

Executive Summary

The U.S. Department of Transportation Federal Transit Administration (FTA) and the City and County of Honolulu Department of Transportation Services Rapid Transit Division (RTD) are considering a project that would provide high-capacity transit service on the Island of O‘ahu.

The study corridor extends from Kapolei in the west (the Wai‘anae or ‘Ewa direction) to the University of Hawai‘i at Mānoa (UH Mānoa) in the east (the Koko Head direction). It is confined by the Wai‘anae and Ko‘olau Mountain Ranges in the mauka direction (toward the mountains, generally to the north within the study corridor) and the Pacific Ocean in the makai direction (toward the sea, generally to the south within the study corridor) (Figure S-1). This corridor includes the majority of housing and employment on O‘ahu. Its east-west length is approximately 23 miles, and between Pearl City and ‘Aiea its width is less than one mile between Pearl Harbor and the base of the Ko‘olau Mountains.

Purpose of and Need for Transportation Improvements

The purpose of the Honolulu High-Capacity Transit Corridor Project is to provide high-capacity rapid transit in the highly congested east-west transportation corridor between Kapolei and UH Mānoa, as specified in the *O‘ahu Regional Transportation Plan 2030* (ORTP) (O‘ahuMPO 2007). The Project is intended to provide faster, more reliable public transportation service than can be achieved with buses operating in congested mixed-flow traffic. It would provide reliable mobility in areas of the corridor where people of limited income and an aging population live and would serve rapidly developing areas of the corridor. The Project would also provide additional transit capacity and an alternative to private automobile travel, as well as improve transit links within the corridor. In conjunction with other improvements included in the ORTP, the Project would help moderate anticipated traffic congestion in the corridor. It also supports the goals of the *City and County of Honolulu General Plan* (DPP 2002a) and the ORTP by serving areas designated for urban growth.

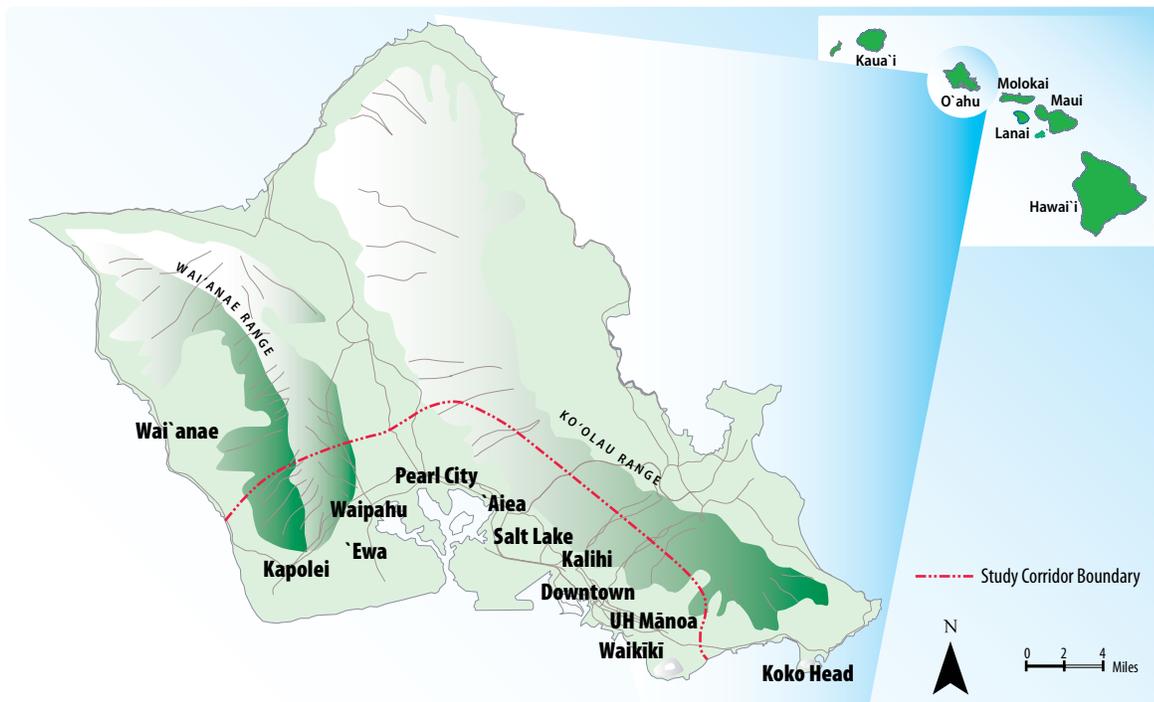


Figure S-1 Honolulu High-Capacity Transit Corridor Project Vicinity

The project would improve mobility for travelers who face increasingly severe traffic congestion, improve transportation system reliability, provide accessibility to new development in the ‘Ewa-Kapolei-Makakilo area in support of the City’s policy to develop this as a “second city,” and improve transportation equity for all travelers.

Alternatives Considered

Prior to completing this Draft Environmental Impact Statement (EIS), alternatives were evaluated at three stages. First, a broad range of alternatives was considered and screened to four alternatives for evaluation in the Alternatives Analysis. Second, the *Honolulu High-Capacity Transit Corridor Project Alternatives Analysis Report* (DTS 2006b) recommended (and the City Council selected) the Fixed Guideway Alternative as the Locally Preferred Alternative. Third, scoping for the National Environmental Policy Act (NEPA) process confirmed that no alternatives that had not been previously studied and eliminated for good cause

would satisfy the Purpose and Need at less cost, with greater effectiveness, or with less environmental or community impact.

During the fall of 2005 and winter of 2006, the City and County of Honolulu (City) conducted an alternatives screening. This is documented in the *Honolulu High-Capacity Transit Corridor Project Alternatives Screening Memorandum* (DTS 2006a).

Scoping is an open process involving the public and other Federal, state, and local agencies to identify the important issues for consideration in the EIS process.

The alternatives were screened through a series of steps, including gathering data, creating a comprehensive list of potential alternatives, developing screening criteria, and presenting viable alternatives to the public and interested public agencies

and officials for comment during the Hawai‘i Revised Statutes (HRS) Chapter 343 (the State of Hawai‘i’s environmental impact statement law) preparation notice comment period and the Alternatives Analysis scoping process. Lastly, input from the scoping process was analyzed, and the alternatives were refined based on this input.

Once this evaluation was complete, the modal, technology, and alignment options were combined to create the following alternatives, which were evaluated in the Alternatives Analysis Report:

- **No Build Alternative**
- **Transportation System Management Alternative**
- **Managed Lane Alternative**
 - Two-Direction Option
 - Reversible Option
- **Fixed Guideway Alternative**
 - Kalaeloa-Salt Lake-North King-Hotel Option
 - Kamokila-Airport-Dillingham Option
 - Kalaeloa-Airport-Dillingham-Halekauwila Option

Chapter 2 of the Alternatives Analysis Report describes these alternatives in detail, and Chapter 6 of that report compares them. After review of the Alternatives Analysis Report and consideration of public comments, the City Council selected a Locally Preferred Alternative that was signed into law by the Mayor, becoming Ordinance 07-001. This ordinance authorized the City to proceed with planning and engineering of a fixed guideway project from Kapolei to UH Mānoa with an extension to Waikīkī. The City Council also passed Resolution 07-039, which directed the first construction project to be fiscally constrained to anticipated funding sources and to extend from East Kapolei to Ala Moana Center via Salt Lake Boulevard.

During the NEPA scoping process, several scoping comments were received requesting

reconsideration of the Managed Lane Alternative. This was considered and rejected during the Alternatives Analysis process. Because no new information was provided that would have substantially changed the findings of the Alternatives Analysis process regarding the Managed Lane Alternative, this alternative is not included in this Draft EIS.

In addition to suggestions to reconsider previously eliminated alternatives, three separate proposals were received and documented in the *Honolulu High-Capacity Transit Corridor Project National Environmental Policy Act Scoping Report* (DTS 2007). One proposal was to provide additional bus service with either school buses or private vehicles. The second was for a High-Speed Bus Alternative to include aspects of the Fixed Guideway Alternative and the Managed Lane Alternative (which was eliminated during the Alternatives Analysis process). These proposals were similar to alternatives that had already been considered and eliminated during the Alternatives Analysis process. Therefore, they are not considered in this Draft EIS. The third proposal was for an additional fixed guideway alternative serving the Honolulu International Airport. This alternative is included in this Draft EIS.

During the scoping process, comments were requested on five transit technologies. The comments received did not substantially differentiate any of the following five considered technologies as being universally preferable to the other technologies:

- Light-rail transit
- Rapid-rail transit
- Rubber-tired guided vehicles
- Magnetic levitation system
- Monorail system

Subsequent to the scoping process, a technical review process that included opportunities for public comment was used to select a transit technology. This process included a broad request

for information publicized to the transit industry. Transit vehicle manufacturers submitted 12 responses detailing the features of these different vehicle technologies. The responses were reviewed in February 2008 by a selection panel that ranked the performance, cost, and reliability of the proposed technologies and accepted public comment on the technology selection. The panel's findings are summarized in its report to the City Council dated February 22, 2008. The panel's report resulted in the City establishing steel wheel operating on steel rail as the technology for the Build Alternatives evaluated in this Draft EIS. This eliminated the other technologies from further consideration.

The alternatives evaluated in this Draft EIS are the result of this process of developing alternatives and reflect comments received during the scoping process. This information is summarized in the *Honolulu High-Capacity Transit Corridor Project National Environmental Policy Act Scoping Report* (DTS 2007).

The following four alternatives are evaluated in this Draft EIS. They were developed to comply with the Locally Preferred Alternative adopted by the City Council and to address the public and agency comments received during the comment period for the HRS 343 preparation notice for this project and the NEPA scoping process:

- No Build Alternative
- Fixed Guideway Transit Alternative via Salt Lake Boulevard (Salt Lake Alternative)
- Fixed Guideway Transit Alternative via the Airport (Airport Alternative)
- Fixed Guideway Transit Alternative via the Airport and Salt Lake (Airport & Salt Lake Alternative)

The No Build Alternative is included in this Draft EIS to provide a comparison of what future conditions would be if none of the Build Alternatives were implemented. This alternative includes

completion of the committed transportation projects identified in the O'ahu Metropolitan Planning Organization (O'ahuMPO) ORTP.

The Build Alternatives would provide a fixed guideway transit system from East Kapolei to Ala Moana Center (the Project). Planned extensions are anticipated to West Kapolei, UH Mānoa, and Waikiki. The Locally Preferred Alternative selected by the City Council includes the Project and the planned extensions. Detailed plans of the Project are included in Appendix A. The system would use steel-wheel-on-steel-rail technology and could be either automated or employ drivers. All parts of the system would either be elevated or in exclusive right-of-way. The guideway would follow the same alignment for all Build Alternatives through most of the study corridor, except between Aloha Stadium and Kalihi.

In addition to the guideway, the Project would require construction of transit stations and supporting facilities. Supporting facilities would include a vehicle maintenance and storage facility, transit centers, park-and-ride lots, and traction power substations. The maintenance and storage facility would be located either in Ho'opili near Farrington Highway between North-South Road and Fort Weaver Road or near Leeward Community College.

Some bus service would be reconfigured to bring riders on local buses to nearby fixed guideway transit stations. To support this system, the bus fleet would be increased. All Build Alternatives assume completion of the committed transportation projects identified in the ORTP.

Geographic areas of effect are typically discussed in four categories:

- **Project Region**—the entire Island of O'ahu
- **Study Corridor**—the southern coast of O'ahu where the Project would be located
- **Project Station Area**—all areas within one-half mile of a proposed project station

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- **Project Alignment**—the fixed guideway’s proposed route and properties adjacent to the alignment

Transportation

Existing and future (planning horizon year 2030) transportation system conditions, service characteristics, performance, and transportation effects for each of the alternatives (including the No Build Alternative) were evaluated. This evaluation was organized into four sections:

- Existing (2007) conditions and performance
- Future (2030) No Build conditions and performance, with comparisons made to existing conditions
- Future (2030) Build Alternatives conditions and performance, with comparisons made to 2030 No Build conditions
- Construction-related effects

The existing transportation network (streets, highways, parking, bicycle and pedestrian network, and public transportation) was evaluated. Current transit service in the corridor is heavily used, resulting in bus service productivity that is among the highest in the U.S. Congestion-related delays occur on roadways within the study corridor. This includes peak a.m. and p.m. congestion, especially in the peak direction (i.e., toward Downtown in the morning) and on existing HOV lanes.

These congestion-related delays increase travel times for the entire network; and increasing congestion and constrained operating conditions for public transit services have led to transportation conditions that are becoming less reliable. Although the bus system’s productivity exceeds several systems that operate in larger metropolitan areas, gradually slower speeds, increased costs, and reduced service reliability have resulted from buses operating in mixed traffic. Even with the \$3 billion in planned roadway improvements outlined in the ORTP, congestion will increase,

making it more difficult for bus transit to effectively serve the population.

Under the No Build Alternative, transit service would experience somewhat slower operating speeds and reduced reliability through the 2030 horizon year.

Under the Build Alternatives, overall transit speeds would increase, which would reduce travel times and improve operating efficiency as a result of the fixed guideway system. The Build Alternatives would reduce travel time to major activity centers, such as Downtown and Ala Moana Center. For example, transit travel times from Kapolei to Ala Moana Center in the a.m. peak would be 105 minutes in 2030 with the No Build Alternative and between 57 and 59 minutes with the Build Alternatives. Trips to and from Central O’ahu and Waikiki, while not directly served by the Project, also would benefit from reduced transit travel times.

Transit service would be improved through local bus routes and pedestrian and bicycle access to guideway stations, resulting in an increased transit share of total trips (particularly for work-related trips). A fixed guideway system would also improve transit equity by reducing travel times for transit-dependent populations to major employment areas. Total congestion would be reduced by 21 to 23 percent with the Build Alternatives.

With the Build Alternatives, the fixed guideway would affect existing streets, parking capacity, and pedestrian and bicycles facilities. Potential effects of the Project could include reduced travel lane widths, parking, bike lanes, and sidewalks. Careful design and placement of guideway columns would minimize these potential effects. The Build Alternatives would also have temporary effects on the transportation system, and mitigation would include a Maintenance of Traffic Plan and Transit Mitigation Plan.

Environmental Analysis, Consequences, and Mitigation

The study corridor's environmental aspects were analyzed, including existing conditions, future consequences, and required mitigation. All aspects of the natural and social environment were evaluated per NEPA and HRS 343 regulations. All probable adverse environmental effects and proposed mitigation measures are further summarized in Table 4-1 of this Draft EIS.

Displacements and Relocations

Property acquisition ranging from 179 to 205 parcels would be required. The Project would require 34 or 35 full acquisitions, depending on the alternative selected. Partial acquisitions would range from 145 to 170 parcels. A partial acquisition could represent a portion of a parcel, possibly involving a structure or other facilities. However, for properties that would be partially acquired, existing land uses would not change.

Full acquisition of land used for residential and commercial purposes would result in displacements and relocations. Displaced residents would need to purchase or rent new dwellings. Displaced businesses would need to purchase or lease new commercial/industrial space, and the location where employees would work would change.

Depending on the alternative selected, 20 residences, 1 church, and between 62 and 67 businesses would be relocated by the Project. Acquisition of property for the Build Alternatives would be conducted in accordance with Federal and State regulations and procedures outlined in the *Real Estate Acquisition Management Plan* (RTD 2008q). Where relocations would occur, affected property owners, businesses, or residents would receive compensation in compliance with all applicable Federal and State laws. Compensation would be in accordance with the Federal Uniform Relocation Assistance and Real Property Acquisition Policies Act (CFR 1989).

Visual and Aesthetics

Visually sensitive resources in the study corridor include landmarks, significant views and vistas, historic and cultural sites, and Exceptional Trees. These resources are important because of their scenic quality, scale, and prominence within the visual environment.

The Project's potential visual effects include removing trees, altering 'Ewa-Koko Head and mauka-makai views, affecting light and shadow effects, and introducing project components that are out of scale or character with their setting.

Mitigation measures would focus on preserving visual resources and enhancing the project design to comply with applicable policies. The following measures would be included with the Project to minimize negative visual effects and enhance the visual and aesthetic opportunities that it creates:

- Develop and apply a Design Language Pattern Guidebook to establish a consistent design framework for the Project with consideration of local context
- Retain existing trees where practical and provide new vegetation
- Shield exterior lighting
- Coordinate the project design with transit-oriented development planning
- Consult with the public and local design community regarding design theme

Noise and Vibration

Noise impacts from the Project were evaluated using criteria established by the FTA, which are based on community reaction to environmental noise exposure (FTA 2006b).

Noise levels were measured at locations along the Build Alternative alignments and near proposed station locations to establish the most sensitive existing environment (i.e., existing baseline noise levels). This was done by performing a series of measurements at representative locations. All

noise measurements were made in accordance with American National Standards Institute procedures for community noise measurements.

Noise measurements were taken at ground-level and elevated noise-sensitive locations along the study corridor. Moderate noise impacts are anticipated at between 18 and 23 residential buildings, depending on the alternative selected. Potential noise effects from transit park-and-ride lots and maintenance and storage facility operations were also evaluated.

A solid parapet wall and vehicle wheel skirts would be included in the Project design to reduce noise levels. In areas with high-rise apartments and hotels that have lanais above the elevation of and facing the rail, this wall and the wheel skirts would have some benefit (between a 2- and 5-dBA noise reduction) at floors above the level of the guideway. Additional mitigation measures to reduce noise levels above the track elevation will be evaluated during preliminary engineering of the Project.

The Project would not create vibration effects, so no mitigation is proposed.

Hazardous Materials

A number of sites within the study corridor were identified as potential sites of concern for hazardous materials. In some locations, large or specialized hazardous waste or hazardous materials sites may be affected by right-of-way acquisition. These include underground and aboveground storage tanks (USTs and ASTs), fuel islands, and engineered storage facilities. In a few cases, the Project may displace hazardous materials operations. This includes relocating gas station fuel islands and USTs and ASTs. Environmental Site Assessments would be conducted for potentially contaminated sites, and remediation would be completed where needed.

Water Resources

Although floodplains and surface and marine waters are found at various sections of the study corridor, mitigation to control stormwater quality and quantity using permanent best management practices (BMPs) would promote a natural, low-maintenance, sustainable approach where possible. An integral part of all permanent BMPs is implementing an Inspection and Maintenance Plan to ensure that BMPs operate as designed. As part of the permitting process, written plans would be prepared to establish good housekeeping practices that would help prevent stormwater pollution.

Where the guideway would cross floodplains, the columns supporting the guideway and stations would be designed to withstand flooding, as necessary. Facilities in floodplains at ground level (e.g., stairs and elevators) would be designed to function and remain safe during flooding. Traction power substations would be placed outside of floodplains. Hydraulic studies for specific locations where the Project would cross floodplains would be performed during project design. If hydraulic studies reveal that piers in the floodway would raise base flood elevations, these increases may be avoided by the design. In particular, the Pearl Highlands parking structure would be designed to allow floodwaters to pass unimpeded.

Street Trees

Coordination regarding street trees has been initiated with the City Department of Parks and Recreation Division of Urban Forestry and community groups such as the Outdoor Circle and Sierra Club. This has resulted in identifying Exceptional Trees along the project alignment. Coordination will be ongoing as the Project progresses.

The Build Alternatives would require tree pruning and removal. Tree removal would be minimized to the greatest extent possible, but if a street tree is close to the guideway, it would likely require periodic pruning, if not removal.

Effects on street trees would be mitigated by transplanting existing trees or planting new ones. Most of the trees along Farrington Highway that would be affected could be transplanted.

Archaeological, Cultural, and Historic Resources

Under the National Historic Preservation Act (NHPA) (USC 1966a), Section 106 requires Federal agencies to consider the effects of their actions on historic properties. This includes archaeological and traditional cultural properties, which are the beliefs, customs, and practices of a living community of people that have been passed down through the generations. Hawai‘i’s historic preservation review legislation (HAR 2002) includes similar requirements.

Known and potential historic resources were identified and evaluated, and the Project’s effects on them were determined. Properties within the Area of Potential Effect (APE) were identified as those with construction dates before 1969. Field observations were made and photographs were taken of these properties.

Archaeological resources already documented within the study corridor include remnants of fishponds, human burials, subsurface layers related to traditional Native Hawaiian occupation, historic building and structure foundations, and historic trash pits and privies. Because of the level of existing development along the study corridor, many of these resources have been destroyed or altered beyond repair.

The analysis of cultural resources was based on compliance requirements for NEPA, NHPA Section 106, and Act 50 (HHB 2000), as it amends the State of Hawai‘i EIS law (HRS 343) to include “effects on the cultural practices of the community and State.”

The APE contains 84 historic resources (individual or districts). Up to 61 of the resources could be

affected by the Project. Potential long-term effects on these resources include permanent modification (e.g., moving, damage, or destruction). The permanent destruction of sub-surface resources, including filled fishponds, filled/covered terraces, enclosures, shrines, and ‘auwai (irrigation ditch system) is another potential long-term impact. Full and partial acquisitions would occur from parcels that contain historic resources.

Because archaeological resources could be affected during construction, appropriate mitigation measures are discussed in the following Construction Effects section. Where cultural resources remain or may be discovered, all effort would be made to avoid destruction. A plan for restoration and care would be made for each existing cultural site. Mitigation measures for historic resources are being developed in consultation with the State Historic Preservation Division. The current project design avoids affecting historic resources wherever possible.

Construction Effects

Construction effects would be temporary and limited in area as construction proceeds along the project alignment. These effects would vary depending on the land use in each sub-area. Construction-related effects would primarily result during construction of the main structural components: the foundations and columns, superstructure (the elevated guideway structure), and stations. Construction of other system components, such as traction power substations, would also have associated effects, but to a lesser degree. Construction activities at the maintenance and storage facility, park-and-ride lots, transit centers, and staging and support facilities would result in effects that are localized to the vicinity of those facilities.

During construction, access to businesses near construction activities could be affected. Mitigation would be implemented to reduce adverse

economic hardships on existing businesses along the project alignment during construction.

The construction contractors would implement a project-specific Safety and Security Management Plan to mitigate effects on community services, such as fire prevention and emergency preparedness and response. This plan would also protect the general public, private property, and workers from construction risks.

During construction, visual quality may be altered for all viewer groups. Construction-related signage and heavy equipment would be visible at and near construction sites. Mature vegetation, including trees, may be removed from some areas or pruned to accommodate construction of the guideway, stations, and park-and-ride lots. This would degrade or partially obstruct views or vistas.

Noise during construction would be bothersome and annoying to nearby residents, visitors, and businesses. All of the Build Alternatives would generate similar types of noise, which would occur intermittently in different locations throughout the construction period.

Common sources of vibration during construction activities include jackhammers, pavement breakers, hoe rams, bulldozers, and backhoes. Pavement breaking and soil compaction would likely produce the highest levels of vibration. Depending on soil conditions in a given sub-area, activities such as pile driving can generate enough vibration to result in substantial short-term noise impacts.

Various mitigation methods may be utilized to minimize noise and vibration impacts during construction.

Section 4(f)

Section 4(f) of the U.S. Department of Transportation Act of 1966 (USC 1966b) protects public parklands, recreational lands, wildlife refuges,

and historic sites of National, State, or Local significance from acquisition and conversion to transportation use. Because avoiding Section 4(f) resources was an important consideration, most public parks, recreational resources, and historic properties identified within the study corridor were avoided in designing the Build Alternatives. However, the Project would result in the direct use of between seven and eight Section 4(f) resources. The Project would result in *de minimis* (of minimum importance) impacts on between six and seven Section 4(f) resources. No temporary or constructive use would occur.

Cost and Financial Analysis

The capital cost of the Build Alternatives, in fiscal year 2008 dollars, would range from \$3.9 billion for the Salt Lake Alternative to \$4.8 billion for the Airport & Salt Lake Alternative. The capital cost for the Airport Alternative is estimated to be about \$200 million higher than the Salt Lake Alternative.

The local funding source for the Project is a dedicated 0.5-percent surcharge on the State of Hawai'i's General Excise and Use Tax (GET). This GET surcharge revenue is to be exclusively used for the Project's capital and/or operating expenditures and is expected to generate \$4.1 billion (year-of-expenditure dollars) through 2022. The FTA has agreed to consider \$1.2 billion (year-of-expenditure dollars) for the Federal contribution to the Project from the New Starts program.

The City receives Federal assistance through various funding programs from the FTA for ongoing capital investments to maintain and overhaul its transportation system. The financial analysis performed assumes the City will continue to receive these funds, some of which would increase noticeably after implementation of the Project.

Comments and Coordination

Agencies, non-governmental groups, and the public have been engaged throughout the project

planning process, as required by Federal and State law. Public involvement efforts, including agency coordination and consultation, have been continuous throughout the Project, beginning with the Alternatives Analysis phase in December 2005. In accordance with Executive Order 12898, particular attention has been paid to reaching low-income and minority populations, which are traditionally underserved and underrepresented in the public involvement process.

Public involvement in the form of opportunities for comment and information sharing will continue through the remainder of the Project. The public involvement effort will continue to make use of existing citizen groups, neighborhood boards, and a wide variety of community organizations to inform the public and allow for community input into the project process.

Consultation with the State Historic Preservation Division and other Section 106 consulting parties has been on-going and will continue.

As part of the NEPA and Chapter 343 process, the Draft EIS is being circulated for a 45-day review and comment period. A formal public hearing will also be held during this period. The hearing's purpose is to give interested parties an opportunity to formally submit comments on the Project and the analysis contained in the Draft EIS. Attendance at the hearings is not required to submit comments.