

# Union Station to Oak Cliff Dallas Streetcar Dallas, Texas

Environmental Assessment

May 2011

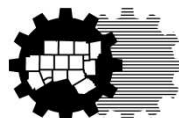


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## **INTRODUCTION**

### **FOR WHAT PURPOSE HAS THIS DOCUMENT BEEN PREPARED?**

Many federally-funded projects, such as the one proposed within, must be reviewed under a number of environmental statutes, regulations, and executive orders. This environmental assessment (EA), prepared pursuant to the National Environmental Policy Act (NEPA) implementing regulations (40 CFR Parts 1500–1508) and the NEPA implementing procedures of the Federal Transit Administration (FTA) (23 CFR Part 771), briefly discusses (1) the need for the proposal, (2) alternatives to the proposal as required by §102(2)(E), (3) the environmental impacts of the proposed action and alternatives, and (4) list of agencies and persons consulted (40 CFR §1508.9).

In December 2010, FTA awarded a \$23 million Transportation Investment Generating Economic Recovery (TIGER) grant award to support a streetcar project within the City of Dallas, Texas. TIGER is a component of the American Recovery and Reinvestment Act of 2009. This project is consistent with the North Central Texas Council Government's (NCTCOG) *Mobility 2030: The Metropolitan Transportation Plan for the Dallas-Fort Worth Area, 2009 Amendment* and *Mobility 2035: The Metropolitan Transportation Plan for North Central Texas*.

### **WHO IS THE PROJECT SPONSOR?**

The FTA is lead agency for the proposed action – the Union Station to Oak Cliff Streetcar TIGER Project. As the grant recipient, the NCTCOG is the project sponsor and current owner. Upon completion of the proposed action, ownership would be transferred to the City of Dallas. To facilitate implementation, the City has entered into an agreement with Dallas Area Rapid Transit (DART) to build, manage and operate the streetcar system.

### **WILL THE PUBLIC HAVE AN OPPORTUNITY TO COMMENT ON THE ENVIRONMENTAL ASSESSMENT?**

The environmental assessment has been made available to the public through a notice published in the local newspapers of general circulation. Additional bilingual outreach methods are being utilized to ensure full and fair access to public involvement. Written comments on the environmental assessment will be accepted for a 30-day time period from May 23 through June 22, 2011. A public information meeting is scheduled for Monday, June 6, 2011 (7:00 pm) at the Hitt Auditorium of the Methodist Dallas Medical Center. The address to which written comments should be sent is 1500 Marilla Street, Room L1BS, Dallas, Texas 75201 or keith.manoy@dallascityhall.com. For further information contact Keith Manoy, Program Manager at 214-670-4038. A summary of public involvement activities can be found in **Appendix F, Public Involvement**.

### **WHAT HAPPENS AFTER THE CLOSE OF THE COMMENT PERIOD?**

Following the close of the comment period FTA and the proposal's sponsor will thoroughly consider all comments submitted. Based on information contained in the environmental assessment and the comments that have been submitted, FTA will determine whether environmental effects are sufficiently substantial to warrant preparation of an environmental impact statement or no further environmental process is required. A finding to this effect will be made available to all who commented on the environmental assessment and to the public generally.

## NEED FOR THE PROPOSED ACTION

### WHAT IS THE PROPOSED ACTION?

The Union Station to Oak Cliff Streetcar Tiger Project is located within the City of Dallas, Dallas County, Texas. The proposed action would provide connectivity between the Methodist Dallas Medical Center (medical center), Oak Cliff neighborhood, and Union Station in downtown Dallas – a major hub for access to system-wide multi-modal facilities.

The proposed action consists of an approximately 1.6-mile streetcar alignment operating on an at-grade track in a dedicated, bi-directional streetcar lane. From Union Station over the Houston Street Viaduct, track placement would be located in the outside southbound travel lane. South of the Trinity River the track alignment would transition to Zang Boulevard and extend along the median of the roadway. At the Colorado Boulevard intersection the track alignment would shift and extend to the westbound travel lane along Colorado Boulevard, terminating at the Colorado Boulevard and Beckley Avenue intersection. There are a total of four proposed stops, all located within the roadway right-of-way. The streetcar stop infrastructure would be minimal, resembling bus stops with signage and would include platforms level with the streetcar vehicle to facilitate boarding and alighting.

An alternative propulsion streetcar vehicle is proposed with modes for both electric contact (overhead wire) operation and alternative propulsion (battery-powered or super-capacitor) options. The operational parameters of the proposed action justify the need for one vehicle and one support vehicle. To support the function of the alternative propulsion streetcar vehicle, up to two traction power substations would be located on city-owned property in proximity to the alignment.

To maintain and store the streetcar vehicles, access to DART's Central Rail Operating Facility (CROF) located east of downtown is critical. A non-revenue connection is proposed near Union Station, west of the streetcar mainline to the existing light rail tracks beneath the Houston Street Viaduct.

**Appendix A** outlines the project development process and details the decisions that define the proposed action. **Appendix C** provides technical memoranda that support the proposed action's design considerations, including **C-1: Operations Analysis of the Proposed Action, C-2: Potential for Wireless Streetcar Operations, C-3: Non-revenue Connection to DART LRT, and C-4: Traction Power Substation Location Analysis. Appendix G** (under separate cover) contains the engineering plan set reflecting the proposed interim (single-track) condition on the Houston Street Viaduct and Zang Boulevard.

### WHAT IS THE NEED FOR THE PROPOSED ACTION?

The need of the Union Station to Oak Cliff Streetcar TIGER Project is to augment the transit alternatives to meet existing and future demand placed on the transportation network and to improve the quality of life for the future population. The proposed action would implement initial streetcar service to downtown Dallas and achieve the following outcomes:

- Critical rail crossing of the Trinity River – The North Oak Cliff neighborhood is separated from the downtown core by the Trinity River. A new rail crossing on the Houston Street Viaduct would provide the most direct connection.

- Connectivity to Union Station – Union Station serves as a regional multimodal transportation hub. Direct access to this hub would improve regional connectivity/transit efficiency, thus improving access for residents to regional employment, educational and entertainment centers.
- Economic Development – The North Oak Cliff neighborhood is an established area of the City of Dallas with great potential for redevelopment due to the proximity to downtown and other large employment centers and entertainment venues. Investment in streetcar service would not only enhance the transportation network, but would further enhance the attractiveness for redevelopment and could serve as catalyst for mixed use and transit oriented land uses.

## **ARE THERE ALTERNATIVES? WHAT ARE THEY?**

As shown in **Figure 1**, the proposed alignment consists of a 1.6-mile streetcar segment from Union Station in downtown Dallas, extending south and west to North Oak Cliff along Houston Street. The alignment crosses the Trinity River via the Houston Street Viaduct to Zang Boulevard and terminates near Methodist Dallas Medical Center (Colorado Boulevard/Beckley Avenue). For purposes of this document alternatives are limited to the placement of track along the Houston Street Viaduct and Zang Boulevard. These alternatives consider existing and ultimate operating conditions of the two roadways, potential impacts of the proposed action, and physical constraints of the proposed corridor.

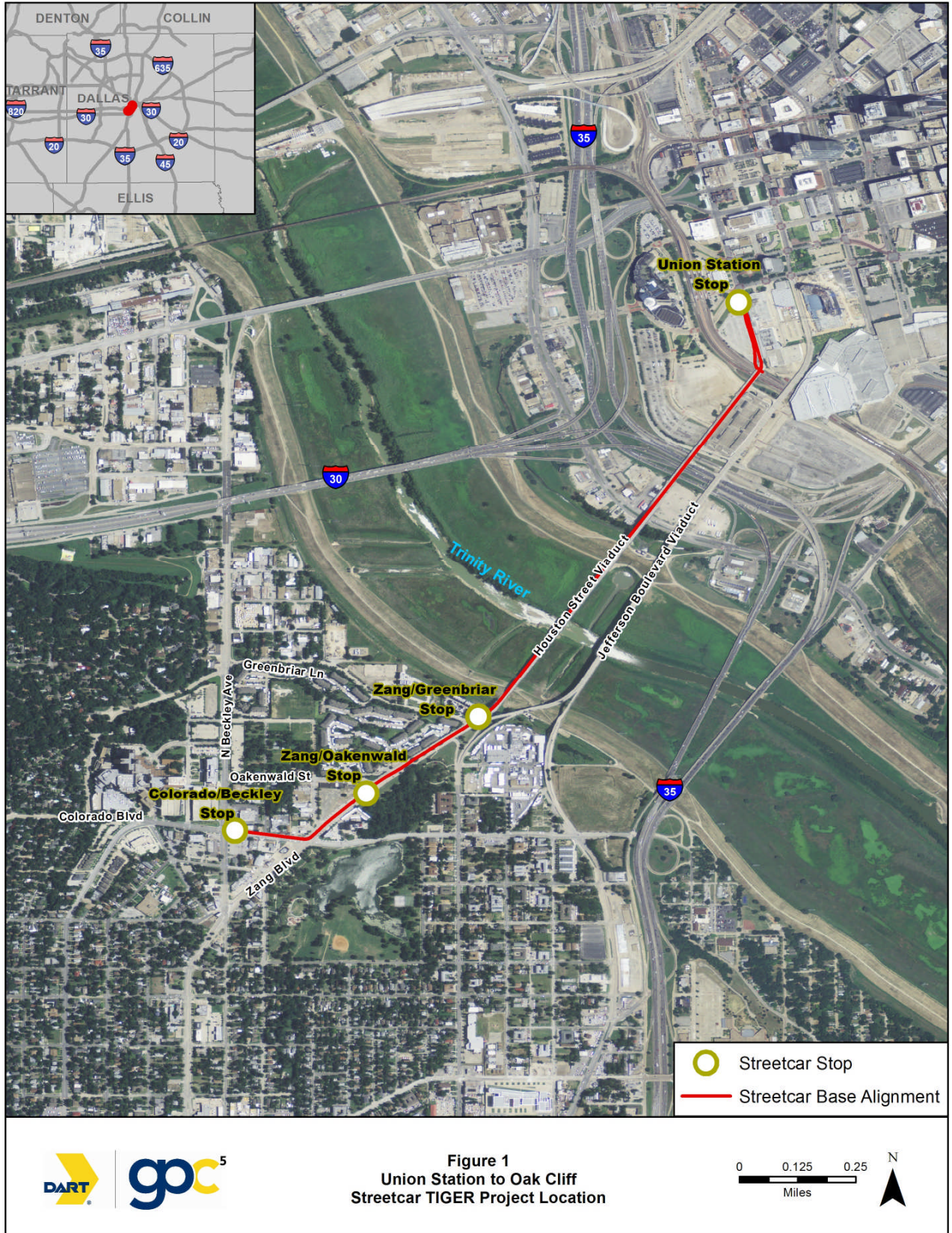
Currently, the Houston Street Viaduct is a three- to four-lane, one-way thoroughfare with four- to 12-foot sidewalks on the north and of varying width on the south side. Five alternatives for the horizontal alignment across the viaduct have been considered, including the placement of bi-directional track, expansion of sidewalks for pedestrians and bicyclists, and reduction of automobile travel lanes. Three alternative alignments were also considered on Zang Boulevard. These alternatives are illustrated and evaluated in **Appendix C-5: Alternatives Analysis - Best Lane Allocation**.

The proposed action is consistent with the scope of work in the TIGER grant, and, for the purpose of this EA, Viaduct Alternative 3 and Zang Alternative 2 terminating at Colorado/Beckley is compared to the No-Build scenario to assess impacts. Viaduct Alternative 3 is a bridge section that would include one 12-foot exclusive, bi-directional streetcar lane, two 12-foot vehicle travel lanes, and a ten-foot and four-foot sidewalk on the north and south sides, respectively. Zang Alternative 2 would include a median-running alignment extending from the end of the viaduct approach to Colorado Boulevard. The southern terminus for the proposed action would be Colorado/Beckley intersection.

As previously stated, **Appendix A** provides a detailed discussion of the alternatives considered and the basis of selection for the proposed action. The No-Build scenario includes the existing transportation network.

## **WHAT POTENTIAL IMPACTS OF THE PROPOSED ACTION HAVE BEEN EXPLORED?**

The following resource categories have been investigated and been determined to be potentially affected through implementation of the proposed action: land use, historic resources, hazardous and regulated materials (concrete/asbestos-containing materials), travel patterns and access, and social/economic impacts. These impact analyses are summarized in the next section, Environmental Consequences. **Appendix B, Figures 2a-2c** illustrate potential environmental constraints. Indirect and cumulative impacts are also discussed in this EA.



The following resource categories have been thoroughly investigated and been determined not to be substantially affected through implementation of the proposed action: visual and aesthetic resources, parkland and recreational resources, soils and geology, biological resources (vegetation, wildlife, threatened and endangered species), water resources, air quality, noise/vibration, and archaeological resources. Additional information for all resource categories may be found in **Appendix D**.

Agency Coordination letters were sent to potentially affected federal and state agencies. Additionally, in compliance with Executive Order 13175, tribal consultation was initiated by FTA. A summary of agency correspondence and anticipated future coordination has been included in **Appendix E**.

## ENVIRONMENTAL CONSEQUENCES

### WHAT ARE THE IMPACTS TO LAND USE?

The project study area for land use for the assessment of impacts included a ¼-mile corridor centered on the existing roadway centerline. Existing literature and maps were reviewed and field verified to assess existing land uses. Local land use plans were evaluated to identify any planned change in land uses.

North of the Trinity River, land uses within the project study area are consistent with the urban downtown, consisting of primarily offices, government buildings, small urban parks and plazas, and the Dallas Convention Center. Land adjacent to the Trinity River is undeveloped floodplain, and is designated as the Trinity River Greenbelt Park. South of the Trinity River in North Oak Cliff, land uses include a mixture of commercial, residential (single family and multi-family), and community uses. Community uses include schools, parks, a church, and a hospital. Implementation of the proposed action would not adversely impact neighborhood integrity and would enhance community cohesion by improving access to the urban core and the regional transportation network. Implementation of the proposed action is consistent with existing land use plans and could intensify, focus and accelerate development along the corridor. The proposed action would support current gentrification in Oak Cliff and potential reuse of the Reunion Arena site.

The streetcar track would be entirely located within existing transportation right-of-way (ROW). The Hunt-Woodbine property south of Union Station includes surface parking. The non-revenue connection to the DART LRT would permanently remove approximately 70 parking spaces from this adjacent surface parking lot; however, the spaces have encroached on public ROW and would not require replacement or compensation. Further discussion on removal of parking spaces is provided in **Appendix C-3: Non-revenue Connection to DART LRT**, and **Appendix D-1: Assessment of Land Use Impacts**. No relocations or displacements of homes or businesses would occur as a result of the proposed action.

As described in **Appendix C-4: Traction Power Substation Location Analysis**, two electric substations are anticipated for the project. Substation 1 would be located under the north abutment of the Houston Street Viaduct. Substation 2 would be located under the Jefferson Boulevard Viaduct. Both locations are within City of Dallas ROW and are less than 50 feet from the alignment; therefore, no land use conversions are anticipated with respect to substations.

Other potential land use impacts would include access to adjacent properties during construction. Land use impacts are based on preliminary engineering drawings (a five percent level of design); therefore, this analysis may not represent a complete list of all real estate to be acquired. As design progresses,

there may be refinements and additions or deletions to the proposed ROW and parcel acquisitions. The Final EA would incorporate any major changes identified as design and engineering progresses. No impacts to land use would occur from the No-Build Alternative.

## **WHAT ARE IMPACTS TO HISTORIC RESOURCES?**

In compliance with Section 106 of the National Historic Preservation Act of 1966 and Antiquities Code of Texas, archaeological and historic-age resource coordination was initiated with the Texas Historical Commission (THC) in November 2010. For further details see **Appendix D-2**. The purpose of this coordination was to identify and assess any potential impact the project would have to historic-age resources. It was recommended that no further study was needed for archaeology due to existing ground disturbance.

A representative of the State Historic Preservation Office (SHPO) reviewed and concurred with the APE map and survey methodology prepared by URS on behalf of DART on January 10, 2011. A survey of historic-age architectural and engineering resources within the Area of Potential Effect (APE) was conducted by DART in January 2011.

The Texas Historical Sites Atlas and the Texas Archaeological Site Atlas were consulted to inventory any NRHP-listed properties or previously documented sites. A total of 41 previously documented buildings, structures, objects, or state historic markers lie within or near the proposed project area. Three of these resources were listed in the National Register of Historic Places (NRHP) which includes the Houston Street Viaduct - listed in 1984, Dallas Union Terminal - listed in 1975, and Lake Cliff Historic District - listed in 1994.

Construction activities are anticipated to begin in 2011 with substantial completion expected by 2013. Historic-age resources constructed before 1961, the cut-off date of 50 years from initiation of construction, were surveyed in the APE. The Union Station to Oak Cliff Streetcar TIGER Project Historic Resources Reconnaissance Survey was submitted to the THC on January 28, 2011 for concurrence on the determination of eligibility of structures. The document stated that, in addition to the previously listed resources, Ferris Plaza (500 Block of South Young Street), Dallas Morning News (508 South Young Street), and El Fenix (120 East Colorado) were eligible for listing in the NRHP. Upon further review, it was also determined that Casita Ludi (1207 [1201] North Zang Boulevard) was eligible for listing. The THC review concurred with these determinations on February 14, 2011 and March 10, 2011.

Due to deferred maintenance, repairs would be done to restore the structural capacity and address concrete erosion of the viaduct. The repairs would not modify the historic integrity or the aesthetic quality of the viaduct. The Union Station to Oak Cliff Streetcar TIGER Project Determination of Effect was prepared and submitted to THC on April 18, 2011. A no adverse effect determination was recommended based on the following:

- The proposed action is consistent with existing transportation uses.
- Due to the utilization of an alternative vehicle propulsion system, no Overhead Contact System (OCS) would be required on the historic bridge and the approaches.
- Where OCS would be used, no adverse visual impacts would occur as the system would be similar to the existing overhead power lines.
- No adverse impacts to the historic structure would occur as a result of increased noise or vibration from the proposed streetcar operations.

On May 10, 2011, the THC concurred with this recommendation. It should be noted that a structural vibration analysis would be conducted during final design to ensure the structure would not be adversely affected by the operations of the proposed streetcar. For further details see **Appendix D-2: Assessment of Cultural Resources Impacts**.

No impacts to historic or archeological resources would occur as a result of the No-Build Alternative. As a result, the project-related rehabilitation of the Houston Street Viaduct would not occur; therefore, the long-term viability of the historic structure could be compromised.

## **WHAT ARE IMPACTS FROM HAZARDOUS AND REGULATED MATERIAL LOCATIONS?**

There are no known hazardous or regulated material sites located within the proposed alignment. However, the proposed corridor is located in an urban setting and there is the potential for activities on adjacent properties to impact the soil and/or groundwater within the proposed corridor. Therefore, facilities within an 1/8-mile of the proposed corridor that have in the past or currently either handled, transported, stored, or disposed of hazardous or regulated waste were identified and evaluated for potential impacts during construction activities associated with the proposed corridor. Results of the evaluation are listed in **Appendix D-3: Assessment of Hazardous Materials Impacts**. Two facilities were identified as medium potential to impact the proposed corridor and are shown in **Appendix B: Figure 2a-2c**. The remaining 24 sites identified were considered a low potential to impact construction activities associated with the proposed corridor.

During the detailed structural assessment of the Houston Street Viaduct, core samples revealed asbestos material located at 106 expansion joints on the viaduct. Depending on the structural rehabilitation requirements, these materials may be impacted during construction of the proposed action. If the final design identifies the need to modify the structure in a manner that impacts these materials, a remediation plan would be developed to ensure that there is no impact on human health or the environment. This remediation plan would be developed in compliance with Occupational Safety and Health Administration (OSHA) standards and requirements of the Texas Department of State Health Services.

No impacts to hazardous materials sites would occur as a result of the No-Build Alternative. No sites would be encountered during construction and cleaned up under the No-Build Alternative.

## **WHAT ARE THE CHANGES TO TRAVEL PATTERNS AND ACCESS?**

A traffic impact analysis, including level of service analysis (LOS), was conducted to determine the impacts of the proposed action. The study, included in **Appendix C-6: Roadway Capacity Analysis**, considered existing and future (2013) conditions. Six primary areas of study were identified:

- Intersection of Houston/Young
- Operations on Houston Street Viaduct
- Houston/Zang exit ramp
- Operations on Zang
- Intersection of Zang/Colorado
- Operations on Colorado

Currently, Houston Street, north of the Young Street intersection consists of a dedicated left turn lane and three southbound, one-way through lanes. The proposed condition would maintain the left turn lane at Young Street and two, one-way through lanes. The other lane south of Young Street would be converted to exclusive guideway for bi-directional streetcar.

The existing typical section of the Houston Street Viaduct maintains three, one-way through lanes with a wide sidewalk (previously used for pedestrian access from the Jefferson/Houston parking garage to the former Reunion Arena). Beyond the parking garage, the viaduct opens to four, one-way through lanes. The proposed action would modify the existing sidewalk along the entire length of the bridge. This action preserves the opportunity for future stops on the viaduct to access the proposed Trinity Greenbelt Park. The proposed action would also remove one travel lane (two south of the parking garage), leaving two southbound travel lanes and an exclusive bi-directional streetcar lane.

Currently, the four travel lanes on the viaduct split, two lanes each, onto Marsalis Avenue and Zang Boulevard. The proposed condition would maintain two lanes on the Marsalis exit and limit the Zang exit to one through lane and one right-only turn lane for Greenbriar Lane. This location would be signalized to allow the streetcar to transition from the southbound outside travel lane to the median of Zang Boulevard. To protect both the streetcar and vehicular traffic, the streetcar would receive preemption for both north and southbound movements.

The proposed action includes a right turn onto Colorado Boulevard from the protected left turn lane on Zang Boulevard. Colorado Boulevard is currently four lanes with a dedicated bi-directional turning lane for access to adjacent commercial land uses. The proposed action would exclusively use the existing westbound lane. The remaining traffic lanes would be narrowed and restriped to maintain the existing lane configuration.

The traffic impact analysis concluded that the LOS along the entire project, including the future conditions, would be maintained at acceptable operations.

The implementation of the proposed action would not affect existing bus service. The proposed streetcar would enable safe pedestrian access to sidewalks, including an improved sidewalk expansion on the Houston Street Viaduct. Viaduct Alternative 3 in the ultimate condition would be compatible with shared use lanes or a dedicated bi-directional bike lane on the Houston Street Viaduct.

In terms of operations, the proposed streetcar would run on weekdays with 20-minute AM and PM peak headways and 30-minute off-peak service between 5 am and 7 pm Monday through Friday. No Saturday or Sunday service is proposed. Travel patterns adjacent to the streetcar route would only change when the streetcar is present. No streets would be permanently closed; temporary impacts would occur during the construction phase.

The proposed action would provide the benefit of an additional transit option to residences and businesses along the route. No changes to travel pattern or access would occur as a result of the No-Build Alternative.

## **WHAT ARE THE ANTICIPATED SOCIAL AND ECONOMIC IMPACTS?**

As reflected in **Appendix D-4: Assessment of Socioeconomic Impacts**, the project study area extends ¼-mile on either side of the proposed streetcar alignment. The demographic profile for the study area was developed from 2000 census data from the United States Census Bureau (USBC). Census data were

collected for block geography (race/ethnicity) and block group geography (Limited English Proficiency, economic and transportation information) with City of Dallas and Dallas County information for reference purposes. Based on census blocks that touch the ¼-mile buffer, the 2000 population was estimated to be 5,233 people. According to NCTCOG, total population within Traffic Survey Zones (TSZs) that are within or touch the ¼-mile buffer was projected to be 12,638 persons in 2030.

Projected employment by basic, retail and service sectors is available at the TSZ level from NCTCOG. Within the project study area, employment levels are anticipated to be highest in the downtown area with an additional employment node located near Methodist Dallas Medical Center. According to NCTCOG, by 2030 total employment in the project area is estimated to reach nearly 62,000 workers.

The proposed action would enhance regional connectivity and transit access to high employment destinations throughout the region. It would provide transit access to these destinations for all populations, including those who are transit dependent

Construction of the proposed project would have direct and indirect employment impacts on the local economy. Direct impacts would result from construction labor, employment related to the production of the goods and materials for the project, and design and engineering services employment. The proposed action would also support increased residential densities. The downtown area and Oak Cliff could become a more desirable place to live due in part to the enhanced mobility provided by the proposed action.

### **Environmental Justice**

The project environmental justice analysis was completed in accordance with Executive Order 12898 and United States Department of Transportation (USDOT) Order 5610.2. Although it was determined that the project area consisted of an Environmental Justice Community of Concern in terms of minority percentages and low-income percentages, no disproportionate adverse effects would occur to these populations. No relocations or displacements would be required by the proposed project. Impacts to travel patterns and access would be temporary and no permanent changes would occur. There would be no adverse impacts to noise sensitive receptors and the proposed action would not cause or exacerbate air quality concerns. Visual impacts would not be adverse and would be similar to others that already exist throughout the DART service area.

No reduction in transit opportunities would occur; in fact, the proposed action represents an additional affordable transit option available to all persons in the project area. No disproportionate, adverse impacts are anticipated to occur to the low-income or minority communities in the project area. This project is consistent with FTA's Letter to Colleagues dated March 8, 2011 and with DART's system-wide periodic service change analysis.

### **Limited English Proficiency**

Executive Order (EO) 13166 "Improving Access to Services for Persons with Limited English Proficiency" requires agencies to examine the services they provide, identify any need for services to those with Limited English Proficiency (LEP), and develop and implement a system to provide those services so that LEP persons can have meaningful access to them. There are LEP populations in the area and the field visit revealed some business signage in Spanish.

To ensure a fair and equal opportunity to participate in the public process, Open House notices indicated that Spanish-translation services would be available upon request. Public involvement announcements were published in English and Spanish and bilingual door hangings were placed throughout the corridor to ensure that non-English speakers in the area would have access to project information. The proposed action is consistent with EO 13166.

The No-Build Alternative represents the status quo and would have no adverse or positive socioeconomic impacts.

### **HOW WILL SAFETY CONCERNS BE ADDRESSED?**

The construction and operation of the proposed project increases multi-modal traffic and the potential for conflicts with automobiles and pedestrians. Safety issues center on avoiding accidents between competing travel modes and ensuring the daily safety of transit patrons, as well as persons and automobiles that must cross the alignment. The potential safety impacts associated with the proposed action include:

- Traffic signalization – Bi-directional operation of the proposed streetcar would require modification to existing traffic signals and new traffic signal prior to the Zang Boulevard and Greenbriar Lane intersection to accommodate the shift in streetcar alignment.
- Police and fire protection, emergency response and community safety services – The proposed project is not expected to cause any impact to demand for municipal police or fire protection, emergency services, or community services. Because the streetcar alignment does not include barrier separation, access to adjacent properties would not be impeded.
- Pedestrian activity – The proposed project has the potential to impact vehicular and pedestrian safety at points where the alignment crosses streets at-grade. Installing special signage and providing designated streetcar crossings and exclusive phases at intersections can mitigate the potential for accidents involving pedestrians. In addition, audible warning devices would be used to signal the streetcar’s approach.
- Vehicle interaction – To accommodate automobile traffic, all crossing approaches would be signed with standard safety and warning signs installed to warn drivers of the streetcar’s approach especially in areas where contra-flow movements would be less intuitive for motorists. In addition, audible warning devices would be used to signal the streetcar’s approach.

Before start-up, DART would host security sessions with police, fire, schools, emergency response teams, employers, and other interested parties located within the corridor. The information sessions would cover the details of streetcar operations and potential emergency issues associated with operations.

No changes in emergency response, pedestrian activity, or vehicle interaction would occur as a result of the No-Build Alternative.

### **HOW WILL THE PROJECT BE CONSTRUCTED?**

The typical construction scenario would start with utility and storm sewer relocations, followed by construction of permanent and temporary facilities to support rerouting of vehicular traffic. Once the utilities are cleared and the permanent / temporary facilities constructed, the contractors would initiate the long duration construction items such rehabilitation of the Houston Street Viaduct. Within the

guideway, asphalt and concrete would be removed to the appropriate construction depth. Trackwork construction and street reconstruction would commence. Systems construction would follow substantial completion of trackwork installation. This would provide for the installation of traction electrification, signals, and communication elements.

Construction staging areas would be required for the storage of equipment and materials used for the construction of the project. Three potential construction staging areas have been identified: Site 1, Former Reunion Arena; Site 2, parking lot at Convention Center; and Site 3, parking lot at IH 30/IH 35 below Houston Street Viaduct. Ultimately, the location of the construction staging area(s) would be determined by the contractor. The DART General Provisions, General Requirements and Standard Specifications for Construction Projects, Section 01560 (Part 1.3 C-6 and G, Construction Facilities and Staging Areas), states that the contractor must store equipment and materials in conformance with applicable local regulations. **Appendix C-7: Proposed Off-site Construction Staging Areas** includes an assessment of potential construction staging areas.

### **WILL THERE BE ANY IMPACTS ASSOCIATED WITH CONSTRUCTION?**

Under the No-Build Alternative, construction impacts associated with proposed project would not occur. Short-term impacts and mitigation for the construction of the proposed project are documented by the following categories.

#### **Construction Noise**

Construction of the proposed project would result in the generation of noise from construction equipment. Construction noise varies greatly depending on the construction process, type and condition of equipment used and the layout of the construction site. Construction activities would be carried out in compliance with all applicable local noise regulations. DART Construction Guidelines Specifications Section 01560 Part 1.9 A-G states that construction activities must comply with the noise and vibration maximum limits set out in Tables 01560 1-3. Noise control measures that would be applied as needed to meet the noise limits include the following:

- Avoiding nighttime construction in residential neighborhoods
- Using specially quieted equipment with enclosed engines and/or high performance mufflers
- Locating stationary construction equipment as far as possible from noise sensitive sites
- Re-routing construction-related truck traffic along roadways which will cause the least disturbance to residents

#### **Disruption of Utilities**

The various utilities within the project right-of-way include electric, natural gas, telephone, water and sanitary sewer. The construction of the project would cause short-term impacts to area utilities due to line disruptions, relocations and general improvements. Contractors would be required to inform businesses and residences at least two weeks in advance of any planned utility disruptions.

The flexibility of streetcar design inherently minimizes the long-term impact on utilities. For example, the proposed action would avoid a significant impact to the 16-inch waterline in Zang Boulevard. In those cases, where it is necessary to relocate utilities, it would be done in advance of streetcar construction in order to reduce disruptions in service to residents and businesses to the fullest extent possible.

### **Air Quality Impacts from Construction**

During the construction phase, there would be short term impacts on air quality from construction activities associated with excavations, grading and filling, and other operations that disturb the soil. There are no federal, state, or local regulations concerning the generation of dust from construction activities except as a nuisance complaint; however, the DART General Provisions, General Requirements and Standard Specifications for Construction Projects, Section 01560 (Part1.8, Dust Control) provides dust control measures for construction activities. The contractor would be required to have sufficient equipment at the site to implement dust control measures. The measures should be implemented at all areas of construction at all times including non-working hours, weekends and holidays.

The proposed project would also generate a short-term increase in exhaust emissions from construction vehicles. The control of exhaust emissions emanating from construction equipment should be in accordance with EPA guidelines. To minimize exhaust emissions, contractors would be required to use emission control devices and limit the unnecessary idling of construction vehicles.

### **Access and Distribution of Traffic**

When roadway or lane closures are required during construction of the proposed project, DART and its contractors would coordinate with the traffic control division of the City of Dallas to maintain reasonable and safe traffic operations at affected crossings. All construction specifications, traffic control plans, and mitigation measures must be approved by the City prior to initiation of construction. Barricading and flag staff should be used when appropriate. Private business parking areas and driveways should not be used for equipment maneuvering or parking. Construction specifications should include provisions for a maximum number of lanes blocked during peak traffic hours, maintenance and removal of traffic control devices, efficient traffic rerouting measures, and scheduling of construction activities within the roadways for times other than during peak traffic periods.

During construction, bicyclists and pedestrians would be encouraged to use the Jefferson Viaduct, located parallel to the Houston Street Viaduct. Signage would be implemented to access Lake Cliff Park from Zang Boulevard, but activities at the park itself (and other smaller project area parks) would not be adversely affected during construction.

### **Construction Staging Areas and Historic Resources**

Construction staging areas are temporary and, from a historic resources perspective, would not adversely impact any historic resources identified within the project study area. The most significant concern would be the lifting of construction material onto the Houston Street Viaduct from below the structure as this is a common construction method. Contractors would be required to report any damage to the structure to the City of Dallas. Repairs would be coordinated with the Texas Historical Commission, as appropriate.

### **Migratory Bird Treaty Act**

The Migratory Bird Treaty Act of 1918 prohibits harm to all migratory birds, their nests, eggs, and nestlings. The Bald and Golden Eagle Protection Act further provides protection for Bald Eagles and Golden Eagles. No Bald Eagles or Golden Eagles were observed within the project study area during field investigations; however, evidence of migratory birds was observed. Cliff swallow (*Hirundo pyrrhonota*) nests were observed underneath the Houston Street Viaduct. To avoid construction related impacts, consultation with U.S. Fish and Wildlife Service may be needed depending on the anticipated extent of

disturbance to nests underneath the bridge. After USFWS consultation and the issuance of a permit, if necessary, the contractor may hire a biologist to remove all empty nests before March 2012 (prior to the active nesting season). Upon removal of old or inactive nests, the contractor should net the area beneath the bridge to deter the construction of new nests at this location. The area should be regularly monitored during the nesting season (March through August) by a professional biologist to ensure no new nesting activity occurs.

No other evidence of migratory bird nesting was observed within the project study area. It is possible that wading birds and waterfowl could utilize the Trinity River for feeding. Construction phase protections that minimize noise and dust or avoid any materials falling from the viaduct would help provide protection against harming migratory or wading birds that could be present during construction. No migratory birds, their nests, eggs, or young would be harmed by construction of the project.

Should an active nest of Cliff Swallows (*Hirundo pyrrhonota*), or any other migratory bird, be identified during construction, all construction activities on the bridge must cease until the migratory bird nest can be removed in accordance with the provisions of the Migratory Bird Treaty Act, 16 U.S.C. §§703 – 712, and its implementing regulations by the USFWS at 50 C.F.R. Part 21.

### **Water Resources and Best Management Practices**

The Trinity River and Tributary 2 pass beneath the study area (spanned by the Houston Street Viaduct). Both the river and its tributary are specified as waters of the United States (US). Adjacent emergent wetlands may occur within the levee boundaries. Based on preliminary engineering information, the proposed repairs would not involve the placement of additional permanent fill within any water of the US (no additional piers, embankment, or rock riprap). No temporary construction impacts would be anticipated due to construction techniques or activities (coffer dams, temporary access roads, work platforms, et cetera). If any of those activities are proposed by the construction contractor, the construction contractor would be responsible for obtaining authorization from the US Army Corps of Engineers under a Nationwide Permit #33 for Temporary Construction, Access, and Dewatering.

Currently, water on the bridge runs off to small drains under the sidewalk and then spills off the bridge. Short-term water quality Best Management Practices (BMPs) to be utilized during construction would include adherence to the provisions of the Stormwater Pollution Prevention Plan General Conditions; spill prevention measures and fuel containment systems at the construction site; limitation of refueling of equipment while on the bridge; on-site hazardous material containment equipment; and utilization of containment measures for pollutants or construction/demolition debris during the construction phase. Protection would be put in place to guard against additional debris falling off the bridge and into the Trinity River or its floodplain. No additional permanent water quality controls are proposed. The current project does not add impervious cover to Houston Street Viaduct.

### **WILL THERE BE PROTECTIONS AGAINST INVASIVE SPECIES?**

The project will comply with EO 13112 on Invasive Species. Sanitation and equipment cleaning practices will be required by the contractor prior to allowing any construction activity that could spread invasive species.

## WHAT ARE THE INDIRECT AND CUMULATIVE IMPACTS OF THE PROJECT?

In addition to direct effects, major transportation projects may also have indirect and cumulative effects on land use and the environment. An analysis is included in **Appendix D-5: Assessment of Indirect and Cumulative Impacts**. Encroachment-alteration effects would not be anticipated from an ecological perspective. Encroachment-alteration effects from a socioeconomic perspective would be considered positive as development of the proposed action would provide additional economic impacts. Indirect economic impacts would result from the “multiplier effect” of the direct expenditures to construct the proposed action. In addition to new jobs from construction, there would be long-term employment impacts from the additional jobs created to operate and maintain the new streetcar service. This new employment would also have a multiplier effect on the local economy resulting in additional expenditures and job creation.

Additional socioeconomic encroachment-alteration effects would include transit-oriented development consistent with study area goals and trends. Access alteration/project-influenced effects could include redevelopment along the project alignment. Adverse effects of project-influenced development would not be expected as most developable land within the ¼ mile has already been developed or is preserved as parkland.

Should induced development or land redevelopment occur, land use development regulations in the City of Dallas would govern projects in the area of influence. Indirect effects from the project – in particular, potential land use redevelopment effects including remediation of hazardous materials - are consistent with the City of Dallas’ goals and trends and would not result in substantial impacts. Therefore, no mitigation is proposed for indirect effects.

As a result of the assessment of direct and indirect effects, it was determined that most resource categories were not carried forward for cumulative effects analysis. With regard to historic structures, the NRHP-listed or eligible buildings in the project Area of Potential Effect (APE) were evaluated to determine the effects from the proposed project under the criteria of Adverse Effect. No impacts to cultural resources (historical or archaeological) are expected under the Build Alternative; therefore, this resource is not carried forward for cumulative effects analysis.

Since induced development (particularly redevelopment) may occur as a result of the proposed action, land use is assessed for cumulative effects. Within the temporal boundaries for the analysis (1978 to 2030), land uses within the resource study area are stable and improving. Land use development and redevelopment has been occurring at a steady pace, reflecting the goals and trends in the area. Past and present actions include extensive development and redevelopment of land uses given that the project area is the urban core of Dallas, Texas, with a city of approximately 1.2 million people. There are several key Reasonably Foreseeable Projects that would take place generally in the same timeframe as the proposed action’s construction. Together, these projects would result in the continued development and redevelopment of land uses as the City of Dallas moves toward the achievement of goals articulated in the Downtown Dallas 360 Plan of Transit-Oriented Development. The proposed action may influence investment in redevelopment projects, such that redevelopment may occur at a somewhat accelerated pace. Utility service and infrastructure demands may increase. From a larger perspective, the proposed action, in addition to these other reasonably foreseeable transportation projects, supports the goals of *Mobility 2030* and *Mobility 2035: The Metropolitan Transportation Plan* including congestion relief, improved safety, air quality, quality of life, enhanced economic opportunities, and streamlined project

delivery. Compact development that allows for some people to lead a transit-focused lifestyle, with shorter commutes between residences and workplaces, is ultimately a more environmentally-friendly land use development pattern than the status quo. Therefore, the proposed action, in addition to other development projects in central Dallas and North Oak Cliff in the context of existing land use development regulations and other environmental regulatory protections, would not result in substantial, adverse, cumulative impacts.

### **WHAT ENVIRONMENTAL PERMITS, COMMITMENTS, AND MITIGATION ARE REQUIRED AS A RESULT OF THE PROPOSED ACTION?**

The proposed undertaking would require environmental permits for construction. Additionally, the Environmental Assessment makes commitments on the behalf of the implementing agency, describes mitigation required where no feasible or prudent alternative to the effect exists, and documents that all reasonable steps have occurred to minimize the effect. All environmental permits, commitments, and mitigation are summarized in **Appendix H** of this document.

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