, etc.) that are either already permitted or that are authorized through issuance of after-the-fact permits under TVA's existing guidelines could continue to be used and would not have to be modified to conform to new standards. The grandfathering provisions applicable to existing facilities and uses are more fully explained in Section 2.8.6.

The following sections define how the standards would apply to vegetation management, water-use facilities, shoreline stabilization, and other shoreline uses of TVA-owned residential access shoreland. A separate section addresses which standards would apply to flowage easement shoreland. Appendix F includes more details about the standards proposed in the Blended Alternative.

Vegetation Management on TVA-Owned Residential Access Shoreland

The vegetation management standards would conserve the important benefits of existing forests and important understory plants, while allowing some management of vegetation on TVA-owned residential access shoreland. These standards would help to ensure that the following benefits are continued as shoreline development occurs.

- A healthy stand of forested vegetation along the shoreline contributes to the ecology of reservoirs by providing food and habitat for diverse populations of plants and animals.
- Trees and understory vegetation protect water quality by filtering sediments and pollutants from runoff before they reach the lake. Root systems of trees and other shoreline vegetation help bind soil particles together and minimize soil erosion.
- Shoreline vegetation also provides shade and cover for fish and habitat for aquatic invertebrates, which are a source of food for fish.
- Understory vegetation contributes to continued growth and health of the forest.
- Vegetation contributes to shoreline aesthetics.

When an adjacent property owner (applicant) requests TVA's permission for a dock or other shoreline alterations on TVA-owned residential access shoreland, TVA would work with the landowner to ensure that the application includes a plan for management of the vegetation on TVA land. This would not be necessary if an approved vegetation management plan already exists. The plan would meet the following vegetation management standards.

- Clearing of trees and other vegetation would be allowed to create and maintain an access/view corridor that could be up to 20 feet wide. The corridor would extend from the common boundary between TVA and the adjacent landowner to the water at normal summer pool.
- The access/view corridor would be located in a way that minimizes removal of trees or other vegetation with high wildlife value on the TVA land. Grass could be planted and mowed within the access/view corridor, and stone, brick, concrete, mulch or wooden paths, walkways, and/or steps would be allowed.
- A 25-foot SMZ would be retained along the shoreline at locations where TVA owns property that is at least 25 feet deep. The SMZ would begin at the normal summer pool elevation and would extend 25 feet inland. Where TVA ownership is less than 25 feet, the SMZ would only be required on TVA property and would not extend onto private property.
- TVA's goal in establishing the SMZ would be to conserve existing trees and other woody vegetation to the maximum practical extent. To accomplish this goal, cutting of trees within the SMZ would only be allowed to clear the access/view corridor and to make sites suitable for erosion control projects. If trees are allowed to be removed in preparation for erosion control projects, planting of replacement native trees would be required.
- Within the 25-foot SMZ and elsewhere on TVA land, clearing of some specified understory plants (poison ivy, Japanese honeysuckle, kudzu, and other plants on a list to be prepared by TVA) would be allowed.
- On TVA land situated above the SMZ (more than 25 feet from normal summer pool), selective thinning of trees or other vegetation under 3 inches in diameter at the base would be allowed.
- Pruning of side limbs of trees to enhance the view of the lake would also be allowed within the SMZ and elsewhere on TVA land.
- The forest floor would be left undisturbed except for removal of specified plants and/or planting of native vegetation.
- Planting of native trees, shrubs, wildflowers, and ground covers would be allowed to improve or enhance the vegetative cover. TVA would be available, upon request, to assist applicants in selecting the right plants for the site.

Docks and Other Water-Use Facilities on TVA-Owned Residential Access Shoreland

Standards for the size and type of docks permitted by TVA help fulfill TVA's responsibility under Section 26a of the TVA Act to promote the unified development and regulation of the Tennessee River and its tributaries. These standards define the maximum size of docks and other water-use facilities that would be approved by TVA. Unless there are sensitive resource concerns; navigation, flood control, or power generation concerns; or physical site constraints (such as a narrow cove), decisions about the size and type of docking facilities to be proposed would be made by the applicant, provided the maximum standards are not exceeded. When site limitations are present and the maximum-size facilities cannot be built, TVA would determine if a smaller individual facility could be approved and, if so, what size. TVA would work with the applicant to explore options.

Adjacent property owners would be responsible for submitting drawings of proposed facilities for TVA review and approval. TVA would make available sample drawings for docks, piers, and boat slips. Property owners could either use these drawings or create their own drawings to reflect personal preferences.

Docks enhance the adjacent property owner's enjoyment of the lake, and they provide cover for fish. However, they can disturb shoreline resources, especially during construction. They also can affect shoreline aesthetics. When built too large, they can obstruct boating traffic. The following dock standards of the **Blended Alternative** are designed to allow different shapes, sizes, and combinations of facilities.

- A maximum allowable footprint of 1,000 square feet would be established for all residential water-use facilities. The docks, slips, boathouses, and other water-use facilities associated with a particular lot would be contained within a 1,000-square-foot rectangular or square area at the lakeward end of the access walkway that extends from shore to dock. The space occupied by the access walkway would not be included as part of the 1,000-square-foot allowance.
- The length of the water-use facility and access walkway would not exceed 150 feet and would not extend more than one-third the distance from the bank at normal summer pool (NSP) to the opposite shore.
- Covered boat slips could have open sides or could be covered with exterior siding to form a boathouse.
- Floating facilities would be required to use commercially manufactured flotation. If Styrofoam is used, it must be the commercially manufactured, encased type.
- Access walkways constructed over water and walkways inside boathouses could not exceed 6 feet in width. The access walkway to a dock or other facility must connect from land to dock by the most direct route. When connecting to TVA-owned residential access shoreland, the access walkway would connect to the access/view corridor.
- Docks proposed in subdivisions platted after the effective date of the new SMI policy would be constructed at least 50 feet from neighboring docks. When this density requirement could not be met, only grouped or community facilities would be allowed.
- A marine railway or concrete boat-launching ramp with an associated access driveway would be allowed within the 20-foot access/view corridor.

Community Water-Use Facilities

- In situations where there are physical or environmental constraints that would preclude the development of multiple individual docks, TVA would only allow community water-use facilities. No more than one slip would be approved for each lot adjoining the TVA shoreland.
- The community facility would be sited at a location where sensitive resources would not be impacted. In cases where a portion of the TVA-owned residential access shoreland adjoining a

subdivision is in a protected category and the remaining portion does not have sensitive resources present, TVA would consider proposals for community facilities along the remaining shoreline.

- When community facilities are requested at jointly owned community lots, the plans must be submitted by a developer of the subdivision or by a state-chartered homeowner's association that represents everyone with an interest in the community lot where the facilities are proposed. The size and number of community slips permitted would be determined by the size of the community lot, the amount of parking it could accommodate, the amount of shoreline frontage available for the facilities, the number of property owners with access rights to be accommodated, and other site-specific conditions.

Shoreline Stabilization on TVA-Owned Residential Access Shoreland

Shoreline erosion is a problem along certain shorelines. As funding permits, TVA is stabilizing critically eroded sites, using biostabilization techniques (vegetative plantings) where possible to control erosion. Biostabilization techniques are typically less expensive than riprap or retaining walls and provide environmental benefits by enhancing vegetative cover along the shoreline.

When requested by the homeowner, TVA would assess shoreline erosion conditions and advise whether biostabilization, riprap, gabions, retaining walls, or some combination of these treatments would work best. TVA would address shoreline stabilization as follows:

- Because of the ecological benefits of biostabilization, TVA would continue to increase awareness of this approach, with the expectation that biostabilization would become more widely adopted by lakefront property owners.
- In the interest of working with homeowners for the control of eroding shorelines, TVA would allow homeowners to choose between riprap, biostabilization, gabions, or a combination of the three approaches for erosion control.
- Retaining walls typically require extensive site disturbance; generally reduce aquatic habitat conditions; often are not properly designed; and result in further site disturbance if they fail. For these reasons, retaining walls would be permitted only in instances where TVA determines:
 - The proposed wall would connect to an existing wall, with permission of the owner.
 - The erosion is severe and TVA determines that a retaining wall is the most effective erosion control option.

Channel Excavation on TVA-Owned Residential Access Shoreland

Excavation of boat channels can impact water quality and aquatic communities, especially when large areas are involved. In addition to substrate removal of shallow, fish-spawning habitat, areas adjacent to the excavated site are often subjected to excessive siltation. Excavation can also result in the improper disposal of excavated material in ways that create obstructions or affect flood control storage. The standards for channel excavation are designed to minimize these impacts and to improve habitat. Narrow channels and those with fish-habitat-improvement structures can enhance habitat conditions.

- Excavation of individual boat channels on TVA land would be approved only when TVA determines that there is no practicable alternative to reaching deeper water and the proposed action would not adversely impact sensitive resources. No more than 150 cubic yards of material could be removed for an individual boat channel. TVA would require installation of fish-habitat-improvement structures, if needed to offset impacts of approved channel excavation.

Land-Based Structures on TVA-Owned Residential Access Shoreland

Land-based development along the shoreland requires the removal of vegetation and typically results in construction of structures that are not water-use facilities. Such structures are most appropriately located on the private lot and not on the TVA-owned residential access shoreland.

- With the exception of steps, paths, utility lines, boat-launching ramps, or marine railways located in the access corridor; bank stabilization along the shoreline; and other uses noted in this section, TVA would not allow permanent land-based structures, fills, or grading. Permanent land-based structures such as picnic pavilions, gazebos, septic tanks, and drain fields must be sited on the private lot and not on TVA land.
- Portable items such as picnic tables and hammocks would be allowed on TVA land.

Residential-Related Use on TVA Flowage Easement Shoreland

This section addresses construction of residential-related facilities along or across privately owned shoreland on TVA reservoirs where TVA owns and maintains a flowage easement (right-to-flood the land subject to the terms of the easement). TVA's written approval is required before constructing structures or obstructions on this flowage easement shoreland. Activities involving development within the flood control zones of TVA reservoirs would be reviewed to ensure compatibility with terms of the flowage easement, consistency with TVA flood control operations, and compliance with applicable environmental laws and executive orders.

Except for the standards addressing land-based structures, vegetation management, and channel excavation, all of the preceding standards applicable to TVA-owned residential access shoreland would apply to proposed development on TVA flowage easement shoreland. When reviewing proposals for docks or other obstructions on flowage easement land, TVA would address potential impacts to sensitive resources and seek to have these avoided or minimized consistent with applicable laws and executive orders. Land-based structures, vegetation management, and channel excavation within flowage easement shoreland would be addressed as described below.

- Land-based structures that would not obstruct flood control (such as decks) could be constructed within the flowage easement area upon receipt of TVA approval of plans.
- Removal, modification, or establishment of vegetation on privately owned shoreline subject to a TVA flowage easement would not require TVA approval. To promote good stewardship, TVA would provide information to landowners about how to enhance or maintain native vegetation.
- Channel excavation, which would occur on privately owned property subject to a TVA flowage easement in association with construction of a shoreline or water-based structure, would be subject to TVA review and approval. Other channel excavation on flowage easement properties would not require TVA approval under Section 26a, as long as all dredged material is placed above the limits of the 100-year floodplain or the TVA flood risk elevation, whichever is applicable. TVA would encourage owners of flowage easement property to adopt the standards for channel excavation applicable to TVA-owned residential access shoreland.

2.8.4 Exceptions to Shoreline Development Standards

In order to fairly and equitably enforce these standards, TVA would grant exceptions to the standards only in limited but justifiable situations. Examples would include:

- Special facilities to accommodate the needs of a disabled person.
- Additional development within preexisting developments (areas where permitted shoreline development existed prior to the effective date of the SMI policy) consistent with the grandfathering provisions of Section 2.8.6.
- Removal of a tree, regardless of size, that TVA determines might fall on a structure. In these cases TVA would require that an acceptable tree species replace the tree removed.

2.8.5 Other Important Strategies

As part of shoreline management activities, TVA would emphasize education, incentives, and conservation easements as ways to complement the standards and shoreline categorization system in promoting stewardship of shoreline resources.

Education

As in **Alternatives C1, C2, and D**, TVA would produce and distribute additional materials for the *Lakescape Homeowner's Guide* to:

- Explain how to apply for permits for shoreline development.
- Raise public awareness about how land use activities affect water quality.
- Increase awareness of wetlands, threatened and endangered species, cultural resources, aquatic habitat, steep bluffs, and other shoreline resources.
- Address issues such as erosion control, facility maintenance, shoreline vegetation management, and enhancement of aquatic habitat.

Incentives

As in Alternatives C1, C2, and D, TVA would explore the use of additional incentives to encourage environmentally responsible use of residential shorelines. For example, TVA would:

- Partner with lake and subdivision associations for treatment of severely eroded shoreline, placing special emphasis on those areas treatable with biostabilization techniques. TVA's contribution to the partnership would range from providing technical expertise to providing some materials and/or labor.
- Encourage nurseries to provide native trees, shrubs, and other plants to lakefront homeowners at wholesale prices.
- Continue to waive permit processing fees for shoreline stabilization. Permit processing fees would also be waived for property owners who are willing to enhance aquatic habitat by installing permitted fish-habitat-improvement structures.
- TVA would also recognize and show appreciation for good shoreline stewardship by homeowners.

Conservation Easements

As in Alternative D, TVA would actively partner with lake user organizations, property owner associations, land trusts, individual property owners, conservation organizations, state agencies, and others in seeking donations of conservation easements for protection of privately owned shoreline. As a first step in this process, TVA would organize a strategy workshop with conservation easement experts and other key stakeholders. Conservation easements could be entrusted by a landowner to an existing land trust organization, a lake user association, TVA, or other entity, depending on what would be most appropriate.

2.8.6 Grandfathering of Existing Residential Shoreline Alterations

Grandfathering provisions would apply to existing development and uses (those that are established prior to the effective implementation date of any new SMI policy) along shorelines that are "open" for access (flowage easement shoreland and TVA-owned residential access shoreland). Within these areas with access rights, the following provisions would apply:

Mowing and Vegetation Management

- Mowing of established, preexisting lawns on TVA-owned residential shoreland would be allowed to continue.
- In situations where established mowing is not specifically included as an authorized use in an existing permit, TVA would add mowing as a permitted use in the next permit action involving that site. This could be done most efficiently when reviewing a permit application for existing structures and other uses that had not been previously permitted; when reviewing proposals for additional shoreline alterations at the site; or when ownership of the adjacent property changes and the new owner requests a permit to continue existing uses.

- Mowing and other vegetation management practices on flowage easement shoreland or other privately owned property do not require TVA approval.
- The SMZ would not be required on flowage easement shoreland, other privately owned land, or where established lawns exist.
- Any additional removal of trees or other vegetation (except for mowing of established, preexisting lawns) would require TVA's approval. Removal of trees over 3 inches in diameter at ground level is not allowed under existing guidelines and would not be permitted under the grandfathering provisions.

Existing Structures

- Existing shoreline structures (docks, retaining walls, etc.) that have been permitted by TVA would be automatically grandfathered.
- TVA would not require grandfathered docks or other permitted alterations to be modified to conform to new standards.
- Any homeowner who is uncertain about whether existing docks and other shoreline alterations have been permitted may contact the local Land Management Office to obtain a copy of the permit on record or to apply for an after-the-fact permit. It is the homeowner's responsibility to ensure that all existing shoreline alterations are permitted by TVA.

Change of Ownership

- When ownership of permitted docks or other shoreline alterations changes, the heir or subsequent owner would need to notify TVA of the change in ownership. TVA would reissue the permit for those existing alterations to the next owner, whether an heir or subsequent buyer.
- The next owner and any subsequent owners would be allowed to continue using existing permitted docks and other shoreline alterations.
- Subsequent owners would not be required to update existing docks to new standards. In addition, they could continue mowing established lawns that existed prior to the effective date of the new policy.

Maintenance

- Routine maintenance would not require TVA approval. Any repairs that would alter the size of the facility or any new construction would require TVA approval.
- If a permitted facility is destroyed by fire or storms, the permit would be reissued if the replacement facility would be rebuilt to the original specifications permitted by TVA. If modifications are proposed, a new permit would be required.

Transition Period

- For a transition period of six months after the TVA Board approves a shoreline management policy, TVA would accept permit applications for additional facilities and uses that are permissible under TVA's existing guidelines.
- Once the six-month transition period has expired, TVA would review requests for additional shoreline alterations under the new standards.

Waivers

- Requests for waivers of new standards could be submitted by owners of property within preexisting developments. These are areas where shoreline development existed prior to the effective date of the SMI policy. Waivers could be requested for shoreline alterations that are compatible with surrounding permitted structures and uses within the subdivision or, if there is no subdivision, within the immediate vicinity (one-fourth-mile radius). In reviewing waiver requests, TVA would

consider the prevailing practices within the subdivision or immediate vicinity. The uses permitted under the guidelines followed by TVA prior to adoption of a new policy would also be considered. TVA would ensure that the proposed use would not adversely impact navigation, flood control, power generation, or sensitive environmental resources.

Summary of Construction Standards

A summary of all construction and land use standards is shown for all alternatives in *Table 2.8-1*.

2.9 Alternatives Eliminated From Detailed Discussion

Three alternatives were eliminated from detailed discussion and analysis because they did not accomplish TVA's objectives or were otherwise considered unreasonable. The basis for eliminating each of these alternatives is further explained below.

(1) Prohibit Future Residential Shoreline Development, Remove Existing Shoreline Development, and/or Restore Previously Developed Areas: Stopping all development and restoring previously developed areas would have environmental benefits (e.g., eventually less cleared land, more diverse habitat, less bulkheading, less nonpoint-source runoff including nutrients, less septic tank seepage, etc.). However, there would also be associated adverse environmental impacts (e.g., loss of some fish habitat; temporary increase in turbidity when water-use facilities are pulled from the water) and economic losses. TVA rejected this alternative because:

- It fails to meet an essential component of the stated purpose of SMI, which is to review existing permitting practices and establish a policy to protect shoreline and aquatic resources, while allowing adjacent landowners reasonable access to the water.
- Under existing property rights, 6 percent of the privately owned shoreline has been developed, and another 15 percent could be developed for certain uses over which TVA has no control (i.e., vegetation management and construction of homes on private land). In addition, permitted shoreline facilities such as docks and bank stabilization exist along a total of 13 percent of the shoreline. Any attempt to acquire the necessary rights to stop all development or restore previously disturbed shorelines would be strongly opposed by many property owners, politically unacceptable, and economically prohibitive. It is not unreasonable, however, to adopt standards or guidelines for shoreline alterations, as characterized in **Alternatives B1, B2, C1, C2, D**, and the **Blended Alternative**. Each of the alternatives under consideration acknowledges that existing property rights, along with environmental impacts, are important considerations in deciding whether permits should be issued.
- Removing existing shoreline development and restoring previously developed areas would require revoking existing Section 26a permits. While some 26a permits have language allowing TVA to terminate without any specific reason, the more common provisions authorize termination only for specific causes, such as failure to properly maintain a facility or the identification of adverse effects on navigation, flood control, or public lands.

The impacts of no more development are presented in Chapter 3 of the FEIS as the current conditions. Impacts resulting after restoration of previously developed areas would presumably be less than those produced under current conditions after initial removal impacts dissipate, but how much less is not known.

(2) Allow Residential Shoreline Development to Continue But Limit Maximum Buildout to Less Than 38 Percent of the Shoreline: For several of the alternatives, 38 percent of the shoreline was identified as the estimated, maximum Valleywide shoreline buildout. It should be noted, however, that the 38 percent represents nothing more than TVA's estimate of the upper limit or maximum amount of development that could occur across the Tennessee Valley region over SMI's 25-year planning horizon if all previously conveyed access rights were developed. This does not mean that buildout necessarily would occur, because this percentage is not a development goal or target of the alternatives. This upper limit was needed for analysis purposes only and was

Table 2.8-1. Summary of Construction and Land Use Standards for Use of TVA Land by Alternative.¹

Standards	Alternative				
	A	B1 and B2	C1 and C2	D	Blended
Maximum Allowable Footprint²	None	Docks - 400 sq. ft.; boat wells - 700 sq. ft.; no total footprint	Up to 1000 sq. ft.	Up to 300 sq. ft.	Up to 1000 sq. ft. - not including walkways
Covered Boat Slips²	No size standards	Up to 2 slips per lot, no more than 700 sq. ft. within boat wells	One or more covered slips per lot, within 1000-sq.-ft. footprint; no sides; roof color must blend with natural surroundings.	Uncovered slips only - 1 per lot, within 300-sq.-ft. footprint	One or more covered slips per lot, within 1000-sq.-ft. footprint; exterior siding allowed
Dock Sketches²	None	Sample sketches available from TVA. Applicants could use these or create their own.	Standardized designs available; not mandatory	Standardized designs available; not mandatory	Sample sketches available from TVA. Applicants could use these or create their own.
Flotation²	Commercially manufactured foam	Commercially manufactured foam	Commercially manufactured encased foam	Commercially manufactured encased foam	Commercially manufactured encased foam
Shoreline Management Zone³ (SMZ)	None	None	100-ft.-deep SMZ where TVA owns the land	All TVA land managed as an SMZ	25-ft.-deep SMZ where TVA owns the land
Management of Woody Understory³	No standards	As needed for pathway to lake and as described in "Tree Cutting," below	Only within designated vegetation management corridor established in front of lots with >100-ft. lot frontage; corridor width could be up to 20% of lot frontage up to a maximum of 50 ft.	Only as needed to provide minimum access to lake; 6-ft.-wide pathway or boardwalk	Clearing of poison ivy, Japanese honeysuckle, and other specified plants would be allowed within 25-ft.-deep SMZ and elsewhere on TVA property.
Tree Cutting³	No standards	Cutting of trees <3 in. diameter at ground level may be permitted, excluding certain species of flowering or fruit-bearing trees or shrubs.	Cutting of trees up to 5-in. diameter at breast height (dbh) may be permitted within vegetation management corridor only.	Cutting of trees up to 5-in. dbh may be permitted for pathway or boardwalk installation only.	Selective thinning of trees up to 3-in. diameter at ground level would be allowed outside 25-ft.-deep SMZ. Tree cutting would only be allowed within the SMZ to clear the access/view corridor and to make sites suitable for erosion control projects. Pruning of some side limbs would also be allowed.
Shoreline Stabilization²	No preferred approach	Riprap preferred to retaining walls	TVA prescribes stabilization technique; biostabilization preferred	TVA prescribes stabilization technique; biostabilization preferred	Applicants choose between riprap, biostabilization, or gabions.
Community Facilities²	No standards	Encouraged in small coves where there is insufficient shoreline to accommodate individual docks	Required in lieu of individual docks/slips where needed for resource protection.	Required in lieu of individual docks/slips where needed for resource protection. One community ramp/courtesy pier; no permanent mooring.	Required in small coves where there is insufficient shoreline to accommodate individual docks or where needed for resource protection
Boat Launching Ramps/Marine Railways³	No standards	Requests for individual ramps are considered.	Only ramps associated with community facilities would be considered.	Only where community ramps are proposed and no public ramps exist in the vicinity	Individual marine railways or ramps would be allowed within the 20-ft. access/visual corridor.
Channel Excavation³	No standards	Minimal	Individual boat channels considered (<150 cu. yds. of dredging)	Only considered in association with community facilities	Individual boat channels considered (<150 cu. yds. of dredging)

¹TVA will meet the requirements of Endangered Species Act, National Historic Preservation Act, Executive Order 11988, Executive Order 11990, and other applicable laws/regulations, regardless of the alternative selected.

²Construction standards for residential water-use facilities apply to all structures requiring 26a approval on TVA land and on flowage easement property.

³These standards would be required on TVA-owned residential access shoreland. TVA approval is not required for management of vegetation on flowage easement property. Channel excavation on flowage easement areas in association with a water-use facility would require approval. Individual ramps/railways would be allowed in flowage easement areas.

used primarily to assess the environmental impacts that the alternatives could have on each of the 13 resources.

As explained in the FEIS, 38 percent is based on the amount of existing residential shoreline development plus that which could occur under previously conveyed property rights. Specifically, 13 percent of the shoreline has already been developed; another 15 percent of the shoreline is undeveloped and owned by persons or entities other than TVA, and TVA has flowage easement rights over this property; and 10 percent more of the shoreline is undeveloped and owned by TVA, but backlying property owners have rights to access the shoreline by crossing TVA property.

TVA's ability to control or prohibit development on shoreline with these outstanding access rights is limited by the same legal, political, and economic realities that prevent it from stopping all development. Therefore, it is not reasonable to assume that TVA could reduce existing development or outstanding development rights below 38 percent to any material degree (see the discussion under [1] above).

TVA has not ignored the fact that the risk of unacceptable impacts to some resources increases as the 38 percent buildout is approached. Some of the measures proposed under the Blended Alternative could reduce the probability that maximum buildout would occur. These include inventorying and categorizing remaining undeveloped shoreline, encouraging the use of conservation easements, developing educational materials to help property owners understand the importance of preserving shoreline under their control, and adopting a maintain-and-gain public shoreline policy. See Section 2.8 for a detailed description of the Blended Alternative and Section 4.2 for additional information about buildout projections.

TVA believes it is more meaningful, especially from an environmental standpoint, to try to limit shoreline alterations in those areas that are environmentally sensitive. TVA would continue to ensure that access is accomplished in a reasonable manner that reduces the potential for adverse environmental impacts. Hence, TVA has evaluated several alternatives that include environmental protection standards for accessing (crossing) TVA property. TVA would continue to deny requests for approval of proposed shoreline alterations when this would result in impacts on environmentally sensitive resources. Not only would this prevent the kinds of in-water impacts associated with activities like construction of water-use facilities, it may discourage disturbance of the shoreline where these resources would be located.

- (3) Discontinue TVA's Role in Shoreline Management:** This alternative would be inconsistent with the congressional mandate of the TVA Act. Promoting the conservation of natural resources and providing for the unified development of the Tennessee River system are among the original purposes of TVA (as stated in the TVA Act of 1933, as amended) that remain very valid today.

In a 1993 Gallup public opinion survey, 84 percent of the Valley citizens responding said TVA should retain ownership of its lakefront land and manage it for public benefits. In public meetings in 1997 to discuss the future of TVA appropriated programs, 97 percent of the respondents favored continued federal funding for TVA resource management programs. This alternative, however, would call for TVA to remove itself from permitting and development decisions. The result could be uncontrolled development that would be incompatible with public interests. Uncontrolled development could adversely impact navigation, flood control, and other reservoir system operations. It could also result in serious adverse impacts to wetlands, cultural resources, endangered and threatened species, and other sensitive resources.

2.10 Comparison of Alternatives

This section summarizes the direct, indirect, and cumulative effects of each alternative on the 13 resource issues identified during the public involvement process. Potential impacts are profiled by alternative and resource issue in *Table 2.10-1*, using the measurement indicators described in Section 1.8. A detailed analysis of these impacts can be found in Chapter 4, Environmental Consequences.

Table 2.10-1. Summary of Comparison of Alternatives by Resource and Measurement Indicators.

Resource and Indicators	Alternative						
	A	B1	B2	C1	C2	D	Blended
Shoreline Vegetation							
Forest area within 25 ft. of shoreline	Decrease of 1850 miles of forest area within 25 ft. of shoreline	Decrease of 1829 miles of forest area within 25 ft. of shoreline	Decrease of 909 miles of forest area within 25 ft. of shoreline	Decrease of 253 miles of forest area within 25 ft. of shoreline	Decrease of 323 miles of forest area within 25 ft. of shoreline	Decrease of 101 miles of forest area within 25 ft. of shoreline	Decrease of 242 miles of forest area within 25 ft. of shoreline
Total wooded area within 25 ft. of shoreline	Decrease of 146 miles of total wooded area within 25 ft. of shoreline	Decrease of 29 miles of total wooded area within 25 ft. of shoreline	Little change in total wooded area within 25 ft. of shoreline	Increase of 222 miles of total wooded area within 25 ft. of shoreline	Increase of 95 miles of total wooded area within 25 ft. of shoreline	Same as Alternative C2	Same as Alternative C2
Forest area within 1/4 mile of shoreline	Greater than 10% decrease of forest area within 1/4 mile of shoreline	About 10% decrease of forest area within 1/4 mile of shoreline	About 6% decrease of forest area within 1/4 mile of shoreline	7 to 8% decrease of forest area within 1/4 mile of shoreline	Less than 6% decrease of forest area within 1/4 mile of shoreline	Smallest decrease of forest area within 1/4 mile of shoreline	Same as Alternative C2
Tract size of contiguous forests within 1/4 mile of shoreline	Greatest decrease in forest tract size within 1/4 mile of shoreline	Same as Alternative A	Moderate decrease in forest tract size within 1/4 mile of shoreline	Forest tract size decreases slightly more than Alternative B2	Forest tract size decreases slightly less than Alternative B2; second smallest decrease	Smallest decrease in forest tract size within 1/4 mile of shoreline	Forest tract size decreases slightly less than Alternative B2
Wildlife							
Forest wildlife populations	Greatest decrease in forest wildlife populations	Decrease in forest wildlife populations less than Alternative A	Decrease in forest wildlife populations less than Alternative C1	Decrease in forest wildlife populations less than Alternative B1	Decrease in forest wildlife populations less than the Blended Alternative	Smallest decrease in forest wildlife populations	Decrease in forest wildlife populations less than Alternative B2
Wintering waterfowl habitat suitability	At least 50% decrease of moderate and high suitability habitat	Same as Alternative A	At least 25% decrease of moderate and high suitability habitat	Same as Alternative B2	At least 20% decrease of moderate and high suitability habitat	At least 15% decrease of moderate and high suitability habitat	From 15 to 20% decrease of moderate and high suitability habitat
Endangered and Threatened Species							
Potential habitat loss from indirect and cumulative effects	Greatest potential for indirect and cumulative impacts on habitat	Same as Alternative A	Moderate potential for indirect and cumulative impacts on habitat	Moderate to low potential for indirect and cumulative impacts on habitat	Low potential for indirect and cumulative impacts on habitat	Lowest potential for indirect and cumulative impacts on habitat	Same as Alternative C2
Soils							
Potential for shoreland soil erosion	Greatest shoreland erosion potential	Shoreland erosion potential less than Alternative A	Shoreland erosion potential less than Alternative B1	Shoreland erosion potential less than Alternative B2	Shoreland erosion potential less than the Blended Alternative	Lowest shoreland erosion potential	Shoreland erosion potential less than Alternative C1, but slightly higher than Alternative C2
Shoreline bank stability index	11% decrease in shoreline bank stability	8% decrease in shoreline bank stability	4% decrease in shoreline bank stability	Nearly the same as Alternative B2	3% decrease in shoreline bank stability	4% increase in shoreline bank stability	Same as Alternative C2
Wetlands							
Potential loss of wetlands functions and values	Greatest potential loss of wetlands functions and values	Potential loss of wetlands functions and values less than Alternative A	Potential loss of wetlands functions and values less than Alternative B1	Potential loss of wetlands functions and values less than Alternative B2	Potential loss of wetlands functions and values less than Alternative C1	Lowest potential loss of wetlands functions and values	Similar to Alternative C2
Floodplains/ Flood Control							
Potential loss of natural and beneficial floodplain values	Greatest potential loss of natural and beneficial floodplain values	Potential loss of natural and beneficial floodplain values less than Alternative A	Potential loss of natural and beneficial floodplain values less than Alternative B1	Potential loss of natural and beneficial floodplain values less than Alternative B2	Potential loss of natural and beneficial floodplain values less than the Blended Alternative	Lowest potential loss of natural and beneficial floodplain values	Potential loss of natural and beneficial floodplain values less than Alternative C1
Aquatic Habitat							
Comparison of SAHI (Shoreline Aquatic Habitat Index) scores	24% decrease in aquatic habitat quality	17% decrease in aquatic habitat quality	9% decrease in aquatic habitat quality	10% decrease in aquatic habitat quality	8% decrease in aquatic habitat quality	7% increase in aquatic habitat quality	Same as Alternative C2

Table 2.10-1 (Cont.). Summary of Comparison of Alternatives by Resource and Measurement Indicators.

Resource and Indicators	Alternative						
	A	B1	B2	C1	C2	D	Blended
Water Quality							
Amount of nutrient (total phosphorus) added to reservoirs from development	Changes to aquatic communities would occur reservoir-wide in tributaries and in embayments. Algal growth would increase to problem levels in some tributary embayments.	Same as Alternative A	Changes to aquatic communities would occur in embayments. Algal growth would increase to problem levels in some tributary embayments.	Changes to aquatic communities would occur in tributary embayments.	Same as Alternative C1	Same as Alternative C1	Same as Alternative C1
Potential for additional reservoir sites not meeting state water quality criteria for recreation due to bacterial contamination	Greatest potential for additional sites not meeting state water quality criteria for recreation	Same as Alternative A	Lowest potential for additional sites not meeting state water quality criteria for recreation	Moderate potential for additional sites not meeting state water quality criteria for recreation	Same as Alternative B2	Same as Alternative B2	Same as Alternative B2
Recreational Use of Shoreline							
Number of informal recreational opportunities lost	About 726,000 informal recreational opportunities lost	Same as Alternative A	About 269,000 informal recreational opportunities lost	About 443,000 informal recreational opportunities lost	Same as Alternative B2	Same as Alternative B2	Same as Alternative B2
Aesthetic Resources							
Water-use facility design preference scores¹	50% preferred this design.	52% preferred designs representing this alternative.	Same as Alternative B1	73% preferred this design.	Same as Alternative C1	65% preferred this design.	Same as Alternative B1
Density preference scores (87% preferred some minimum distance between docks)	No standard proposed	Same as Alternative A	Same as Alternative A	50-ft. minimum distance between docks proposed	Same as Alternative C1	100-ft. minimum distance between docks proposed	Same as Alternative C1
Amount of residential shoreline development preference scores (Recreational visitors preferred that residential shoreline development not exceed an average of 18%; property owners preferred 33%)	63% residential shoreline development possible	Same as Alternative A	38% residential shoreline development possible	48% residential shoreline development possible	Same as Alternative B2	Same as Alternative B2	Same as Alternative B2
Shoreline vegetation alterations preference scores¹	33% preferred the scene of vegetation alterations representing this alternative.	69% preferred scenes of vegetation alterations representing this alternative.	Same as Alternative B1	45% preferred the scene of vegetation alterations representing this alternative.	Same as Alternative C1	52% preferred the scene of vegetation alterations representing this alternative.	Less preferred than Alternatives B1/B2, more preferred than Alternative D
Cultural Resources							
Number of cultural sites potentially disturbed or mitigated	About 2750 cultural sites (50%) potentially could be disturbed or mitigated.	Same as Alternative A	About 1375 cultural sites (25%) potentially could be disturbed or mitigated.	About 1045 cultural sites (19%) potentially could be disturbed or mitigated.	About 935 cultural sites (17%) potentially could be disturbed or mitigated.	About 842 cultural sites (15%) potentially could be disturbed or mitigated.	About 895 cultural sites (16%) potentially could be disturbed or mitigated.
Socioeconomics							
Population	Increase of 746,000 persons	Same as Alternative A	Increase of 396,000 persons	Increase of 530,000 persons	Same as Alternative B2	Same as Alternative B2	Same as Alternative B2
Income and employment	Annual increase of \$213 million and 8500 jobs	Annual increase of \$164 million and 7200 jobs	Annual increase of \$87 million and 3900 jobs	Annual increase of \$108 million and 4900 jobs	Annual increase of \$80 million and 3700 jobs	Annual increase of \$70 million and 3400 jobs	Same as Alternative B2
Property values	Smallest increase in property values	Property values would increase more than Alternative A.	Property values would increase more than Alternative B1.	Same as Alternative B2	Property values would increase more than Alternative C1.	Property values 25% less than Alternative C2	Greatest increase in property values
Navigation							
Potential loss of navigation safety harbors and landings	Greatest potential loss of navigation safety harbors and landings	Same as Alternative A	Lowest potential loss of navigation safety harbors and landings	Moderate potential loss of navigation safety harbors and landings	Same as Alternative B2	Same as Alternative B2	Same as Alternative B2

¹Percentages do not total 100 percent because respondents were asked to rate their preference for each design/vegetation scene separately.

Differences in the impacts that the seven alternatives could have on the 13 resource issues depend upon the type and extent of management standards adopted and the amount of shoreline potentially developed. The number of permits issued by TVA for residential shoreline alterations is increasing at the rate of 6 percent per year (Section 4.2). Using this trend and reservoir-specific growth projections as a basis, TVA has estimated the maximum amount of shoreline potentially impacted by residential use Valleywide under each alternative:

- **Alternatives A and B1:** 63 percent
- **Alternative C1:** 48 percent
- **Alternatives B2, C2, D, and the Blended Alternative:** 38 percent

It should be noted, however, that these percentages represent nothing more than TVA's estimate of the upper limit or maximum amount of development that could occur across the Tennessee Valley region over SMI's 25-year planning horizon. This does not mean that buildout necessarily would occur, because these percentages are not development goals or targets of the alternatives. These upper limits were needed for analysis purposes only and were used primarily to assess the environmental impacts that the alternatives could have on each of the 13 resources.

Most cumulative impacts are expected to occur as a result of increased residential shoreline development. Over the next 25 years, it is estimated that a maximum of 1 percent of additional shoreline could be developed for recreation and 2.2 percent for industrial use. Cumulative impacts from these and other land uses (i.e., forest management and agricultural practices) are not expected to be regionally significant. However, at a reservoir level, they could be locally important.

2.10.1 Shoreline Vegetation

Shoreline development results in the removal of some shoreline vegetation and alters the structure and species composition of the remaining vegetation. These impacts result from clearing for water-use facilities, establishing lawns and other landscaping, clearing vistas through shoreline forests, and constructing access roads.

Shoreline vegetation types would change under all alternatives. The greatest changes would be in forest area within 25 feet of shoreline, which would decrease the most under **Alternatives A and B1**, followed by **Alternatives B2, C2, C1, the Blended Alternative, and Alternative D**. Total wooded area (combined forest, tree/grass, and tree/shrub types) within 25 feet of shoreline would decrease under Alternatives A and B1, remain about stable under Alternative B2, and increase under Alternatives C2/D/Blended Alternative and Alternative C1.

Under all of the alternatives, forest area and tract size of contiguous forests within one-fourth mile of the shoreline would decrease, and the presence of nonnative species would increase. Impacts to forest area within one-fourth mile of shoreline would be greatest under Alternatives A and B1 — followed by Alternatives C1, B2, and Alternatives C2/Blended Alternative — and least under Alternative D. Tract size of contiguous forests would decrease the most under Alternatives A/B1 — followed by Alternatives C1, B2, the Blended Alternative, and Alternative C2 — and the least under Alternative D. The increase in nonnative species would follow a similar pattern.

2.10.2 Wildlife

Alternative A would result in the greatest impacts to wildlife, since many species depend upon forest cover and large contiguous blocks of forest for their habitat (see Section 2.10.1). In addition to the loss of forest habitat, the increase in the amount of shoreline dominated by lawns would lead to increased populations of brown-headed cowbirds (a nest parasite), which could contribute to the decline of several songbird species. Forested shorelines connecting larger forested tracts and providing travel corridors for wildlife moving between forested tracts would be impacted the most under this alternative. The absence of these corridors could therefore cumulatively impact population densities and diversity of wildlife species within the larger forests.

Compared to Alternative A, **Alternative B1** would result in slightly fewer impacts to forest wildlife populations because of constraints on shoreline vegetation management. Impacts to wildlife from **Alternative C1** would be less than under Alternatives A and B1, but greater than those projected under **Alternative B2**. This is because forest area within one-fourth mile of the shoreline (i.e., wildlife habitat) would decrease more under Alternative C1 than under Alternative B2. The **Blended Alternative** would result in a smaller decrease of forest area within one-fourth mile of shoreline than Alternative B2. Consequently, impacts to forest wildlife populations would be less under the Blended Alternative than under Alternative B2. **Alternative C2** would result in slightly fewer impacts than the Blended Alternative, and **Alternative D** would result in the lowest level of impacts to forest wildlife populations.

Wintering waterfowl populations would also be impacted by varying degrees of residential shoreline development. Impacts would result from the increased human presence along the shorelines, effects on wetlands, and effects on wildlife refuges and management areas. Impacts would be greatest under Alternatives A/B1, followed by Alternatives B2/C1, Alternative C2, the Blended Alternative, and least under Alternative D.

Residential shoreline development would also result in increases in predatory populations, such as house cats and raccoons. Impacts from these predators on other species would occur under all alternatives and intensify with increased density of development, the number of unrestrained dogs and cats, and the availability of food sources for raccoons.

2.10.3 Endangered and Threatened Species

Because TVA would comply with the provisions of the Endangered Species Act under any of the alternatives, direct impacts to listed species would not occur. However, as shorelines were developed, the continued recovery of some listed terrestrial species (i.e., the bald eagle and mountain skullcap) could be indirectly and cumulatively impacted by the reduction of suitable, but presently unoccupied, habitat. Exactly at what point in time this might occur is uncertain. Loss of potential habitat would be greatest under **Alternatives A/B1** — followed by **Alternatives B2, C1, and C2/Blended Alternative** — and least under **Alternative D**.

2.10.4 Soils

The impact on soils from shoreland erosion is directly related to the number of miles of development and the degree to which vegetative cover is manipulated or removed. These two factors have a varying influence on the potential for soil erosion for each of the seven alternatives. The potential for shoreland soil erosion would be greatest for **Alternative A**, followed by **Alternatives B1, B2, C1, the Blended Alternative, and Alternative C2**—and lowest under **Alternative D**. Potential impacts to shoreline bank stability would follow a similar pattern, although the impacts under Alternatives C2 and the Blended Alternative would be about the same, and a slight improvement would occur under Alternative D.

2.10.5 Wetlands

Under any of the alternatives, TVA would continue to comply with Executive Order 11990 (Protection of Wetlands). Additionally, TVA takes precautions to minimize destruction, loss, or degradation of wetlands and to ensure that the natural and beneficial functions and values of wetlands are preserved and enhanced. For projects that TVA proposes to undertake itself, it would also comply with the Clean Water Act.

Alternative A would result in the greatest potential impacts on wetlands functions and values. This alternative would allow the most channel excavation, bank stabilization, vegetation clearing, and construction, which would result in direct and indirect wetlands impacts. Development of as much as 63 percent of the shoreline would affect many presently undeveloped areas where most wetlands now occur.

Alternative B1 would result in slightly fewer impacts to wetlands, since existing guidelines place some restrictions on channel excavation and clearing of vegetation. However, wetlands functions would still be compromised by the intensive development that could occur. Impacts under **Alternative B2** would be less than Alternative B1, since additional shoreland would not be opened for development.

Alternatives C1 and **C2/Blended Alternative** would lessen the scope and significance of impacts to wetlands functions and values by applying a shoreline categorization system, shoreline development standards, and materials for educating landowners about the beneficial values of shoreline wetlands. Impacts would be slightly greater under Alternative C1, since more shoreline could be opened for development. **Alternative D** would result in the lowest level of wetlands impacts because of fewer shoreline miles affected by residential shoreline development, application of a shoreline categorization system, and more protective shoreline development standards.

2.10.6 Floodplains/Flood Control

Under any of the seven alternatives, TVA would continue to apply criteria contained in Executive Order 11988 (Floodplain Management) during its review of requests resulting from increased residential shoreline development. Compliance with Executive Order 11988 should prevent an increase in flood damage and ensure that the reservoir system can be operated for flood control benefits. Also, the potential loss of flood control and/or power storage capacity resulting from sedimentation should be negligible across all alternatives. However, residential shoreline development could negatively impact natural and beneficial floodplain values. The amount of shoreland made available for development would directly relate to the level of potential impacts.

Adoption of **Alternative A** would result in the greatest potential loss of natural and beneficial floodplain values. Under **Alternative B1**, adverse impacts to these floodplain values would be less than those under Alternative A, because TVA would utilize existing permitting practices to control development. Impacts under **Alternative B2** would be somewhat less than those for Alternative B1, since additional shoreland would not be opened for development.

Under **Alternatives C1**, the **Blended Alternative, C2**, and **D**, the adverse impacts to natural and beneficial floodplain values would be significantly less than under Alternatives A, B1, and B2, because of the use of shoreline development standards and a shoreline categorization system. Impacts under the Blended Alternative would be less than under Alternative C1, because of the lower level of anticipated development. Impacts under Alternative C2 would be less than those expected under the Blended Alternative, because more stringent development standards would be implemented. Alternative D would result in the lowest potential loss of natural and beneficial floodplain values, because more protective shoreline development standards would be applied.

2.10.7 Aquatic Habitat

Direct impacts to aquatic habitat would include increased siltation as a result of removal of riparian vegetation for lawns and road construction. Aquatic habitat could also be impacted by channel excavation, clearing of the drawdown zone, use of riprap or retaining walls, and placement of docks or piers. Indirect effects to aquatic habitat would probably be minimal on both the local and regional scale. Direct and indirect impacts on aquatic habitat were estimated using the SAHI described in Section 3.11.4 and Appendix G.

In general, aquatic habitat quality declines as residential shoreline development increases and as development standards become less protective. **Alternative A** would result in the greatest decrease in adjacent aquatic habitat quality, followed by **Alternatives B1, C1, B2**, and **Alternative C2/Blended Alternative**. Due to more extensive conversion of open land to forest land, **Alternative D** would result in a small increase in aquatic habitat quality.

Responses of near-shore biological communities to various levels of impact on aquatic habitat as a result of the different SMI alternatives are difficult to predict. However, there is probably a threshold

at which additional destruction of shoreline aquatic habitat would adversely impact fish populations. The potential to reach this threshold is highest under Alternatives A and B1 and least under Alternative D. However, under Alternative C1, C2, D, or the Blended Alternative, incentives could be offered to install habitat structures which would increase aquatic habitat quality.

2.10.8 Water Quality

Specific shoreline development-related water quality concerns include nutrient enrichment leading to excessive algal growth, elevated levels of bacterial contamination, and decline in shoreline bank stability leading to erosion and siltation of aquatic habitat. For discussion of potential changes in shoreline bank stability, see Sections 1.8.4, 2.10.4, 3.8.10, and 4.6.3.

Nutrient increases (i.e., total phosphorus) would depend upon how much shoreline was developed and whether development standards were included. Nutrient phosphorus comes from industrial and commercial processes, municipal sewage, agricultural areas, urban development (i.e., lawn fertilizer), and the soil.

Alternatives A/B1, followed by **Alternative B2**, would add the most nutrient phosphorus to reservoirs and consequently would have the greatest potential for adverse impacts to aquatic communities and the suitability of reservoir waters for human use. Cumulative deterioration of embayment and near-shore water quality could result from these alternatives, and in some cases, effects could extend reservoir-wide. Substantially lower levels of nutrient additions from residential shoreline development and lesser impacts to water quality would result from **Alternatives C1/C2/D/Blended Alternative**.

Bacterial contamination, as indicated by levels of fecal coliform, can directly affect the acceptability of areas for water contact recreation such as wading, fishing, and swimming. State water quality criteria would be used in determining the suitability of reservoir areas for water contact recreation. Alternatives A and B1 would carry the greatest potential risk for additional reservoir sites not meeting state water quality criteria for recreation due to bacterial contamination. Alternative C1 would have slightly less risk than the first two alternatives in producing contaminated areas. Alternatives B2/C2/D/Blended Alternative would have the lowest potential risk.

Although numerous sources contribute to the problems, the effects of residential shoreline development on incidences of fecal coliform contamination would be predominantly local and direct for all alternatives, rather than cumulative in nature.

2.10.9 Recreational Use of Shoreline

Informal recreation includes water-use activities (bank fishing, walking the shoreline, and swimming), camping, and hunting. **Alternatives A/B1** would result in the greatest loss of informal recreation opportunities, followed by **Alternative C1**. **Alternatives B2/C2/D/Blended Alternative** would impact informal recreation the least.

Under Alternatives B2, C1, C2, D, and the Blended Alternative, 106 shoreline miles would be available for additional commercial and public recreation development. As much as 37 miles could be withdrawn from existing parks and made available for residential shoreline development under Alternatives A and B1. As a result, people who formerly used undeveloped shorelands would switch to using other undeveloped recreational areas or developed public and commercial recreational areas. This could increase the potential for crowding of these areas and conflicts between users.

2.10.10 Aesthetic Resources

Impacts to aesthetic resources were measured by analyzing preference scores obtained from the survey *Viewing Tennessee Valley Shoreline* (Appendix H). Water-use facility design, density (of docks), amount of residential shoreline development, and shoreline vegetation alterations were used as indicators.

Water-use facility designs characteristic of **Alternatives C1/C2** were most preferred, followed by those representative of **Alternative D**. **Alternatives B1/B2/Blended Alternative**, followed by **Alternative A**, were preferred less than Alternatives C1/C2 and D. (This visual survey was conducted prior to the crafting of the Blended Alternative. However, since the Blended Alternative was developed by merging and modifying standards included in the original proposed alternatives, the visual survey results can be used to make inferences about the Blended Alternative's aesthetic impacts.)

Approximately 87 percent of respondents supported a minimum distance between docks (i.e., a density standard). Alternatives A/B1/B2 do not propose a density standard. Alternatives C1/C2/Blended Alternative propose a 50-foot minimum distance between docks, and Alternative D would require 100 feet. Therefore, these alternatives would have a beneficial effect on aesthetic resources.

Overall, respondents stated that the amount of residential shoreline development should not exceed 29 percent of the total shoreline. Recreational visitors preferred that residential shoreline development not exceed an average of 18 percent, while property owners preferred 33 percent. Using this indicator, Alternatives B2/C2/D/Blended Alternative (at a 38 percent potential buildout) would, therefore, result in the lowest adverse impacts to aesthetic resources. Impacts from Alternative C1 would be somewhat higher, at 48 percent potential buildout. Alternatives A/B1 would result in the greatest visual impacts, since up to 63 percent could potentially be developed for residential purposes.

Based on survey preferences, shoreline vegetation alterations characterized by Alternatives B1/B2 would have the most beneficial aesthetic impact. This is followed by the Blended Alternative, Alternative D, and Alternatives C1/C2. Vegetation alterations characterized by Alternative A would have the least beneficial impact. Respondents were also asked if they would prefer a buffer strip along the shoreline. A buffer depth of 25 to 50 feet was most preferred. During public review of the DEIS, many comments were received both in support of and in opposition to SMZs. Vegetation management standards in the Blended Alternative were designed to address these issues.

When analyzed collectively, respondent preference results derived from the survey questions point to Alternative C2 as the option with the most acceptable impacts, followed by the Blended Alternative and Alternative D. Alternative B2 would be next, followed by Alternative C1 and Alternative B1. Alternative A would result in the greatest adverse impacts to aesthetic resources.

2.10.11 Cultural Resources

Cultural resources affected by residential shoreline development primarily include archaeological sites located along the shoreline or on adjacent shorelands. These resources are protected by the National Historic Preservation Act of 1966, as well as the Archaeological Resources Protection Act of 1979. As appropriate, archaeological surveys are conducted on a case-by-case basis in all areas potentially subject to ground-disturbing actions, such as channel excavation, shoreline development, or timber harvesting. All archaeological sites or historic structures within these areas of potential disturbance are avoided whenever possible. If resources cannot be avoided, then impacts are mitigated.

Alternatives A/B1 would allow the most development with the fewest restrictions and, consequently, would have the most soil-disturbing potential. Therefore, these alternatives would result in the greatest potential impacts to cultural resources, followed by **Alternative B2**. Standards and SMZs associated with **Alternatives C1, C2, the Blended Alternative, and Alternative D** would provide better protection of significant sites and, therefore, would result in the lowest impacts to cultural resources.

2.10.12 Socioeconomics

Residential shoreline development would result in increased population along the shoreline, increased construction and other activities related to this growth, and from rising property values. The increase in population along and near the shoreline would be greatest under **Alternatives A/B1**. The next largest increase would occur under **Alternative C1**. **Alternatives B2/C2/D/Blended Alternative** would result in the smallest increase. This increased population would be only a very small share of the Valley total and would be primarily persons who otherwise would live in the same general area.

Since the net Valleywide population impact would be small, there would be little direct impact on income and employment from shoreline residents. However, there would be increased income and employment from expenditures of owners and guests using part-time residential lots, and from construction of water-use facilities. There would also be a small loss due to a decrease in informal recreational opportunities. Employment and income impacts would be greatest under Alternative A, followed by Alternatives B1, C1, B2/Blended Alternative, C2, and D, in decreasing order.

Property values would be lower under Alternative A than under Alternative B1, due to diminished views and quality of development. Values would be higher under Alternative B2 than under Alternative B1 because less land would be available. Under Alternative C1, property values would be higher than under Alternative B1 and about the same as those projected under Alternative B2, due to quality of development and views. Under Alternative C2, they would be higher than under Alternative C1, due to scarcity of available land.

Due to diminished views, especially panoramic views, Alternative D would result in lower property values than under Alternatives C1 and C2. However, it is not clear whether this effect would result in property values lower than those projected for Alternative B1.

Under the Blended Alternative, high development standards would be maintained, and property owners would have more flexibility than under Alternatives C1, C2, and D. The availability of water-access sites would be about the same as under Alternatives C2 and D. Therefore, property values could be highest under the Blended Alternative. Impacts on property taxes and the local tax base would follow the same pattern as property values.

2.10.13 Navigation

There would be no direct impacts on commercial navigation from the construction of private water-use facilities under any of the alternatives. Section 26a review would ensure that these facilities would not encroach on the commercial navigation channel or marked recreational channels.

Increasing the number of miles of shoreline available for residential access would increase the number of residences with direct access to the reservoirs. For all alternatives, increased recreational boating, if any, associated with increased levels of residential shoreline development would not be expected to have a significant impact on commercial navigation. Any increase in collisions involving commercial tows and recreational boaters is expected to be more directly related to the volume of barge traffic, boating operation, and alcohol misuse.

Navigation safety harbors and landings are designated shoreline areas where tows can tie off without the risk of damage to private property during fog, inclement weather, flooding, equipment malfunctions, and emergencies. As a result of increasing lakefront development, TVA expects an increase in requests from backlying property owners for the use of these harbors and landings to construct water-use facilities. Overall, it is assumed that the loss of essential safety harbors and landings would decrease navigation safety on the Tennessee River. The potential loss of navigation safety harbors and landings would be greatest under **Alternatives A/B1**, followed by **Alternative C1**, and least under **Alternatives B2/C2/D/Blended Alternative**.

2.11 Implementation Strategy

TVA will implement the shoreline management policy provisions as part of its public lands management and Section 26a permitting responsibilities provided for in the TVA Act. TVA's SMI FEIS is a policy-level analysis that will be used to determine an appropriate shoreline management policy for responding to requests for docks, boathouses, bank stabilization, vegetation management, and related residential shoreline development. Once the TVA Board has made a decision about the SMI policy to be implemented, a Record of Decision will be issued. TVA would wait at least six months from the date of TVA Board action before actually implementing any new standards and/or published rules. This would provide time to complete any required rule-making procedures and to talk with the

public about the chosen policy. It would also allow additional time for existing homeowners to apply for permits under existing guidelines. After the six-month transition period, TVA would begin to apply the standards and requirements of the selected policy when reviewing permit applications for residential shoreline alterations.

Regardless of the policy implemented, TVA will complete an ongoing inventory of wetlands, endangered and threatened species, archaeological resources, and other conditions along segments of shoreline where residential access rights now exist. The inventory will identify resource development constraints and provide information for environmental reviews required for future residential shoreline alterations. In areas where sensitive resources do not exist, TVA's review of permit requests will be expedited. Where sensitive resources do exist, the inventory data will be used in making permit decisions based on the level of impacts a proposed action would have on such resources and whether mitigation would be required.

At a minimum, the inventory will include resource conditions along the 4,192 miles of shoreline (38 percent of total) where outstanding access rights presently exist. Until this shoreline inventory is complete (expected within one year of the Record of Decision), site-specific surveys will be conducted as needed within the areas that presently have access rights.

If **Alternative A, B1, or C1** is selected, shoreline in addition to the 4,192 miles could be developed. Any additional shoreline being considered for residential access would also be inventoried prior to issuance of any approvals by TVA. Under Alternatives A and B1, these surveys would be done on a case-by-case basis as permit requests were received. Additional shoreline considered for development under the maintain-and-gain public shoreline policy of the Blended Alternative would also be inventoried on a case-by-case basis. Under Alternative C1, surveys of additional areas would be done in association with the preparation of shoreline management plans for each reservoir.

If Alternative C1, **C2, D**, or the **Blended Alternative** is selected, TVA would also use the inventory data for allocating shoreline segments to one of the categories defined by the shoreline categorization system (Appendix C). This allocation process would occur as reservoir land management plans are developed. TVA would establish priorities for the preparation of reservoir land management plans, based upon factors such as known resource conditions, growth rates, and current level of residential shoreline development. The priorities would be periodically reexamined and adjusted in response to changing conditions. Although resource inventories will be completed regardless of the alternative selected, the shoreline categorization system would not be implemented if Alternative A, B1, or **B2** is adopted.

TVA's ability to effectively implement the actions described in the alternatives is subject to the availability of sufficient funds to carry out these activities. Some activities, such as production of educational materials, may require innovative funding approaches such as grants or cooperative partnerships with other agencies.

2.12 Preferred Alternative

The Blended Alternative is intended to better meet TVA's stated purpose of protecting shoreline and aquatic resources, while allowing reasonable access to the water. This alternative emphasizes conservation of sensitive resources and provides for permitting of compatible shoreline development.

TVA presented six alternatives in the DEIS for public review and comment. Alternative C1 was identified in the DEIS as TVA's preferred alternative at that time. In response to extensive public comments, the Blended Alternative was developed. TVA staff now proposes to recommend the Blended Alternative to the TVA Board as the preferred policy option.

TVA staff believes that the Blended Alternative is the most responsive alternative to the wide range of issues raised by various stakeholder groups and individuals. TVA received comments ranging from those who want no more or minimal development to those who advocate maximum flexibility for adjacent landowners to determine appropriate shoreline uses. Through the Blended Alternative, TVA is seeking to address this full spectrum of views in reasonable, fair, and practical ways.

The cornerstone of this alternative is a maintain-and-gain public shoreline policy. For those who support additional shoreline development, the Blended Alternative provides for continued residential shoreline alterations along the developed and undeveloped shorelines that are currently open by virtue of outstanding access rights. Approximately 13 percent of the shoreline Valleywide has been developed, and access rights exist on another 25 percent that is now undeveloped. Under the Blended Alternative, TVA would allow docks and other alterations along these open shorelines where sensitive resources, navigation, flood control, and power generation concerns do not exist. Therefore, additional environmentally responsible shoreline development can be expected.

The Blended Alternative would limit consideration of requests for access across shorelines where such rights do not exist to (a) projects proposed by others for exchange of access rights that result in no net loss or preferably a net gain of undeveloped public shoreline, and (b) TVA projects that support the agency's integrated resource management mission. Other than these situations, no additional residential access rights would be considered.

This approach provides flexibility for agency projects that may be initiated in the future. It also provides for development by others in additional areas where the maintain-and-gain public shoreline objectives can be met. This policy would achieve results similar to no-net-loss resource conservation programs administered by other agencies.

The maintain-and-gain policy responds to those who called for heightened protection of natural and cultural resources by placing greater emphasis on conservation. Like Alternatives C1, C2, and D, the Blended Alternative provides for an inventory of wetlands, threatened and endangered species, and cultural resources to be used with a shoreline categorization system in the preparation of individual reservoir plans.

The inventory and categorization approach are important conservation tools that would increase the protection of sensitive resources and optimize the quality of environmental reviews associated with individual permits. This information would also assist developers in planning adjacent developments that are more compatible with resource conditions and would help prospective buyers identify adjacent private land that best meets their needs.

Like Alternative D, the Blended Alternative promotes the voluntary establishment of conservation easements across flowage easement or other shoreland to protect scenic landscapes, encourage clustered development, or provide other public benefits. These easements have the proven advantage of being custom-tailored to meet site-specific resource protection needs and protect landowner interests. The Blended Alternative also promotes the use of education and incentives as important tools of effective shoreline management.

The estimated buildout level of the Blended Alternative is responsive to those participants who preferred limited shoreline development. Under the Blended Alternative, TVA estimates that up to 38 percent of the shoreline potentially could be developed Valleywide within the next 25 years. This level of development is the same for Alternatives B2, C2, and D.

The Blended Alternative responds to public comments about the importance of protecting public shorelines and keeping them available for resource conservation, public use, and other benefits. It should be noted that the greatest portion of TVA's undeveloped shorelines are currently managed for natural resource management/protection.

The standards for docks, vegetation management, erosion control, and other shoreline uses are designed to promote clean water, conserve aquatic habitat, complement reservoir aesthetics, and meet other stewardship objectives. The standards provide for a simple, flexible SMZ and other conservation measures that are consistent with national initiatives such as the Clean Water Action Plan. TVA views protection of existing vegetation on public land as a solid investment and a prudent way to avoid future riparian vegetation restoration costs.

In addition to accomplishing stewardship objectives, the standards in the Blended Alternative better reflect the needs and interests of people applying for TVA permits. In response to public comments, the standards are a reasonable blend of current permitting practices and modified proposals from

other alternatives. The standards give applicants wide latitude in designing water-use facilities; they offer options for erosion control; and they provide a framework for vegetation management that combines a modified SMZ with existing guidelines.

Many participants raised important questions about whether and to what extent their existing shoreline facilities and uses would be grand-fathered. In response to these questions and comments, the Blended Alternative includes grandfathering provisions which address issues such as mowing of established lawns, change of ownership, and other concerns.

In response to those who called for elimination of the performance deposit, structure registration fee, and vegetation management fee, these proposals have been withdrawn by TVA. Instead of implementing these fees, the agency would continue to mobilize volunteers for shoreline cleanup, seek voluntary compliance for removal of dilapidated structures, and explore other cost-effective ways to improve shoreline conditions.

These are some of the ways the Blended Alternative responds to public issues. For these reasons, TVA staff prefers it over other alternatives. Additional information about how this alternative addresses issues raised by the public can be found in Volume II of the FEIS.